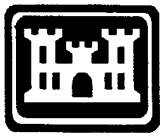
USACERL Special Report 96/89
September 1996



US Army Corps
of Engineers
Construction Engineering
Research Laboratories



Environmental Compliance Assessment and Management Program (ECAMP)

Japan ECAMP

The number of environmental laws and regulations continues to grow in the United States and worldwide, making compliance with regulations increasingly difficult. Environmental assessments became a way to evaluate compliance with current environmental regulations. The Air Force has adopted a compliance program that identifies problems before they are cited as violations by the U.S. Environmental Protection Agency (USEPA).

Beginning in 1984, the U.S. Army Construction Engineering Research Laboratories (USACERL), in cooperation with the Air Force Engineering and Services Center, began research on the Environmental Compliance Assessment and Management Program (ECAMP). The concept was to combine Federal, Department of Defense (DOD), and Air Force environmental regulations with good management practices and risk management issues into a series of checklists that show legal requirements and which specific items or operations to review. Each assessment protocol lists a point of contact to help assessors review the checklists as effectively as possible.

The Environmental Compliance Assessment and Management Program: Japan ECAMP is based on the Final Governing Standards for Japan, published by U.S. Forces-Japan in January 1995. Japan ECAMP includes pertinent information from Air Force instructions, DOD directives and instructions, and cited good management practices. The manual is updated continually to address new laws and regulations.

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The number of environmental laws and regulations continues to grow in the United States and worldwide, making compliance with regulations increasingly difficult. Environmental assessments became a way to evaluate compliance with current environmental regulations. The Air Force has adopted a compliance program that identifies problems before they are cited as violations by the U.S. Environmental Protection Agency (USEPA).

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FOREWORD

The research was performed for the Air Force Center for Environmental Excellence (AFCEE), under Military Interdepartmental Purchase Request (MIPR) number FQMSR95-0021, dated 27 February 1995. The AFCEE technical monitor was Ms. Nancy Carper, AFCEE/EP.

The research was performed by the Planning and Management Laboratory, Environmental Processes Division of the U.S. Army Construction Engineering Research Laboratories (USACERL). The Principal Investigator was Donna J. Schell, Environmental Processes Division (PL-N); Dr. David A. Krooks, Environmental Processes Division (PL-N), was Associate Investigator. Dr. Krooks's research was administered in part by an appointment to the Research Participation Program at USACERL administered by the Oak Ridge Institute for Science and Education through an interagency agreement between the U.S. Department of Energy and USACERL. Mr. L. Jerome Benson is Acting Division Chief (PL-N), and Dr. David Joncich is Acting Laboratory Chief (PL).

COL James T. Scott is Commander, USACERL. Dr. Michael J. O'Connor is Director.

NOTICE

This manual is intended as general guidance for personnel at Air Force (AF) facilities. It is not, nor is it intended to be, a complete treatise on environmental laws and regulations. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, expressed or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information contained herein. For any specific questions about, or interpretations of, the legal references herein, consult appropriate counsel.

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MANUAL OBJECTIVES AND ORGANIZATION

This manual provides the Environmental Compliance Assessment and Management Program (ECAMP) assessment checklists to be used during an ECAMP assessment. These environmental assessment checklists are based on the *United States Forces-Japan (USFJ) Final Governing Standards* (FGS-Japan), January 1995. This manual serves as the primary tool in conducting the environmental compliance assessment phase of the ECAMP process. Specifically, this manual:

1. compiles applicable Department of Defense (DOD) and AF environmental regulations and instructions with AF operations and activities
2. synthesizes environmental regulations, management practices (MPs), and risk management issues into consistent and easy to use checklists
3. serves as an aid in the assessment process and the management action development phases of the ECAMP.

This manual is divided into 13 sections. General ECAMP guidance and information applicable to all 13 compliance assessment checklists in the ECAMP manual can be found in the Main Introduction. Sections 1 through 13 contain the specific environmental compliance guidelines and checklists for each of the 13 compliance categories:

Air Emissions Management
Cultural Resources Management
Hazardous Materials Management
Hazardous Waste Management
Natural Resources Management
Other Environmental Issues
Pesticide Management
Petroleum, Oil, and Lubricant (POL) Management
Solid Waste Management
Storage Tank Management
Toxic Substances Management
Wastewater Management
Water Quality Management.

This manual contains references to existing Air Force Regulations (AFRs), Air Force Policy Directives (AFPDs), Air Force Manuals (AFMs), and Air Force Pamphlets (AFPs). The AF is in the process of replacing AFRs with Air Force Instructions (AFIs). This ECAMP manual contains references to a combination of the above. References to AFRs will be replaced with applicable citations in the next version of the manual. HQ USAF/CEV will issue interim guidance as the new policies and regulations are approved.

The AFIs included in the manual are up-to-date through Air Force Index 2, *Numerical Index of Standard and Recurring Air Force Publications*, 19 January 1996 (for the period ending 29 December 1995).

PROGRAM BACKGROUND

The ECAMP is explained in AFI 32-7045, *Environmental Compliance Assessment and Management Program* (ECAMP). The primary objectives of ECAMP are:

1. improve AF environmental management
2. improve AF environmental compliance and compliance management
3. build supporting financial programs and budgets for environmental compliance requirements
4. ensure that Major Commands (MAJCOMs) are effectively addressing past, present, and future environmental concerns.

AF installations, support sites, and government-owned contractor-operated (GOCO) facilities are required to receive an external environmental compliance assessment at least once every 3 yr. Each installation and support site must conduct an internal assessment each calendar year, except in years when external assessments are conducted.

Facilities can be exempted from the ECAMP if their inclusion in the program will significantly interfere with their military effectiveness or if it is otherwise in the national interest. Approval authority for such exemptions is the Deputy Assistant Secretary of the Air Force for Environment, Safety, and Occupational Health (SAF/MIQ). The MAJCOM Environmental Protection Committee (EPC) will prepare requests for exemption and forward to HQ USAF/CEV for action.

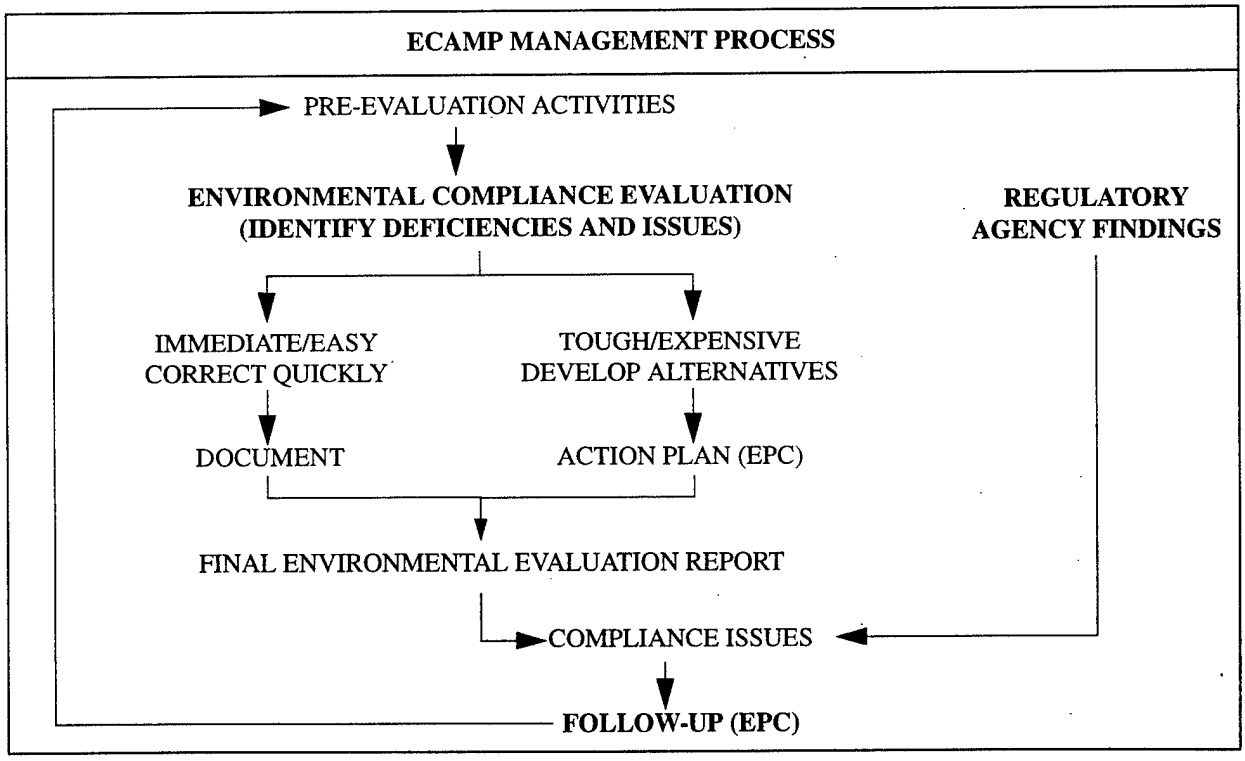
ECAMP PROGRAM MANAGEMENT PROCESS

The ECAMP program management process begins with the environmental compliance assessment and written report that identifies compliance and management issues. The commander, through the EPC, then assigns appropriate staff agencies to work each issue.

ECAMP Action Summary - The path illustrated on the far left of the flowchart represents the process the installation follows in resolving most issues. Immediate hazards should, of course, be addressed as quickly as possible. The procedural, easy-to-fix issues, are corrected during the assessment process and documented in the report.

The path in the center, for the tough and expensive issues, includes preparing a management action plan describing how these problems will be addressed.

Formal notices of noncompliance issued by regulatory agencies are represented by the path on the far right. Open notices of noncompliance at the time of the assessment are included in the ECAMP assessment and report. Notices of noncompliance issued after the date of the ECAMP assessment do not appear in the report, but are managed by the installation EPC along with ECAMP issues.



ECAMP ABROAD

AFI 32-7006, *Environmental Program in Foreign Countries*, 29 April 1994, details the objectives, background, and standards unique to AF environmental activities in foreign countries. It requires that installations comply with the DOD Final Governing Standards (FGSs) issued for the particular host country where each installation is located.

The Instruction acknowledges, however, that FGS have not yet been issued for all countries in which the AF has installations. In instances where the FGS have not been completed, installations must comply with the requirements of the *Overseas Environmental Baseline Guidance Document* (OEBGD), but only after ensuring that the criteria in it do not conflict with any applicable international agreements such as treaties, status of forces agreements (SOFAs), or bilateral agreements. This manual is based on FGS-Japan, April 1995.

Those few installations and facilities located in foreign countries for which environmental executive agents (EEAs) have not been assigned to prepare the FGS must comply with the criteria in the OEBGD, but only after ensuring that the criteria in it do not conflict with any applicable international agreements such as treaties, SOFAs, or bilateral agreements. The Worldwide ECAMP manual is used in these cases as well. When an EEA is assigned and the FGS prepared, the FGS will supersede the use of the OEBGD.

As the sole compliance standards at installations and facilities in foreign countries, the FGS (or the OEBGD under the conditions discussed above) takes precedence over compliance with AF environmental instructions specified as not required in Attachment 2 to AFI 32-7006. Compliance with instructions so designated in the Attachment is not required. Compliance with the AFIs specified as "required" is mandatory, but only after ensuring that their requirements do not conflict with the provisions of the FGS (or the OEBGD) or with any applicable international agreements such as treaties, status of forces agreements (SOFAs), or bilateral agreements. The following AFIs specified as "required" in AFI 32-7006 are included in this manual:

32-7001 - *Environmental Budgeting*
32-7002 - *Environmental Information Management System*
32-7005 - *Environmental Protection Committees*
32-7045 - *Environmental Compliance Assessment and Management Program*
32-7061 - *Environmental Impact Analysis Process*
32-7080 - *Pollution Prevention Programs*
48-119 - *Instructions for Medical Service Environmental Pollution Monitoring.*

The ECAMP manual includes in its scope certain AFIs in addition to those listed above, and in the course of a compliance assessment findings may be written on the basis of those other AFIs. It should be noted that **only those requirements that are based on FGS-Japan and/or on AFIs specified as required are eligible for funding with environmental compliance monies.** It may be necessary for installations to seek funding from other sources in order to close findings written on the basis of AFIs other than those that are specified as required in AFI 32-7006.

ENVIRONMENTAL COMPLIANCE ASSESSMENT PROCESS

The ECAMP program management process described previously can be divided into three distinct phases:

1. pre-assessment activities
2. site assessment activities
3. post-assessment activities.

Pre-assessment Activities - There are five key activities that should be completed before an assessment team begins the site assessment.

1. Previsit Questionnaire - The purpose of the previsit questionnaire is to collect information that will familiarize the assessment team with the installation and its operations so that its assessment team is able to review the applicable regulations and prepare a detailed assessment schedule. The previsit questionnaire is essential as part of the pre-assessment activities for an external assessment. It is also an excellent tool for ensuring internal assessment team members are starting from the same base of information. Table 1 (see page xlv) contains a sample previsit questionnaire.

2. Define Assessment Scope and Team Responsibilities - The installation or MAJCOM may wish to place special emphasis on certain compliance categories or to review additional areas not covered in the volumes. These goals should be clearly stated so the assessment can be properly planned. Additionally, the duration of the assessment, appointment of team members by the EPC, and handling of tenants and offbase sites should be addressed. Typical teams include members from personnel, and may include: Environmental Coordinator (EC), Bioenvironmental Engineering (BEE), Judge Advocate (JA), Ground Supply Officer, Supply, Maintenance, Transportation, Defense Reutilization and Marketing Office (DRMO), Base Civil Engineer (BCE) Water and Waste Superintendent, BCE (Contract Management), BCE (Natural Resources Manager), BCE (Fire Department), BCE (Engineering Design); or, if contracted, people with equivalent varied experience may be chosen. Assessors should possess a good working knowledge of the various environmental pollution statutes and regulations. Collectively, the team must have the knowledge and background required to conduct all aspects of an installation assessment efficiently and effectively. Team members should also understand appropriate techniques for collecting information and interviewing installation personnel. Team members should have received formal training or received oversight from someone who has received formal training. Finally, responsibilities for each of the checklists should be assigned to the team members as appropriate.

   Table 2 (see page lxi) lists the major environmental operations and activities at typical AF installations and the sections within which they are addressed. As shown, many activities and operations cause environmental impacts in more than one area, and are, therefore, addressed in more than one section.

3. Review Relevant Regulations - Once the assessment scope and responsibilities are known, the assessors should undertake a thorough review of the regulations relevant to the installation. Which environmental regulations are applicable must be determined before the assessment begins.

4. Develop Assessment Schedule - The team should develop a detailed assessment schedule that includes the activities planned for each day.

5. Review Assessment Protocols - Each assessor should know the regulatory requirements and be familiar with the assessment checklists that will be used.

Site Assessment Activities - Onsite, the assessors will conduct record searches, interviews, and site surveys to determine the compliance status of the installation. Operations are compared with environmental standards and any deficiencies are written up as findings. The data collected should be sufficient, reliable, and relevant to provide a sound basis for assessment findings and recommendations. Figure 1 (see page xv), the ECAMP Finding Form, is available to assist assessors in compiling needed information during an ECAMP assessment. A Finding Form should be completed for each finding during the assessment. These forms comprise the basis of the ECAMP report. Figure 1 is based on the future version of the finding screen layout on the Work Information Management System - Environmental Subsystem (WIMS-ES).

On the following pages, the reader will find an ECAMP Finding Form, an explanation of the fields it contains, and an example ECAMP Finding Form that has been properly filled out.

(**NOTE**: Any findings discovered through the use of this guidance manual by the internal assessment should be validated by the environmental coordinator and Judge Advocate. The findings and corrective actions should be recorded in the EPC minutes.)

Post-Assessment Activities. The first step in the post-assessment activities is the creation of the draft report. The MAJCOM EPC will ensure that each installation reviews and comments on the Preliminary Environmental Findings, develops a management action plan that addresses all unresolved findings; and tracks each significant, major, and minor noncompliance finding. The MAJCOM EPC will coordinate the development of a management action plan, the Draft Final Environmental Compliance Assessment Report, and the Final Environmental Compliance Assessment Report within 120 days of the site assessment. Upon approval, the MAJCOM will forward the final report to HQ USAF/CEV and the Air Force Center for Environmental Excellence (AFCEE)/EP via the WIMS-ES.

Figure 1

ECAMP Finding Form

Date of Finding _____ Protocol _____ Finding # _____-_____

Rating _____ Repeat Finding? _____ Est Comp Date _____

Act Comp Date _____

Street Address _____

Grid Coordinates _____

Facility # _____ Location _____

Finding Title _____

Details

Figure 1 (continued)

ECAMP Finding Form

Question Number _____ A-106 Media _____

Responsible Organization _____ Org Type _____

_____ _____

_____ _____

_____ _____

CFR Citation _____

Other Criteria _____

_____

_____

Root Cause _____ Explain _____

_____

_____

_____

Violation Type _____ _____ _____ Finding ID _____ _____ _____ Finding Type _____ Source _____

Owning Org POC _____ Off Sym _____ Phone _____ Ext _____

Env Mgt Org POC _____ Off Sym _____ Phone _____ Ext _____

Suggested Solution _____

_____

_____

_____

_____

_____

_____

_____

A-106 Proj # _____ Est Cost $ _____

Definitions for ECAMP Finding Form

(NOTE: The following fields, which are included on the ECAMP Finding Form are not in the current version of the software, but this form can be used to assist with data entry in the current version: Repeat Finding; Grid Coordinates; Street Address; Organization Type; Code of Federal Regulations (CFR) Citation; Other Criteria; Root Cause; additional two entries for Violation Type; additional two entries for Finding Identification (ID); Suggested Solution.)

1. **Date of Finding**: Enter the date the finding was discovered. This is the exact date the finding was discovered. Try to avoid using the same date for all findings. YYYY MM DD (Convert "Finding Date").

2. **Protocol**: Using the selector, choose the protocol for the finding.

   Air
   Hazardous Materials
   Hazardous Waste
   Nat/Cul Resources
   Noise
   Pesticide
   Petroleum, Oil, and Lubricant (POL)
   Solid Waste
   Special Programs (Polychlorinated Biphenyls (PCBs), Asbestos, Radon Mitigation, Installation Restoration Program (IRP), A-106 Pollution Abatement Plan, Environmental Impact Analysis Process (EIAP), Work Information Management System-Environmental Subsystem (WIMS-ES), and Lead-based Paint (LBP))
   Water Quality
   Pollution Prevention

3. **Finding Number**: This field indicates the placement of this finding in the report. It may have nothing to do with its priority or status, depending on the philosophy of the program manager. Each protocol has its own set of numbers. In other words, you can have a HW-001 and an AIR-001.

4. **Rating**:
   Significant
   Major
   Minor
   Management Practice
   Positive

5. **Repeat?**: Identify with a "Y" if this finding is a repeat finding. Has there been a finding documented in a prior ECAMP identical to this finding? If not, enter "N".

6. **Estimated Compliance Date (ECD)**: What is the YYYY MM DD that this finding will be brought into compliance?

7. **Actual Compliance:** If the finding is brought into compliance during the evaluation, enter that date.

8. At least one of the following three must be completed. If more information is known, it should be entered.

    a. **Street Address**: Enter the street/mailing address for the location of this finding.

    b. **Grid Coord**: Enter the grid coordinated for the location of the finding. This is optional.

    c. **Facility Number**: Enter the facility number for the location of the finding.

9. **Location Description**: Use this field if facility number or street address is not applicable. Briefly describe the location of the finding.

10. **Finding Title**: Enter a brief, descriptive title for the finding (up to 51 characters).

11. **Details**: Enter a detailed description of the finding. State what is wrong, how the process or procedures are being done now, and how long is has been under way. State exactly how the AF is out of compliance. Be concise, objective, and strictly factual. Do not be subjective. Do not make inflammatory remarks (up to 726 characters).

12. **Question #**: This is the question number from the ECAMP manual. The first three characters are entered automatically by the system. Enter the question number from the manual (enter the main paragraph number only, no periods or dashes required).

13. **A-106 Media**: Choose the A-106 media that best matches the finding condition.

AT	Atomic Energy
CA	*Clean Air Act*
CW	*Clean Water Act*
ES	*Endangered Species Act*
FF	*Federal Insecticide/Fungicide/Rodenticide Act*
HP	Historic Preservation
MU	Multi-Media
NC	Noise Control
NE	*National Environment Policy Act*
RC	*Resources Conservation and Recovery Act*
SD	*Safe Drinking Water Act*
SF	*Comprehensive Environmental Response, Compensation, and Liability Act*
TS	*Toxic Substance Control Act*

14. **Responsible Organization**: Enter the organizations that "caused" the finding. You can enter up to three organizations. This is the "who done it" data field that can be used for trend analysis to find organizations that need additional training, equipment, manpower, etc.

15. **Organization Type**: For each organization, identify the appropriate type code.

Academic	Academic
AC Maint	Aircraft maintenance
AC Clean	Cleaning/degreasing aircraft parts
AC Storage	Aircraft storage, ramp, parking, etc.
AC Wash	Aircraft washrack

AGE Repair	Aerospace ground equipment (AGE) storage and/or repair
Alert	Transient alert
Arts	Arts and crafts
Auto Body	Auto hobby
Audio	Audiovisual services
Avionics	Aircraft avionics maintenance
Base Svc	Base service station
Bio	Bioenvironmental Engineering
Bulk Fuels	Bulk fuels management
BX	Base exchange
Childcare	Childcare center
Clean/Deg	Cleaning and degreasing (not aircraft)
CE Maint	Civil Engineering maintenance shop
CE Mat	Civil Engineering material control
CE Self	Civil Engineering self-help store
Cmmssry	Commissary
Comm Maint	Communications maintenance
Dental	Dental clinic
DRMO	DRMO treatment, storage, and disposal facility (TSDF)
Elect/Env	Electro/environmental
Entomology	Entomology shop
EOD	Explosive ordinance disposal
Env Mgt	Environmental management
Fire Dept	Fire department
Golf	Golf course
Heat Plnt	Heat plant
Hvy Equip	Heavy equipment maintenance/storage
Hospital	Hospital/clinic
Housing	Housing maintenance
Hyd/Pneu	Hydraulics/Pneudraulics
IWTP	Industrial wastewater treatment plant
Landfill	Landfill
Off Bldg	Business offices (Consolidated Base Personnel Office(CBPO),banks,etc.)
Other	Other, any other not listed
Rsrch Lab	Research laboratory
Supply	Base supply
Swim	Swimming pool
Test Cell	Engine test cell
TSD	Base TSDF
Veh Maint	Vehicle maintenance/storage
Veh Wash	Vehicle washrack
Vet Clinic	Veterinary clinic
WWTP	Wastewater treatment plant

16. **CFR Citation**: Enter the CFR citation for the finding.

17. **Other Criteria**: Enter all the laws, regulations, statutes, etc., other than the CFR citation, defining the out-of-compliance condition. You may also enter a brief description of that criterion (up to 192 characters).

18. **Root Cause**: Select the root cause that best reflects the basic reason for the out of compliance condition.

Materials:
- M1 Supply
- M2 Poor Quality

Personnel:
- P1 Awareness of Requirement
- P2 Understanding
- P3 Not conscientious (deals with attitude of personnel)
- P4 Result vs. Action (The result did not equal the action taken. Procedures were followed which should have produced a favorable result but did not.)
- P5 Accountability not assigned
- P6 Action vs. Procedure (correct procedure(s) in place but incorrect action taken)
- P7 Insufficient skills
- P8 Inexperience (not an attitude of personnel)

Equipment:
- E1 Controls failure
- E2 Inadequate facility design
- E3 Monitoring equipment failure
- E4 Poor maintenance

Techniques:
- T1 Time to do the job
- T2 No procedures in place
- T3 Priority conflict
- T4 Inadequate Procedures
- T5 Procedures not available

19. Explain the reason for your selection of Root Cause. Be specific and stick to the facts (up to 119 characters).

20. **Violation Type**: Choose the appropriate code(s) that best describe(s) the situation. You can enter up to three.

Administrative

A1 Records
A2 Labels
A3 Reports
A4 Manifests
A5 Lack of a permit
A6 Inadequate/missing plan
A7 Public notification
A8 Operator certification
A9 Fire standard
A10 Program planning
A11 Sampling
A12 training
A13 Other
A14 Registration
A15 Uncharacterized
A16 Lacking or incomplete inventory/survey

Potential Discharge

P1 Operational practices
P2 Inadequate facility
P3 Inadequate equipment/containers
P4 Other
P5 No testing/verification
P6 Containment

Discharge

D1 Excess chemical parameter
D2 Excess physical parameter
D3 Groundwater contamination
D4 Spills/leaks
D5 Other

21. **Finding Category Codes**: Choose the appropriate code(s). You can enter up to three.

Air Emissions Management
- 1A Fuel Burners
- 1B Incinerators
- 1C Volatile Organics
- 1D Others
- 1E Ozone Depl Chems
- 1F Particulates/Bead Blast
- 1G Air Toxics, Metals
- 1H General Requirements

Hazardous Material Management
- 2A Storage Structures
- 2B Operations/Management
- 2C Others

Hazardous Waste Management
- 3A Accumulation Points
- 3B TSDFs
- 3C Training
- 3D Waste Minimization
- 3E Others
- 3F Oil/Water Separators
- 3G Satellite Accum Points
- 3H Operational Procedures

Natural/Cultural Resources Management
- 4A Wildlife/Recreation/Forestry
- 4B Cultural/Historic
- 4C Land/Agriculture
- 4D Wetlands/Floodplains
- 4E Others

Environmental Noise Management
- 5A Installation compatible use zone (ICUZ)
- 5B Procedures
- 5C Others

Pesticide Management
- 6A Facilities/Equipment
- 6B Operations/Mgt
- 6C Others

Petroleum, Oil, and Lubricant (POL) Mgt
- 7A Above Ground Tanks
- 7B Underground Tanks
- 7C Operations/Mgt
- 7D Others
- 7E Oil/Water Separators
- 7F Drum Storage

Solid Waste Management
- 8A Landfills
- 8B Receptacles
- 8C Recycling
- 8D Others
- 8E Medical Waste
- 8F Regulated Materials

Special Programs Management
- 9A PCBs
- 9B Asbestos
- 9C Radon Mitigation
- 9D Others
- 9E IRP
- 9F EIAP
- 9G A-106
- 9H ECAMP
- 9I Lead-Based Paint (LBP)
- 9J Low Level Radiation
- 9K Automation Issues

Water Quality Management
- 10A Sanitary Wastewater
- 10B Industrial Wastewater
- 10C Stormwater Runoff
- 10D Nonpoint Runoff
- 10E Operations
- 10F Others
- 10G Facilities/Equipment
- 10H Oil/Water Separators
- 10I Drinking Water

Pollution Prevention Management
- 11A Management Plans
- 11B Ozone depleting chemicals (ODCs)
- 11C EPA 17
- 11D Hazardous Waste Minimization
- 11E Recycling
- 11F Affirmative Procurement
- 11G Energy Conservation
- 11H Education and Training
- 11I Hazardous Material Control
- 11J Other

22. **Finding Type**: Choose the appropriate code.

23. **Source**: Choose the appropriate source for the definition of the noncompliance.

    U.S. Protocols
    Worldwide Manual/Overseas Manual
    Installation Supplement to ECAMP Manual
    Command Supplement to ECAMP Manual
    Country Manual
    Country Supplement
    State Supplement
    Local Law/Ordinance

24. **Owning Organization Point of Contact (POC)**: Enter the name of the POC of the organization handling the fix.

25. **Office Symbol**: Enter the office symbol for the POC.

26. **Phone and Extension**: Enter the phone and extension for the POC.

27. **Environmental Management POC**: Enter the name of the POC within the Environmental Management Office (EMO) who is responsible for tracking this finding.

28. **Office Symbol**: Enter the office symbol for the POC.

29. **Phone and Extension**: Enter the phone and extension for the POC.

30. **Evaluator's Suggested Solution**: Enter the suggested solution for the evaluator. After validation, this is nonmodifiable (up to 308 characters).

31. **A-106 Project #**: If there is funding already programmed for the fix, enter the A-106 project number if available.

32. **Estimated Cost**: If the information is available, enter the estimated cost of the project.

Sample ECAMP Finding Form

Date of Finding _____ Protocol _____ Finding # _____-_____

Rating _____ Repeat Finding? _____ Est Comp Date _____

Act Comp Date _____

Street Address _____

Grid Coordinates _____

Facility # _____ Location _____

Finding Title _____

Details

Sample ECAMP Finding Form (continued)

Question Number _____ A-106 Media _____

Responsible Organization _____ Org Type _____

_____ _____

_____ _____

_____ _____

CFR Citation _____

Other Criteria _____

_____

_____

Root Cause _____ Explain _____

_____

_____

_____

Violation Type _____ _____ _____ Finding ID _____ _____ _____ Finding Type _____ Source _____

Owning Org POC _____ Off Sym _____ Phone _____ Ext _____

Env Mgt Org POC _____ Off Sym _____ Phone _____ Ext _____

Suggested Solution _____

_____

_____

_____

_____

_____

_____

_____

A-106 Proj # _____ Est Cost $ _____

USING THE ECAMP MANUAL

AF installations engage in many operations and activities that can cause environmental impacts on public health and the environment if not controlled or properly managed. Many of these activities and operations are regulated by FGS-Japan and by AFRs/policies. After a review of these activities at AF installations, it is apparent that there are major categories of environmental compliance into which most environmental regulations and agency activities can be grouped. This manual is divided into 13 sections that correspond to major compliance categories:

1. Air Emissions Management
2. Cultural Resources Management
3. Hazardous Materials Management
4. Hazardous Waste Management
5. Natural Resources Management
6. Other Environmental Issues
7. Pesticide Management
8. Petroleum, Oil, and Lubricant (POL) Management
9. Solid Waste Management
10. Storage Tank Management
11. Toxic Substances Management
12. Wastewater Management
13. Water Quality Management

Each section is organized in the following format:

A. **Applicability of this Protocol**. This provides guidance on the major activities and operations included in the section and a brief description of the major application.

B. **Department of Defense (DOD) Directives and Instructions.** This identifies DOD Directives and Instructions that have not yet been implemented by an AFR or AFI.

C. **Air Force Documents.** This identifies, in summary form, the key AFRs, AFIs, and AFPDs that mandate requirements in the compliance category.

D. **Responsibility for Compliance**. This identifies the personnel on the installation who have compliance responsibilities for the compliance category.

E. **Definitions.** This presents definitions taken from FGS-Japan and pertinent AFRs and AFIs for those key terms associated with each compliance category.

F. **Compliance Assessment Checklists.** The final portion of each section is a checklist composed of requirements or guidelines that serve as indicators to point out possible compliance problems and practices, conditions, or situations that could indicate potential problems. The checklist is intended to focus attention on the key compliance issues. Instructions are provided to direct the assessor to the action, references, or activity appropriate to the specific requirement or guideline.

USING THE CHECKLISTS

Understanding the layout and structure of the checklists facilitates their use during the assessment.

- **Explanation of Layout/Content**. The checklist portion of assessment section is divided into two columns. The first of these is a statement of a requirement. This may be a strict regulatory requirement, in which case the citation is given, or it may be a requirement that is considered to be a good management practice to maintain compliance, but which is not specifically mandated by regulation. The second column gives instructions to help conduct the compliance assessment. These instructions are intended to be specific action items that should be accomplished by the investigator. Some of the instructions may be a simple documentation check taking a few minutes; others may require physical inspection of a facility.

- **Worksheet.** At the end of each section there is an assessment worksheet. This worksheet should be reproduced and used during the assessment to take notes. It is designed to be inserted between each page of the checklists, allowing the main text to be kept usable for the next assessment. The worksheet is divided into two columns. The first column is a quick check for those items that are in compliance (C), not applicable (N/A) to the facility being reviewed, or require management action (RMA). The second column on the worksheet allows for more detailed notations or comments. These notations will provide a record for use in preparing the final report. These notations should include both situations of substandard operation needing attention and those operations that are above requirements or provide examples of good programs. For future reference and clarity, it is essential that the building number be recorded or that some other reference to location be made during the review.

- **Standard Checklist Items**. The first three checklist items in each section of the manual are standardized. The first item requires a review of any previous assessment documents. The second is a management practice that indicates the AF documents that the installation should have on hand. The third item provides a place for assessors to write up findings that are based on regulations that have been promulgated since the publication of the manual or regulations not included in the manual.

The assessment procedures are designed as an aid and should not be considered exhaustive. Use of the checklist requires the assessor's judgment to play a role in determining the focus and extent of further investigation.

CUSTOMIZING THE CHECKLISTS FOR YOUR INSTALLATION

Creating Shop-Specific and Self-Inspection Checklists - The ECAMP checklists in this manual are a useful tool for creating self-inspection checklists for individual shops. These shop-specific checklists can be used by shop supervisors and workers to ensure correct practices and procedures are being followed on a routine basis. Thus, good self-inspection checklists are an excellent supplement to annual ECAMP assessments. A customized checklist can be created in five steps:

1. Review the shop's activities to determine which sections apply.
2. Select broad portions of the applicable sections for closer review by using the guidance page found before the checklist in each section.
3. Review the individual checklist items selected for application to the shop being assessed.
4. Edit the applicable checklist items to make them shop-specific.
5. Compile the checklist items.

WRITING THE ECAMP REPORT

All ECAMP documents prepared prior to the Final Environmental Evaluation Report are internal working documents until the time that the Final Environmental Report is executed. They will be marked FOR OFFICIAL USE ONLY and handled accordingly. The AF has determined that their premature release would jeopardize the AF's interest in preserving the free flow, analysis, and comment on internal information regarding environmental compliance. Therefore, except as otherwise required by law, ECAMP documents will not be released to the public sector prior to the execution of the Final Environmental Evaluation Report. As a matter of policy, the Final Environmental Evaluation Report will be made available for release to the public, upon request, as soon as it is executed.

Final assessment reports will consist of five chapters and subheadings for each chapter as follows:

Chapter 1.0 Executive Summary

- 1.1 Background
- 1.2 Summary of Findings

Chapter 2.0 Background and Scope

- 2.1 Background
- 2.2 Scope

Chapter 3.0 Environmental Compliance Status

- 3.1 Air Emissions Management
- 3.2 Cultural Resources Management
- 3.3 Hazardous Materials Management
- 3.4 Hazardous Waste Management
- 3.5 Natural Resources Management
- 3.6 Other Environmental Issues
- 3.7 Pesticide Management
- 3.8 Petroleum, Oil, and Lubricant (POL) Management
- 3.9 Solid Waste Management
- 3.10 Storage Tank Management
- 3.11 Toxic Substances Management
- 3.12 Wastewater Management
- 3.13 Water Quality Management

Chapter 4.0 Environmental Practices Issues

- 4.1 Air Emissions Management
- 4.2 Cultural Resources Management
- 4.3 Hazardous Materials Management
- 4.4 Hazardous Waste Management
- 4.5 Natural Resources Management
- 4.6 Other Environmental Issues
- 4.7 Pesticide Management
- 4.8 Petroleum, Oil, and Lubricant (POL) Management
- 4.9 Solid Waste Management

4.10 Storage Tank Management
4.11 Toxic Substances Management
4.12 Wastewater Management
4.13 Water Quality Management

Chapter 5.0 Management Plan

5.1 Corrected Environmental Compliance Findings
5.2 Open Environmental Compliance Findings
5.3 Closed Environmental Practice Issues
5.4 Open Environmental Practice Issues

Each chapter of the assessment report should follow the described format:

Chapter 1.0. Executive Summary - The executive summary should contain background information and a summary of findings as follows:

1. Background
   a. date and location of the assessment and identification of the assessment team
   b. overall assessment purpose.
2. Summary of Findings
   a. narrative summary of compliance status by section and major environmental issues. To provide balanced tone, consider placing positive comments first, followed by a summary of negative comments, if applicable
   b. the Environmental Compliance Summary (see Figure 2 for format, page xxxv)
   c. the Detailed Environmental Compliance Status (see Figure 3, page xxxvii)
   d. the Environmental Compliance Status (see Figure 4, page xli), which is a summary of findings by violation type.

Figure 2

Environmental Compliance Summary

Compliance Area	Summary			
	Sig	Major	Minor	TOTAL
1. Air Emissions Management				
2. Cultural Resources Management				
3. Hazardous Materials Management				
4. Hazardous Waste Management				
5. Natural Resources Management				
6. Other Environmental Issues				
7. Pesticide Management				
8. POL Management				
9. Solid Management				
10. Storage Tank Management				
11. Toxic Substances Management				
12. Wastewater Management				
13. Water Quality Management				
TOTAL				

Figure 3

Detailed Environmental Compliance Status

	FINDINGS			
Compliance Area	**Sig**	**Major**	**Minor**	**TOTAL**
Air Emissions Management				
Fuel Burners	____	____	____	_____
Incinerators	____	____	____	_____
Volatile Organics	____	____	____	_____
Vehicle Emissions	____	____	____	____
Ozone Depleting Chemicals	____	____	____	____
Particulates, Bead Blast	____	____	____	____
Air Toxic Metals	____	____	____	____
General Requirements	____	____	____	_____
TOTAL	____	____	____	____
Cultural Resources Management				
Cultural/Historic	____	____	____	_____
TOTAL	____	____	____	____
Hazardous Materials Management				
Storage Structures	____	____	____	_____
Operations/Management	____	____	____	_____
TOTAL	____	____	____	_____
Hazardous Waste Management				
Accumulation Points	____	____	____	_____
TSD Facilities	____	____	____	_____
Training	____	____	____	_____
Waste Minimization	____	____	____	_____
Oil/Water Separators	____	____	____	_____
Satellite Accumulation Points	____	____	____	____
Operational Procedures	____	____	____	____
TOTAL	____	____	____	____

(continued)

Figure 3 (continued)

Detailed Environmental Compliance Status

Compliance Area	FINDINGS Sig	Major	Minor	TOTAL
Natural Resources Management				
Wilderness/Recreation/Forestry	____	____	____	_____
Land/Agriculture	____	____	____	_____
Wetlands/Floodplains	____	____	____	_____
TOTAL	____	____	____	_____
Other Environmental Issues				
EIAP	____	____	____	_____
Environmental Noise Management				
ICUZ	____	____	____	_____
Procedures	____	____	____	_____
Management	____	____	____	_____
IRP	____	____	____	_____
Pollution Prevention Management				
Management Plans	____	____	____	____
ODCs	____	____	____	____
EPA 17	____	____	____	____
Hazardous Waste Minimization	____	____	____	____
Recycling	____	____	____	____
Affirmative Procurement	____	____	____	____
Energy Conservation	____	____	____	____
Education and Training	____	____	____	____
Hazardous Material Control	____	____	____	____
Program Management				
A-106	____	____	____	_____
ECAMP (Preparation/ Conduct)	____	____	____	_____
TOTAL	____	____	____	____
Pesticide Management				
Facilities/Equipment	____	____	____	_____
Operations/Management	____	____	____	_____
TOTAL	____	____	____	_____

(continued)

Figure 3 (continued)

Detailed Environmental Compliance Status

Compliance Area	FINDINGS Sig	Major	Minor	TOTAL
Petroleum, Oil, and Lubricant (POL) Management				
Operations/Management	____	____	____	____
Loading/Unloading Racks	____	____	____	____
Oil/Water Separators	____	____	____	____
Drum Storage	____	____	____	____
Hydrant System	____	____	____	____
TOTAL	____	____	____	____
Solid Waste Management				
Landfills	____	____	____	____
Receptacles	____	____	____	____
Recycling	____	____	____	____
Medical Waste	____	____	____	____
Regulated Wastes	____	____	____	____
TOTAL	____	____	____	____
Storage Tank Management				
Aboveground Tanks	____	____	____	____
Underground Tanks	____	____	____	____
TOTAL	____	____	____	____
Toxic Substances Management				
PCB	____	____	____	____
Asbestos	____	____	____	____
Radon Mitigation	____	____	____	____
Lead-Based Paint	____	____	____	____
Low Level Radiation	____	____	____	____
TOTAL	____	____	____	____

(continued)

Figure 3 (continued)

Detailed Environmental Compliance Status

	FINDINGS			
Compliance Area	**Sig**	**Major**	**Minor**	**TOTAL**
Wastewater Management				
Sanitary Wastewater	____	____	____	_____
Industrial Wastewater	____	____	____	_____
Stormwater Runoff	____	____	____	_____
Nonpoint runoff	____	____	____	_____
Facilities/Equipment	____	____	____	_____
Oil/Water Separators	____	____	____	_____
TOTAL	____	____	____	____
Water Quality Management				
Drinking Water	____	____	____	____
TOTAL	____	____	____	____
TOTAL FINDINGS	____	____	____	____

Figure 4

Environmental Compliance Status

	Findings			
Totals Identified	**Sig**	**Major**	**Minor**	**TOTAL**
Discharge	____	____	____	____
Potential Discharge	____	____	____	____
Administrative	____	____	____	____
TOTAL FINDINGS	____	____	____	____

Chapter 2.0. Background and Scope The background and scope section is reserved for information needed to make a complete report but which does not fit into the executive summary or compliance findings section.

1. Background.

   a. ECAMP Objectives. A statement of the ECAMP objectives as stated in this manual and individual objectives unique to each specific assessment.
   b. Installation Description. Describe the major attributes of the installation.
   c. Environmental Management Structure. Describe in general how the installation's environmental management organization is structured.

2. Scope.

   a. Activity Review. Describe the base activities that were inspected (this is the appropriate section for positive statements). Comment on the state and local or host nation regulations that were considered. Identify any permits or licenses (by number and issuing agency) that were reviewed.
   b. Summary of Evaluation Procedures. A statement that the assessment included a review of documentation, inspection of facilities, interviews of personnel, and that samples were or were not collected.

Chapter 3.0. Environmental Compliance Status The regulatory compliance section of the report should contain a separate subsection for each assessed checklist. The information presented in Figure 4 (page xli) pertains to each compliance section. Each compliance finding may consist of two parts: a findings paragraph and a separate observations and comments paragraph as follows:

1. Findings. Findings may be positive or negative. Positive findings (descriptions of exemplary activities and procedures) should be stated concisely. Negative findings will be limited to noncompliance issues involving FGS-Japan, DOD, and/or AF documents and should briefly summarize the permit conditions or other restrictions, note the deficiency, and cite the specific regulation (be specific). Where applicable, describe the total sample universe, the number of items sampled, and how many were out of compliance:

   a. Ensure that each negative finding is clearly identified as regulatory, host country, or procedural.
   b. Negative findings that were closed since the last ECAMP and have occurred again must be identified as repeat findings.
   c. Negative findings that remain open since the last external ECAMP must be identified as carryover findings.
   d. Ensure that each finding paragraph is concise, factual (conditions clearly in noncompliance with criteria), and free of the assessor's opinions and recommendations. If there is uncertainty over the regulations that apply, their meaning, or the actual conditions on the installation, place such comments in the Environmental Practice Issues Section of the report.
   e. Negative findings will be separately labelled and numbered. All negative findings will include finding identification codes for summarizing ECAMP results. See the explanation of how to fill out the findings summary for a listing of codes.

2. Observations and Comments on Compliance Findings. Since the finding paragraphs are reserved for strictly factual compliance criteria and conditions, all comments and recommendations on a compliance finding will be placed in a separate comments paragraph immediately following the finding. No new findings will be introduced in the comments paragraphs. Information in the comments paragraphs may include background information on a finding if necessary, statements on causes and effects, and a recommendation for correcting the deficiency. Assessment teams are under no obligation to make recommendations. When recommendations are made, they should be aimed at resolving root causes. Often, the onsite portion of the assessment does not permit time to identify root causes. Recommendations made under these conditions usually address symptoms rather than providing permanent solutions.

Chapter 4.0. Environmental Practice Issues. The assessment team may include recommendations for reducing environmental risks and improving environmental management practices as well as suggesting areas requiring additional study. Recommendations placed in this chapter are not based on environmental regulations and do not involve noncompliance. Instead, they are management practices that will help keep an installation in compliance. Items appropriate for this chapter include:

1. Environmental risk reduction issues not associated with noncompliance.
2. Potential noncompliance based on final regulations with a future compliance deadline.
3. Management practice recommendations based on items in the ECAMP checklist.
4. Other management practice recommendations.

Chapter 5.0. Management Action Plan. The management action plan states how each compliance finding was resolved or contains the installation EPC's plan for resolving the compliance finding. The Management Action Plan also states how each environmental practice issue is being addressed. Since environmental practice issues do not involve noncompliance, they should be carefully reviewed by the installation EPC, but may be closed without action. After the installation approves the Management Action Plan, it should be included in the Draft Final Environmental Assessment Report as Chapter 5. The Management Action Plan tracks each compliance finding or environmental issue.

SECTION 1

AIR EMISSIONS MANAGEMENT

Japan ECAMP

SECTION 1

AIR EMISSIONS MANAGEMENT

A. Applicability of this Section

This section includes regulations, responsibilities, and compliance requirements associated with air pollution emissions at Air Force (AF) installations. The major sources of air pollution emissions at AF installations are:

- particulates, SO_2, and NO_x from fuel burning at steam and hot water generation plants and boilers
- particulate emissions from the operation of classified material and pathological incinerators
- the emission of volatile organic compound (VOC) vapors from the storage and transfer of certain petroleum fuels and chemicals (solvents), and the operation of degreasers and other processes (paint stripping and metal finishing) that use solvents
- the emission of NO_x and hydrocarbons from aerospace ground equipment (AGE) and vehicles operated on the base.

Most AF installations have air emissions sources in each of these four categories. Therefore, this section is applicable to some extent at all AF installations.

The regulatory requirements in this section are based on Department of Defense (DOD), Air Force Regulations (AFRs), and Air Force Instructions (AFIs) that apply at overseas installations. Management Practices (MPs) are derived from U.S. Environmental Protection Agency (USEPA) regulations that are not mandatory overseas, but are important to follow to preserve the health and safety of AF employees and protect the environment. Any procedural USEPA requirements, such as permits and notifications, are not applicable overseas and, therefore, are not in the Japan Manual. MPs in the Air Emissions Management section are derived from the following USEPA regulations: 40 Code of Federal Regulations (CFR) 51, 60, and 80.

B. DOD Directives/Instructions

- *United States Forces-Japan (USFJ) Final Governing Standards* (FGS-Japan), January 1995, Chapter 2 outlines performance standards for fossil fuel-fired steam generators, hot water generating plants, electric utility steam generators, and incinerators. Units less than 100,000 Btu are not covered under the criteria of FGS-Japan, but motor vehicles, ozone-depleting chemicals (ODCs) or substances (ODSs), and volatile organic compounds (VOCs) are included. Units less than 100,000 Btu/h heat input are not covered by the provisions of FGS-Japan.

C. U. S. Air Force Documents

- AFR 19-6, *Air Pollution Control Systems for Boilers and Incinerators*, 9 May 1988, provides guidance on how to select, design, operate, and maintain emission control devices on boilers and incinerators. This AFR is scheduled to be replaced by Air Force Joint [Publication] (AFJ) 132-1056.

- AFI 48-119, *Medical Service Environmental Quality Program,* 25 July 1994, provides directive requirements for the Medical Service Environmental Quality Program and identifies responsibilities of participants in that program at U.S. AF bases.

- Air Force Technical Order (AFTO) 00-20B-5, *U.S. Air Force (USAF) Motor Vehicle and Vehicular Equipment Inspection*, establishes procedures for vehicle inspection and reporting on vehicle emissions.

D. Responsibility for Compliance

- The Combat Support Group Commander is usually the person responsible for compliance.
- Base Civil Engineering (BCE) is responsible for the maintenance of incinerators and fuel handling and storage equipment, as well as the operation and maintenance of all fuel burners (boilers). The heating and boiler plant managers are responsible for the operation of fuel burners and are part of the Operations Branch of Civil Engineering.
- The Environmental Coordinator in BCE is responsible for the preparation of all air pollution emission source permit applications.
- The regional hospital or base clinic is responsible for the operation of any pathological incinerators located in its facility.
- The Fuels Management Branch of Base Supply is responsible for the operation of all fuel handling, transportation (tanks and/or pipelines), and storage facilities onbase. They are also responsible for insuring that all fuels satisfy specifications.
- The Fuels Management Branch is also responsible for operating the Military Service Station that dispenses leaded or unleaded fuel.
- The Automotive Maintenance Branch of Base Transportation is responsible for the emission testing and vehicle maintenance required by FGS-Japan and AF documents.
- The various maintenance squadrons at the base are responsible for the operation of degreasers and other industrial processes that are regulated or may require operating permits.
- The Base Exchange operates a service station that dispenses leaded and unleaded fuels and is subject to FGS-Japan requirements. The service station is normally operated by a contractor, but the labeling and nozzle size regulations still apply. The Government is responsible for compliance, but the contractor may also be responsible, depending on the contract wording.
- Bioenvironmental Engineering Services (BES) is responsible for monitoring ambient air quality and preparing the installation air emission inventory.

E. Definitions

- *Coal Refuse* - waste products of coal mining, cleanings, and coal preparation operations (e.g., culm, gob, etc.), containing coal, matrix material, clay, and other organic and inorganic material (FGS-Japan 2-2).
- *Electric Utility Steam-Generating Unit* - any furnace, boiler, or other device used for combusting fuel for the purpose of producing steam to generate electricity (FGS-Japan 2-2).

- *Existing* - any facility, source, or project in use or under construction before 1 October 1995, unless it is subsequently substantially modified (FGS-Japan 1-4.1).

- *Fossil Fuel* - natural gas, petroleum, coal, and any form of solid, liquid, or gaseous fuel derived from such material for the purpose of creating useful heat (FGS-Japan 2-2).

- *Incinerator* - any furnace used in the process of burning solid or liquid waste for the purpose of reducing the volume of the waste by removing combustible matter, including equipment with heat recovery systems for either hot water or steam generation (FGS-Japan 2-2).

- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *New* - any facility, source, or project with a construction/project start date on or after 1 October 1995 (FGS-Japan 1-4.1).

- *Nontactical Vehicles* - commercially available vehicles that are adapted to military use (FGS-Japan 2-2).

- *Ozone-Depleting Substances (ODS)* - those substances listed in Table 1-1 (FGS-Japan 2-2).

- *Steam-Generating Unit* - any furnace, boiler, or other device used for combusting fuel for the purpose of producing steam, including fossil fuel-fired generators associated with the combined cycle of gas turbines; nuclear generators are not included (FGS-Japan 2-2).

- *Substantial Modification* - any modification the cost of which exceeds $1 million, regardless of funding source (FGS-Japan 1-4.1).

- *Wood Residue* - bark, sawdust, slabs, chips, shavings, mill trim, and other wood products derived from wood processing and forest management operations (FGS-Japan 2-2).

AIR EMISSIONS MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS: (a)
All Installations	JA.1-1 through JA.1-4	(1)(2)(3)(11)
Fuel-Burning Facilities (central steam plant, hot water boiler, or hot water steam boiler)	JA.1-5 through JA.1-12	(1)(2)(3)(4)
Fuel-Burning Sources	JA.1-13 through JA.1-18	(2)(3)
Incinerators	JA.1-19 through JA.1-21	(2)(3)
Gasoline	JA.1-22 and JA.1-23	(4)(5)(10)
Motor Vehicles	JA.1-24 and JA.1-25	(5)
VOCs	JA.1-26 through JA.1-29	(2)(3)(4)
Fugitive Emissions	JA.1-30 through JA.1-35	(2)(3)
Vapor Degreasers	JA.1-36	(3)(4)(5)(7)(8)(9)(10)
Dry Cleaning	JA.1-37	(2)(3)
CFCs and Halons	JA.1-38	(2)(5)(6)(7)(8)(9)

(a) CONTACT/LOCATION CODE:

(1) BCE (Base Civil Engineering/Environmental Planning)
(2) BES (Bioenvironmental Engineering Services)
(3) Air Pollution Source Operator
(4) Fuels - Management Branch
(5) Transportation - Maintenance Branch
(6) Logistics Supply (LGS) (Base Supply)
(7) SV (Services Squadron) Auto Hobby Shop
(8) BCE (Refrigeration Shops)
(9) Equipment Maintenance Squadron
(10) AAFES (Army/Air Force Exchange Service) Gas Station
(11) Base Staff Judge Advocate

AIR EMISSIONS MANAGEMENT

Records To Review

- Emissions inventory
- All air pollution source permits
- Plans and procedures applicable to air pollution control
- Emission monitoring records
- Opacity records
- Instrument calibration and maintenance records
- Reports/complaints concerning air quality
- Japan regulatory inspection reports
- Documentation of preventive measures or actions
- Results of air sampling at the conclusion of response action

Physical Features To Inspect

- All air pollution sources (fuel burners, incinerators, VOC sources, etc.)
- Air pollution monitoring and control devices
- Air emission stacks
- Air intake vents

People To Interview

- BCE (Base Civil Engineering/Environmental Planning)
- BES (Bioenvironmental Engineering Services)
- Air Pollution Source Operator
- Fuels - Management Branch
- Transportation - Maintenance Branch
- LGS (Base Supply)
- SV (Services Squadron) Auto Hobby Shop
- BCE (Refrigeration Shops)
- Equipment Maintenance Squadron
- AAFES (Army/Air Force Exchange Service) Gas Station
- Base Staff Judge Advocate

COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
ALL INSTALLATIONS	
JA.1-1. Determine actions or changes since previous review of air emissions (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (1)(2)
JA.1-2. Copies of all relevant DOD directives/ instructions, USAF directives, and guidance documents on air emissions should be maintained at the installation (MP).	Verify that copies of the following regulations are maintained and kept current at the installation: (1)(11) - *USFJ Final Governing Standards* (FGS-Japan), January 1995 - AFI 48-119, *Medical Service Environmental Quality Programs*, 25 July 1994 - AFTO 00-20B-5, *USAF Motor Vehicle and Vehicular Equipment Inspections.* (NOTE: Regulations on asbestos management are addressed in Section 11, *Toxic Substances Management.*) Verify that the Base Staff Judge Advocate (SJA) reviews the documents annually for currency and completeness and submits the findings of the review to the Base Environmental Protection Committee.
JA.1-3. Installations must meet regulatory and AF requirements issued since the finalization of the manual (a finding under this checklist item will have the citation of the new regulation as a basis of finding).	Determine whether any new regulations concerning air quality have been issued since the finalization of the manual. (1)(2)(11) Verify that the installation is in compliance with newly issued regulations.
JA.1-4. Installations must take and maintain an air emissions inventory (AFI 48-119, para 9.5.1.2).	Verify that the installation has done an air emissions inventory. (2) Verify that BES maintains copies of the inventory.

(1) BCE (Base Civil Engineering/Environmental Planning (2) BES (Bioenvironmental Engineering Services) (3) Air Pollution Source Operator (4) Fuels - Management Branch (5) Transportation - Maintenance Branch (6) LGS (Base Supply) (7) SV (Services Squadron) Auto Hobby Shop (8) Refrigeration Shops (BCE) (9) Equipment Maintenance Squadron (10) AAFES (Army/Air Force Exchange Service) Gas Station (11) Base Staff Judge Advocate

COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
FUEL-BURNING FACILITIES	(NOTE: Emissions limitations and percent reduction requirements are determined on a 30-day rolling average.) (NOTE: Particulate matter emission criteria do not apply during periods of startup, shutdown, and malfunction.) (NOTE: SO_2 emission criteria do not apply during periods of startup and shutdown and when emergency conditions exist.)
JA.1-5. New or substantially modified fossil fuel-fired steam-generating units with a heat input capacity of greater than 100 million British thermal units (MBtu)/h heat input must meet specific emissions limitations for particulate matter and SO_2 (FGS-Japan 2-3.1(a) through 2-3.1(d)).	Determine whether the facility burns coal, oil, wood, or a combination of fuels. (3) Verify that no flue gas discharged into the atmosphere contains particulate matter in excess of 43 ng/J heat input (0.10 lb/MBtu) derived from fossil fuel or fossil fuel and wood residue. Verify that discharged flue gases do not exhibit more than 20 percent opacity, except for one 6-min period per hour of not more than 30 percent opacity. Verify that discharged flue gases do not contain SO_2 in excess of 340 ng/J heat input (0.80 lb/MBtu) derived from liquid fossil fuel or liquid fossil fuel and wood residue. Verify that discharged flue gases do not contain SO_2 in excess of 520 ng/J heat input (1.2 lb/MBtu) derived from solid fossil fuel or solid fossil fuel and wood residue.
JA.1-6. New or substantially modified fossil fuel-fired steam-generating units with a heat input capacity of greater than 100 MBtu/h heat input must meet specific emissions limitations for NO_x (FGS-Japan 2-3.1(e) through 2-3.1(g)).	Verify that flue gas discharged to the atmosphere does not contain NO_x in excess of the following: (2)(3) - 86 ng/J heat input (0.20 lb/MBtu) derived from gaseous fossil fuel - 129 ng/J heat input (0.30 lb/MBtu) derived from liquid fossil fuel, liquid fossil fuel and wood residue, or gaseous fossil fuel and wood residue - 300 ng/J heat input (0.70 lb/MBtu) derived from solid fossil fuel or solid fossil fuel and wood residue - 260 ng/J heat input (0.60 lb/MBtu) derived from lignite or lignite and wood residue. Verify that, if they are compatible with existing combustion configurations, low excess air/low NO_x burners are used in new construction and major modifications. (NOTE: This does not apply when a fossil fuel containing at least 25 percent by weight of coal refuse is burned in combination with gaseous, liquid, other solid fossil fuel or wood residue.)

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.1-7. New or substantially modified fossil fuel-fired steam-generating units with a maximum design heat input capacity of greater than 100 MBtu/h must meet specific requirements with regard to fuel sulfur content (FGS-Japan2-3.1(h)).	Verify that the installation conducts and records measurements of fuel sulfur content for each fuel batch. (3)(4) Verify that the fuel sulfur content does not exceed 0.5 percent by weight.
JA.1-8. New or substantially modified fossil fuel-fired steam-generating units with a maximum design heat input capacity of greater than 100 MBtu/h must maintain records of ash contents and higher heating values (FGS-Japan2-3.1(i)).	Verify that the installation maintains a record of ash contents and higher heating values for the fuel combusted in the source. (3)(4)
JA.1-9. New or substantially modified steam-generating units or electric utility steam-generating units rated greater than 100 MBtu/h heat input must operate a properly calibrated and maintained continuous emissions monitoring system for opacity, NO_x, and the O_2 or CO_2 content of flue gases (FGS-Japan 2-3.5).	Verify that the opacity of emissions is continuously monitored, except where gaseous or distillate fuels are the only fuels combusted. (2)(3) Verify that NO_x emissions are continuously monitored. Verify that the O_2 or CO_2 content of flue gases is continuously monitored at each location where either SO_2 or NO_x emissions are monitored.

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.1-10. New or substantially modified electric utility steam-generating units with a rated capacity of greater than 100 MBtu/h heat input must meet specific emissions limitations (FGS-Japan 2-3.2).	Verify that flue gases discharged into the atmosphere do not contain particulate matter in excess of 13 ng/J heat input (0.03 lb/MBtu) derived from the combustion of solid, liquid, or gaseous fuel. (2)(3) Verify that no flue gases are discharged that: - exhibit greater than 20 percent opacity, except for one 6-min period per hour of not more than 30 percent opacity - contain SO_2 in excess of 520 ng/J heat input (1.2 lb/MBtu) and 10 percent of the potential combustion concentration derived from solid fuel - contain SO_2 in excess of 340 ng/J heat input (0.80 lb/MBtu) and 10 percent of the potential combustion concentration derived from liquid or gaseous fuels - contain NO_x in excess of the emissions limits listed in Table 1-2. (NOTE: When emissions of SO_2 are less than 260 ng/J heat input (0.60 lb/MBtu), there is a limit of 30 percent of the potential combustion concentration derived from solid fuel.) (NOTE: The following fuels require the specified percent reduction in potential combustion concentrations: - gaseous fuels, 25 percent - liquid fuels, 30 percent - solid fuels, 65 percent.) Verify that fuel consumption and electrical steam output values are verified monthly in order to calculate boiler efficiency.
JA.1-11. Installations must arrange for a disinterested party to conduct stack sampling every 5 yr on new or substantially modified steam generating units or electric utility steam generating units rated greater than 100 MBtu/h heat input (FGS-Japan 2-3.5(d)).	Verify that the installation has arranged for a disinterested party to conduct stack sampling every 5 yr on such units rated greater than 100 MBtu/h heat input to verify compliance with the requirements of FGS-Japan 2-3.1 and 2-3.2 (see checklist items JA.1-5 through JA.1-8 and JA.1-10). (2)(3)

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.1-12. Existing and new or substantially modified steam-generating units or electric utility steam- generating units rated greater than 100,000 Btu/h (29 kW) heat input must have an annual tune-up to ensure that specific operating requirements are met (FGS-Japan 2-3.6).	Verify that the identified steam-generating unit has an annual tune-up to ensure combustion efficiency of the unit so that the following requirements are met: (1)(2)(3) - for natural gas, the acceptable range of excess O_2 at high firing rates is 0.5 percent through 3 percent - for liquid fuels, the acceptable range of excess O_2 at high firing rates is 2 percent through 4 percent - CO emissions are below 400 ppm by volume - the flame is stable and does not impinge on the furnace walls or burner parts - visible emmisions do not exceed 20 percent capacity, except for one 6-min period per hour of not more than 30 percent capacity.
JA.1-13. New or substantially modified steam-generating units or electric utility steam-generating units rated greater than 100,000 Btu/h (29 kW) heat input but lower than 100 MBtu/h must operate a properly calibrated and maintained continuous emissions monitoring system to measure O_2 emissions and CO emissions (FGS-Japan 2-3.7).	Verify that such steam-generating units operate a properly calibrated and maintained continuous emissions monitoring system for O_2 emissions and CO emissions. (3)

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
FUEL-BURNING SOURCES	
JA.1-14. Fuel-burning facilities with greater than 250 MBtu/h heat input should meet specific emissions standards (MP).	Verify that the opacity of emissions is less than 20 percent, except for one 6-min period of no greater than 27 percent per hour. (2)(3) Verify that particulate emissions do not exceed 0.10 lb/MBtu. Verify that SO_2 emissions do not exceed levels outlined in Table 1-3. Verify that NO_x emissions do not exceed levels outlined in Table 1-3.
JA.1-15. Fuel-burning facilities with greater than 250 MBtu/h heat input should be equipped with specific types of monitoring instruments (MP).	Verify that the following monitors are in place: (2)(3) - NO_2 continuous monitor - opacity monitor (except in gaseous fuel burners) - SO_2 monitor (except for fossil fuel-fired steam-generators not using a fuel gas desulfurization device, and gaseous fuel burners) - fuel sampling monitor when SO_2 monitor is not required - CO_2 or O_2 monitors (except when continuous monitoring systems are not required for SO_2 or NO_x). Verify that such monitors are calibrated and properly maintained. Verify that, for fuel consumption and electrical steam output instruments: - instruments are correctly installed and operating - instruments are calibrated every 24 h - monitoring records are maintained for 2 yr. Verify that the installation maintains records of fuel analysis. Verify that such records contain information on: - sulfur content - ash content - heating value.

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
JA.1-16. Steam-generating units with a maximum design heat input capacity of greater than or equal to 10 MBtu/h but less than 100 MBtu/h should meet specific standards for emissions of particulates (MP).	Verify that facilities that combust coal or mixtures of coal with other fuels and have a heat input capacity of 30 MBtu/h or greater do not discharge particulate matter in excess of: (2)(3) - 22 ng/J heat input (0.05 lb/MBtu), if the facility combusts only coal or coal with other fuels and has an annual capacity factor of 10 percent for the other fuels - 43 ng/J heat input (0.10 lb/MBtu), if the facility combusts coal with other fuels, and has an annual capacity factor greater than 10 percent for the other fuels. Verify that facilities that combust wood or mixtures of wood with other fuels, except coal, and have a heat input capacity of 30 MBtu/h or greater do not discharge particulate matter in excess of: - 43 ng/J heat input (0.10 lb/MBtu), if the facility has an annual capacity factor for wood greater than 30 percent - 130 ng/J heat input (0.30 lb/MBtu), if the facility has an annual capacity factor for wood of 30 percent or less. Verify that facilities with a heat input capacity of greater than 30 MBtu/h that combust coal, wood, or oil do not discharge gases with greater than 20 percent opacity (6-min average), except for one 6-min period per hour of not more than 27 percent opacity. (NOTE: Particulate matter and opacity standards apply at all times, except during periods of startup, shutdown, or malfunction.)
JA.1-17. Steam-generating units with a maximum design heat input capacity of greater than or equal to 10 MBtu/h, but less than 100 MBtu/h, should meet specific monitoring standards for SO_2 and particulate matter (MP).	Verify that the installation installs, calibrates, maintains, and operates continuous emissions monitoring systems for measuring SO_2 concentrations and either O_2 or CO_2 concentrations at the outlet of the SO_2 control device or the outlet of the steam-generating unit if no control device is used. (2)(3) Verify that, if continuous emissions monitoring systems for SO_2 are not used, the fuel is sampled prior to combustion. Verify that the installation installs, calibrates, maintains, and operates a continuous monitoring system for measuring opacity.

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.1-18. Municipal waste combustors with a capacity greater than 225 Mg (250 tons) per day of municipal solid waste or refuse-derived fuel should meet specific operational standards (MP).	Verify that gases are not discharged that contain the following constituents in excess of the least stringent amount listed: (2)(3) - dioxin/furan in excess of 30 ng/dscm (12 gr/bdscf, corrected to 7 percent O_2 (dry basis) - SO_2 in excess of 20 percent of the potential SO_2 emission rate or 30 ppm by volume, corrected to 7 percent O_2 (dry basis) - hydrogen chloride in excess of 5 percent of the potential hydrogen chloride emission rate (95 percent reduction by weight or volume), or 25 ppm by volume, corrected to 7 percent O_2 (dry basis) - NO_x emissions in excess of 180 ppm by volume, corrected to 7 percent O_2 (dry basis). Verify that facilities meet the operating standards for CO emissions outlined in Table 1-4. Verify that the installation implements the following operating practices: - facilities do not operate at a load level greater than 110 percent of the maximum demonstrated municipal waste combustor unit load - facilities do not operate at a temperature exceeding 17 °C [≈63 °F] above the maximum demonstrated particulate matter control device temperature.
JA.1-19. Municipal waste combustors with a capacity greater than 225 Mg (250 tons) per day of municipal solid waste or refuse-derived fuel should meet specific recordkeeping requirements (MP).	Verify that the installation maintains an operating manual at the facility. (2)(3) Verify that the operating manual includes: - applicable standards - procedures for receiving, handling, and feeding municipal solid waste - startup, shutdown, and malfunction procedures - operational provisions for meeting emission standards - response procedures for emergency situations - monitoring procedures - procedures for handling ash - reporting and recordkeeping requirements. Verify that the installation updates the operating manual annually.

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.1-19. (continued)	Verify that the installation maintains records of the following for 2 yr: - emissions rates - dates when excess emissions were identified and reason for excess emissions - operating days when the minimum numbers of hours of SO_2 or NO_x emissions or operational data have not been obtained and the reasons - identification of the times when SO_2 or NO_x emissions or operational data have been excluded from the calculation of average emission rates or parameters and the reason for exclusion - results of daily SO_2, NO_x, and CO continuous emission monitoring systems drift tests and accuracy assessments - results of all annual performance tests - continuous emissions monitoring data for opacity, SO_2, NO_x, CO, load level, and particulate matter control device temperature - names of the people who have completed the review of the operating manual - weights of municipal solid waste and other fuel combusted when being used in a cofired combustor with a municipal waste capacity greater than 225 Mg/day (250 tons/day) - the amount of nonmedical and medical waste combusted on a daily basis for combustors firing both medical waste and other municipal solid waste, unless it is assumed that the total heat input to the combustor is from municipal solid waste with a design heating value of 10,500 kJ/kg (4500 Btu/lb).
INCINERATORS	
JA.1-20. New or substantially modified incinerators that burn more than 5 tons/day [4536 kg] or that burn more than 10 percent sewage sludge must meet specific emissions limitations (FGS-Japan 2-3.8).	Verify that no incinerator discharges any gas into the atmosphere that contains particulate matter in excess of 0.18 g/dscm (0.08 gr/dscf) corrected to 12 percent CO_2. (2)(3) Verify that incinerators that process beryllium-containing waste, beryllium, beryllium oxide, or beryllium alloys do not emit more than 10 g [0.02 lb] of beryllium into the atmosphere over a 24-h period. Verify that visible emissions do not exceed 20 percent opacity.

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
GASOLINE	
JA.1-21. Leaded gasoline should not be introduced into any motor vehicle that is labeled UNLEADED GASOLINE ONLY or that is equipped with a gasoline tank filler inlet designed for introduction of unleaded gasoline (MP).	Determine what grades of gasoline are used and where they are dispensed. (4)(5)(10) Verify that controls are in place to ensure proper fueling of vehicles. Verify that fuel pump nozzles are properly sized.
JA.1-22. Bulk gasoline terminals that deliver liquid product into large tank trucks should meet specific operating standards (MP).	(NOTE: A bulk gasoline terminal is any gasoline facility that receives gasoline by pipeline, ship, or barge, and has a gasoline throughput greater than 75,700 L/day [≈ 20,000 gal/day].) Verify that the bulk gasoline terminal has a vapor collection system designed to collect the total organic compound vapors displaced from tank trucks during product loading and to prevent the total organic compounds collected at on-loading racks from passing to another loading rack. (4)(5) Verify that emissions from the vapor collection system do not exceed 35 mg of total organic compound per liter of gasoline loaded. Verify that the following loading procedures are followed: - vapor tightness documentation is available for each gasoline tank truck - the tank identification number is recorded as each gasoline tank truck is loaded - each tank identification number is cross-checked with the file of tank vapor tightness documentation within 2 week after the tank is loaded - steps are taken to ensure that only vapor-tight tanks are loaded and that vapor collection systems are operational. Verify that the vapor collection and liquid loading equipment is designed and operated to prevent gauge pressure in the delivery tank from exceeding 4500 Pa (450 mm of water) during product loading. Verify that pressure vacuum vents in the vapor collection system do not open at a system pressure of less than 4500 Pa (450 mm of water). Verify that the installation conducts a monthly inspection of the vapor collection system, the vapor processing system, and each loading rack handling gasoline. Verify that the above inspections are conducted when loading is in progress. Verify that the installation establishes inspection records and keeps them on file for 2 yr.

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.1-22. (continued)	Verify that leaks are repaired within 15 calendar days after detection. Verify that records of all replacements or additions of components performed on existing vapor processing systems are kept for at least 3 yr.
MOTOR VEHICLES	
JA.1-23. Installations must maintain DOD-owned, nontactical vehicles so as to prevent excessive emissions (FGS-Japan 2-3.11).	Verify that all vehicles are inspected every 2 yr to ensure that all factory-installed emission control equipment is intact and operational. (5) Verify that only unleaded gasoline is used in vehicles designed for unleaded gasoline.
JA.1-24. All Air Force vehicles must be tested with an infrared exhaust tester (for gasoline engines) or an opacity meter (for diesel engines) to certify exhaust emissions standards (AFTO 00-20B-5, Section 2-6(d)).	Verify that an infrared emission tester/opacity meter is used to certify emission tests on gasoline/diesel engines. (6)
VOCs	
JA.1-25. Publication rotogravure printing presses, except for proof presses, should meet specific VOC emissions standards (MP).	Determine whether the installation operates any publication rotogravure printing presses. (3) Verify that gases are not being discharged that contain VOCs in amounts greater than or equal to 16 percent of the total mass of VOC solvent and water used at that facility during any single performance averaging period. (NOTE: Each performance averaging period is 30 consecutive calendar days.) Verify that, if the installation uses waterborne ink systems or solventborne ink systems with solvent recovery systems, it records: - the amount of solvent and water used - the amount of solvent recovered - an estimated emission percentage for each calendar month. Verify that the installation maintains these records for 2 yr.

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.1-26. Liquid petroleum storage vessels with a storage capacity greater than 151,600 L (40,000 gal) should meet specific standards (MP).	Determine the true vapor pressure of the liquids stored in such vessels. (2)(4) Verify that vessels storing petroleum liquid with a true vapor pressure equal to or greater than 1.5 psia [10.3 kPa absolute], but less than 11.1 psia [76.5 kPa absolute], are equipped with one of the following: - an external floating roof - a fixed roof with an internal floating type cover equipped with a continuous closure device between the tank wall and edges - a vapor recovery system that collects all VOC vapors and gases discharged from the storage vessel and a vapor return or disposal system to process the VOC vapors and gases to reduce emissions by at least 95 percent by weight - an equivalent, approved system. Verify that vessels storing petroleum liquids with a vapor pressure greater than 11.1 psia [76.5 kPa absolute] are equipped with a vapor recovery system that collects all VOC vapors and gases and a vapor return or disposal system that is designed to process the VOC vapors to reduce emissions by at least 95 percent by weight. Verify that the installation takes the following measurements: - gap measurement for primary seals of external floating roofs at least once every 5 yr - gap measurement for secondary seals of external floating roofs at least annually. Verify that the following records are kept: - gap measurement, for at least 2 yr following the date of measurement - the petroleum liquid stored, the period of storage, and the maximum true vapor pressure during the storage, unless the storage vessel has a vapor recovery and return or disposal system.

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.1-27. Volatile organic liquid (VOL) storage vessels with a capacity of greater than or equal to 75 m^3 (≈19,800 gal) should meet specific standards (MP).	Determine the vapor pressure of the liquids stored in such vessels. (2)(4) Verify that storage vessels with a design capacity greater than or equal to 151 m^3 [≈39,890 gal] containing VOL with a vapor pressure equal to or greater than 5.2 kPa [0.75 psia], but less than 76.6 kPa [11.1 psia], or storage vessels with a capacity greater than or equal to 75 m^3 [≈19,800 gal], but less than 151 m^3 [≈39,890 gal], containing VOL that has a maximum vapor pressure equal to or greater than 5.2 kPa [0.75 psia], but less than 76.6 kPa [≈11.1 psia], are equipped with one of the following: - a fixed roof in combination with an internal floating roof - an external floating roof - a closed vent system and control device that reduces emissions by 95 percent by weight - an approved, equivalent system. Verify that storage vessels with a design capacity greater than or equal to 75 m^3 [≈19,800 gal] containing a VOL with a maximum true vapor pressure greater than or equal to 76.6 kPa [≈11.1 psia] are equipped with one of the following: - a closed vent system and control device that reduces emissions by 95 percent by weight - an approved, equivalent alternative method. Verify that the accumulated area of gaps does not exceed 212 cm^2/m [≈10 $in.^2/ft$] of tank diameter between the tank wall and the primary seal and that the width of any portion of any gap does not exceed 3.81 cm [≈2 in.]. Verify that the accumulated area of gaps does not exceed 21.2 cm^2/m [1 $in.^2/ft$] of tank diameter between the tank wall and the secondary seal and that the width of any portion of any gap does not exceed 1.27 cm [0.5 in.].
JA.1-28. VOL storage vessels with a capacity of greater than or equal to 40 m^3 (≈10,567 gal) should meet specific inspection and documentation standards (MP).	Verify that the installation inspects internal floating roofs, primary seals, and secondary seals for holes, tears, or defects before filling the tank. (2)(3)(4) Verify that the installation conducts visual inspections of the internal floating roof and primary or secondary seals of vessels with a liquid-mounted or mechanical shoe primary seal at least once every 12 mo after the initial fill. Verify that the installation either repairs vessels or removes them from service within 45 days of discovering problems. Verify that the installation inspects vessels with double-seal systems at least once every 5 yr.

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.1-28. (continued)	Verify that the installation inspects internal floating roofs, primary seals, secondary seals, gaskets, slotted membranes, and sleeve seals each time the storage vessel is emptied and degassed. Verify that, when control equipment is installed, gap areas are measured at least: - once every 5 yr for gaps between the tank wall and the primary seal - once a year for gaps between the tank wall and the secondary seal. Verify that, for vessels with a design capacity greater than or equal to 151 m^3 [≈39,890 gal], storing a liquid with a maximum true vapor pressure greater than or equal to 3.5 kPa [0.5 psia], or with a design capacity greater than or equal to 75 m^3 [≈19,800 gal], but less than 151 m^3 [≈39,890 gal], storing a liquid with a true vapor pressure greater than or equal to 15.0 kPa [2.2 psia], the installation keeps a record of the following: - the VOL stored - the period of storage - the maximum true vapor pressure of that VOL during the storage period. (NOTE: This requirement does not apply to vessels that store a waste mixture of indefinite or variable composition or vessels equipped with a closed vent system and control device.)
FUGITIVE EMISSIONS **JA.1-29.** Installations should manage the emission of volatile hazardous air pollutants (VHAPs) in accordance with specific requirements (MP).	Determine whether the installation operates such sources in VHAP service. (2)(3) Verify that when a leak is detected: - weatherproof and readily visible identification, marked with the equipment identification number, is attached to the leaking equipment - identification is removed only after no leak has been detected for 2 mo or the leak is repaired - leaks detected for pumps, compressors, pressure-relief devices in liquid service, and flanges are recorded in a log that is maintained for 2 yr at a readily accessible location.

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.1-29. (continued)	Verify that the following records are maintained: - a list of identification numbers of all equipment to which a standard applies - a list of equipment designated for no detectable emissions - dates of compliance tests - a list of identification numbers for equipment in vacuum service - information and data used to demonstrate that a piece of equipment is not in VHAP service. (NOTE: VHAPs include vinyl chlorides and benzene from pumps, compressors, pressure relief devices, sampling connection systems, flanges and other connectors, and product accumulator vessels operating in VHAP service.)
JA.1-30. Installations should monitor and control the emission of VHAPs from pumps in VHAP service (MP).	Determine whether the installation operates pumps in VHAP service. (2)(3) Verify that the installation visually inspects such pumps for leaks each week. Verify that the installation monitors pumps monthly for leaks, using standard test methods. Verify that leaks are repaired within 15 days of their discovery.
JA.1-31. Installations should monitor and control the emission of VHAPs from compressors in VHAP service (MP).	Determine whether the installation operates compressors in VHAP service. (2)(3) Verify that compressors are equipped with a seal system that includes a barrier fluid system and prevents leakage of process fluids. Verify that the seal system either: - operates with the barrier fluid at a pressure greater than the compressor stuffing box pressure - is equipped with a barrier fluid system connected by a closed-vent system to a control device - is equipped with a system that purges the barrier fluid into a process stream with zero VHAP emissions - contains barrier fluid that is not in VHAP service. Verify that barrier fluid systems are equipped with a sensor to detect the failure of the seal system, barrier fluid system, or both. Verify that sensors are checked daily or have an audible alarm, unless the compressor is located within the boundary of an unmanned plant site.

(1) BCE (Base Civil Engineering/Environmental Planning (2) BES (Bioenvironmental Engineering Services) (3) Air Pollution Source Operator (4) Fuels - Management Branch (5) Transportation - Maintenance Branch (6) LGS (Base Supply) (7) SV (Services Squadron) Auto Hobby Shop (8) Refrigeration Shops (BCE) (9) Equipment Maintenance Squadron (10) AAFES (Army/Air Force Exchange Service) Gas Station (11) Base Staff Judge Advocate

COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.1-32. Installations should monitor and control the emission of VHAPs from pressure relief devices, sampling connection systems, flanges and other connectors, and product accumulator vessels operating in VHAP service (MP).	Determine whether the installation operates such sources in VHAP service. (2)(3) Verify that, except during pressure releases, the pressure relief devices in gas/vapor service are operated with no detectable emissions, as indicated by an instrument reading of less than 500 ppm above background. Verify that after a pressure release, the device is returned to a state of no detectable emissions within 5 days. Verify that sampling connectors are equipped with a closed-purge system or closed-vent system that either: - returns the purged process fluid directly to the process line - collects and recycles the purged process fluid - is designed and operated to capture and transport all purged process fluid to a control device. Verify that pressure relief devices in liquid service and flanges and other connectors are monitored within 5 days if evidence of a potential leak is found by visual, audible, olfactory, or any other detection method and repaired within 15 days. Verify that product accumulator vessels are equipped with a closed-vent system capable of capturing and transporting any leakage from the vessel to a control device.
JA.1-33. Valves and lines in VHAP service should be operated according to specific procedures (MP).	Determine whether valves and lines at the installation, including those exposed to vinyl chlorides and benzene, are in VHAP service. (2)(3) Verify that open-ended valves or lines are equipped with a cap, blind flange, or second valve that seals the open end at all times, except during operations requiring process fluid flow through the valve or line. Verify that open-ended valves or lines with a second valve are operated in such a way that the valve on the process fluid end is closed before the second valve.
JA.1-34. Systems and devices used to control VHAP emissions should be operated according to specific standards (MP).	Verify that vapor recovery systems are designed and operated to recover the organic vapors vented to them with 95 percent or greater efficiency. (2)(3) Verify that enclosed combustion devices are designed and operated to reduce the VHAP and benzene emissions vented to them with an efficiency of 95 percent or greater or provide a minimum residence time of 0.50 s at a minimum temperature of 760 °C [1400 °F].

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.1-34. (continued)	Verify that closed-vent systems: - have no detectable emissions - are monitored annually - have leaks repaired within 15 days of their discovery. Verify that closed-vent systems and control devices are operated at all times when emissions may be vented to them. Verify that the installation maintains in a readily accessible location the following records pertaining to closed-vent systems and control devices: - detailed schematics - dates and descriptions of any changes to the system - periods when they are not operating - dates of startups and shutdowns.
VAPOR DEGREASERS	
JA.1-35. Vapor degreasers in use after 1 January 1995 must incorporate systems that minimize the direct release of VOCs to the atmosphere (FGS-Japan 2-3.10).	Verify that the installation uses systems such as covered or refrigerated systems to minimize direct release of VOCs to the atmosphere. (3)(4)(5)(7)(8)(9)(10)
DRY CLEANING	
JA.1-36. Petroleum solvent dry cleaning dryers, washers, filters, stills, and settling tanks at petroleum dry cleaning plants with a total manufacturer's rated dryer capacity equal to or greater than 38 kg (84 lb) should meet specific operating standards (MP).	Verify that installation dryers are solvent recovery dryers. (2)(3) Verify that the petroleum solvent filters are cartridge filters that are drained in their sealed housing for at least 8 h before their removal. Verify that a clearly visible label regarding fire protection and inspection is posted on the dryer.

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COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
CFCs AND HALONS	
JA.1-37. Installations must meet specific requirements with regard to the management of CFCs and halons (FGS-Japan 2-3.9(a) through 2-3.9(g)).	Verify that, if required, the installation submits an annual ODC procurement/usage report in accordance with applicable component directives. (1) Verify that the installation has established procedures that eliminate the unnecessary release of ODCs to the atmosphere. Verify that the installation identifies and prioritizes ODC uses and applications to ensure that available supplies meet mission-critical needs. Verify that, when appropriate, the installation modifies operational, training, and testing practices to minimize the emissions of ODCs. Verify that the installation adopts conservation practices such as the following when appropriate and consistent with mission requirements: - recycling - reuse - dilution - substitution. Verify that, when consistent with mission requirements, the installation adopts suitable substitutes for ODCs. Verify that the installation has established contract review procedures to prevent or minimize the use of ODCs in existing and future systems.
JA.1-38. Installations must meet specific standards during the servicing of equipment that contains CFCs or halons (FGS-Japan 2-3.9(h) and 2-3.9(i)).	Verify that all repairs or service to nontactical vehicle air conditioners use commercially available refrigerant recycling equipment, operated by properly trained/certified personnel. (5)(7)(8) Verify that documentation on training/certification is maintained at the installation. (NOTE: These requirements do not apply to tactical vehicles.) Verify that no activity intentionally vents any Class I or Class II CFC refrigerant (see Table 1-1) in the process of maintaining, servicing, repairing, or disposing of an appliance or industrial process refrigeration unit.

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Table 1-1

Class I and Class II Ozone-Depleting Substances

(FGS-Japan Table 2-1)

CLASS I	CLASS II
CFC-11	CFC-12
CFC-13	CFC-111
CFC-112	CFC-113
CFC-114	CFC-115
CFC-211	CFC-212
CFC-213	CFC-214
CFC-215	CFC-216
CFC-217	Halon-1211
Halon-1301	Halon-2402
Carbon Tetrachloride	Methyl Chloroform
HCFC-21	HCFC-22
HCFC-31	HCFC-121
HCFC-122	HCFC-123
HCFC-124	HCFC-131
HCFC-132	HCFC-133
HCFC-141b	HCFC-142b
HCFC-221	HCFC-222
HCFC-223	HCFC-224
HCFC-225	HCFC-226
HCFC-231	HCFC-232
HCFC-233	HCFC-234
HCFC-235	HCFC-241
HCFC-242	HCFC-243
HCFC-244	HCFC-251
HCFC-252	HCFC-253
HCFC-261	HCFC-262
HCFC-271	CFC-500
CFC-502	CFC-503

(NOTE: Class I substances must be phased out immediately, Class II as soon as possible.)

Table 1-2

NO_x Emission Limits for New or Substantially Modified Electric Steam Generating Units

(FGS-Japan Table 2-2)

Type of Fuel	Nanograms per Joule	Emission Limits lb/MBtu
Gaseous Fuels:		
Coal-derived	210	0.50
Other	86	0.20
Liquid Fuels:		
Coal derived and shale oil	210	0.50
Other	130	0.30
Solid Fuels:		
Coal-derived	210	0.50
Subbituminous	210	0.50
Bituminous	260	0.60
Anthracite	260	0.60
Other	260	0.60

Table 1-3

Performance Standards
(40 CFR 60)

Source Category	Fuel Type	Pollutant	Emission Level	Monitoring Requirement
40 CFR 60, Subpart D:				
Steam generators* (> 250 MBtu/h) constructed or modified after 8/17/71	Solid Fossil Fuel	Particulate Opacity SO_2 NO_x (except lignite and coal refuse)	0.10 lb/MBtu 20%; 27% 6 min/h 1.20 lb/MBtu 0.70 lb/MBtu	None Continuous Continuous Continuous
	Liquid Fossil Fuel	SO_2 NO_x	0.80 lb/MBtu 0.30 lb/MBtu	Continuous Continuous
	Gaseous Fossil Fuel	NO_x	0.20 lb/MBtu	Continuous
	Lignite	NO_x	0.60 lb/MBtu	Continuous
	Lignite mined in ND, SD, or MT, burned in a cyclone fired unit	NO_x	0.80 lb/MBtu	Continuous
40 CFR 60, Subpart E:				
Incinerators (> 50 tons/day) constructed or modified after 8/17/71	Incinerators	Particulate CO_2	0.08 gr/dscf** corrected to 12% CO_2	Record of daily charging rates and hours of operation

* Does not include electric utility steam generating units that started construction or modification after 18 September 1978.

** gr/dscf - grains per dry standard cubic foot.

Table 1-4

Municipal Waste Combustor Operating Standards for CO

(40 CFR 60.56a Table I)

Municipal Waste Combustor Technology	Emission Limit (ppm by volume)
Mass burn waterwall	100
Mass burn refractory	100
Mass burn rotary waterwall	100
Modular starved air	50
Modular excess air	50
Refuse derived fuel (RDF) stoker	150
Bubbling fluidized bed combustor	100
Circulating fluidized bed combustor	100
Coal/RDF mixed fuel fired combustor	150

INSTALLATION:	COMPLIANCE CATEGORY: AIR EMISSIONS MANAGEMENT Japan ECAMP	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 2

CULTURAL RESOURCES MANAGEMENT

Japan ECAMP

SECTION 2

CULTURAL RESOURCES MANAGEMENT

A. Applicability of this Section

This chapter, relevant to all Air Force (AF) installations, includes plans and programs needed to ensure proper protection and management of cultural resources (which includes historic and prehistoric properties under Department of Defense (DOD) control), and properties on the World Heritage List or on the host nation's list equivalent to the U.S. National Register of Historic Places.

The regulatory requirements in this section are based on DOD regulations and Air Force Instructions (AFIs) that apply at overseas installations. Management Practices (MPs) are derived from DOD regulations and other documents that are not mandatory overseas but are important to follow to preserve the health and safety of AF employees and protect the environment.

B. DOD Directives/Instructions

- *United States Forces-Japan (USFJ) Final Governing Standards* (FGS-Japan), January 1995, Chapter 12 contains criteria for required plans and programs needed for the protection and management of cultural resources.

C. U.S. Air Force Documents

- AFI 32-7062, *Air Force Comprehensive Planning*, 18 April 1994, requires installations to comply with the specifications contained in the Master Statement of Work, the AF document that provides specific details regarding the structure, content, symbology, and other guidance for preparing AF comprehensive plan documents, maps, and databases. The Master Statement of Work (developed by the Air Force Center for Environmental Excellence (AFCEE)) requires that installations maintain maps that address specific environmental issues, including natural and cultural resources issues.

- The *National Historic Preservation Act* of 1966 (16 U.S. Code (USC) 470a-2) requires Installation Commanders (ICs) to inform the Secretary of the AF of property listed on the host nation's equivalent of the U.S. National Register prior to approval of any Federal undertaking that may directly and adversely affect such property.

D. Responsibility for Compliance

- Base Civil Engineering (BCE) is responsible for funding, supervising, controlling, and managing installation historic preservation programs.

- The Base Cultural Resources Manager is responsible for implementing the historic preservation program, and for locating, inventorying, and evaluating installation cultural resources. This is usually an additional duty assignment within BCE.

E. Definitions

- *Action* - all activities or programs authorized, funded, or carried out, in whole or in part, on DOD-controlled installations (FGS-Japan 12-2).

- *Adverse Effect* - changes that diminish the quality or significant value of archaeological or cultural resources or properties (FGS-Japan 12-2).

- *Agent* - an office or individual, such as the cultural resource manager, designated in writing to represent the command in cultural and historical resource matters (FGS-Japan 12-2).

- *Archaeological Resource* - any physical evidence of prehistoric or historic human life or activities. Such resources include above and below ground structures, shelters, and caves; by-products, waste concentrations, and debris scatters; tools, implements, weapons, clothing, and ornaments; human remains and graves; painting or artwork; and all portions of shipwrecks (See Table 2-1) (FGS-Japan 12-2).

- *Consult* - a process in which the agent coordinates with an affected Government of Japan (GOJ) office to seek ways to reduce or avoid adverse effects on cultural and historic properties. Certain interested persons may participate as consulting parties (FGS-Japan 12-2).

- *Cultural Resources* - a generic term commonly used to include buildings, structures, districts, sites, and objects of significance in history, architecture, archeology, engineering, or culture. (FGS-Japan 12-2).

- *Government of Japan (GOJ)* - the government of Japan, including national, prefectural, and municipal levels (FGS-Japan 12-2).

- *Historic Property or Resource* - physical remains of any prehistoric or historic district, site, building, structure, route, or object that, when viewed from an international, national, prefectural, or local vantage, have significant historic, archeological, architectural, cultural, or engineering properties. The term includes ruins, artifacts, and records that are related to the physical remains described in the definition of 'archaeological resource' and all archaeological resources (FGS-Japan 12-2).

- *Inadvertent Discovery* - cultural or archaeological properties/resources, including human remains, exposed through construction/maintenance and repair work, erosion, or other natural and cultural processes. Also known as 'surprise discovery' (FGS-Japan 12-2).

- *Inventory* - a complete list of cultural, historic, and/or archaeological items that may have world, national, or local significance and that is arranged systematically with descriptive details (See Table 2-2) (FGS-Japan 12-2).

- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *Owner* - a Japanese property owner, or local public body, who is legally obligated to protect and preserve cultural/historic properties. The U.S. Government is the owner when artifacts, architecture, and/or remains are identified to be of American origin (FGS-Japan 12-2).

- *Preservation* - the act or process of applying measures to sustain the existing form, integrity, and material of a building or structure and the existing form and vegetative cover of a site (FGS-Japan 12-2).

- *Property* - a site, building, object, structure, or collection of such items (FGS-Japan 12-2).

- *Protection* - the act or process of applying measures designed to affect the physical condition of a property by safeguarding it from loss, vandalism, damage, or alteration. In the case of buildings and structures, such treatment is generally temporary and anticipates future historic preservation treatment; in the case of archaeological sites, the protective measure may be temporary or permanent, such as burial, capping, encapsulation, or exhuming (FGS-Japan 12-2).

CULTURAL RESOURCES MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS: (a)
All Installations	JA.2-1 through JA.2-5	(1)(2)
Cultural Resources Management		
Inventories & Documents General	JA.2-6 through JA.2-11	(1)
Inventories & Documents U.S. Resources	JA.2-12 through JA.2-15	(1)
General	JA.2-16 through JA.2-22	(1)

(a) CONTACT/LOCATION CODE:

(1) Cultural Resources Manager (or Environmental Coordinator)
(2) Base Staff Judge Advocate

CULTURAL RESOURCES MANAGEMENT

Records To Review

- Historic Preservation Plan
- Inventories of cultural property and archaeological resources, if any
- Base Environmental Maps

Physical Features To Inspect

- Construction sites
- Site or landmark of historic or archaeological interest

People To Interview

- Cultural Resources Manager (or Environmental Coordinator)
- Base Staff Judge Advocate

COMPLIANCE CATEGORY: CULTURAL RESOURCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
JA.2-1. Determine actions or changes since previous review (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (1)
JA.2-2. Copies of all relevant DOD directives/ instructions, U.S. Air Force (USAF) directives, and guidance documents should be maintained at the installation (MP).	Verify that copies of the following regulations are maintained and kept current at the installation: (1)(2) - *USFJ Final Governing Standards* (FGS-Japan), January 1995 - *USFJ Final Governing Standards* (FGS-Japan), January 1995 - AFI 32-7062, *Air Force Comprehensive Planning*, 18 April 1994. Verify that the Base Staff Judge Advocate (SJA) reviews the documents annually for currency and completeness and submits the findings of the review to the Base Environmental Protection Committee.
JA.2-3. Installations must meet regulatory requirements issued since the finalization of the manual (a finding under this checklist item will have the citation of the new regulation as a basis of finding).	Determine whether any new regulations concerning cultural resources have been issued since the finalization of the manual. (1)(2) Verify that the installation is in compliance with newly issued regulations.
JA.2-4. The installation Cultural Resources Manager should be included in the coordination process for all actions that may affect the installation's cultural resources (MP).	Verify that the Cultural Resources Manager is included in the coordination process for all actions that may affect the installation's cultural resources. (1)

JA.2-5. Installations must develop base environmental maps that address particular topics (AFI 32-7062, para 2.4).	Verify that the installation is developing the following maps: (1)
	- Map A: Natural and Cultural Resources
	  - Map A-1: Areas of Critical Concern
	  - Map A-2: Management Areas
	- Map B: Environmental Quality
	  - Map B-1: Environmental Regulatory Issues
	  - Map B-2: Environmental Emission Sources.

(1) Cultural Resources Manager (or Environmental Coordinator) (2) Base Staff Judge Advocate

COMPLIANCE CATEGORY: CULTURAL RESOURCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.2-5. (continued)	(NOTE: These maps are specified in the Master Statement of Work developed by AFCEE.)
CULTURAL RESOURCES MANAGEMENT	(NOTE: Under the terms of FGS-Japan 12-4.5, the owner [see definitions] is responsible for preserving, restoring, and/or altering cultural properties and historical ruins.)
Inventories and Documents -- General	
JA.2-6. Installations must develop a directive governing actions that affect cultural resources (FGS-Japan 12-4.1).	Verify that the installation has developed a directive governing actions that affect cultural resources. (1) Verify that the directive identifies the agent (see definitions). Verify that the directive includes the production of a Cultural Resource Inventory and Protection Plan. Verify that the directive includes the production of Inadvertent Discovery Instructions, under separate cover from the directive itself, that cover cultural resources (excluding human remains) and the treatment of human remains. Verify that the directive establishes Cultural Resources Site Review procedures.
JA.2-7. Installations must inventory and document cultural resources found in all areas under DOD control (FGS-Japan 12-4.2).	Verify that the installation inventories and documents cultural resources found in all areas under DOD control. (1) (NOTE: This requirement applies to cultural resources both of Japanese and of American origin, and it applies regardless of whether the resource has been removed, and/or the original site altered.) Verify that, in the event a resource has been removed or the site altered, the inventory contains the date of removal and a description of the circumstance of change. Verify that the installation consults with the affected City Board of Education Office when identifying and evaluating cultural resources. Verify that the inventory is continuously updated. (NOTE: Installations may expect to be provided with maps or other information concerning known cultural resources by the national government or by local government agencies such as the City Board of Education Office. See also Table 2-3.) Verify that the inventory meets the requirements in Table 2-2.

(1) Cultural Resources Manager (or Environmental Coordinator) (2) Base Staff Judge Advocate

COMPLIANCE CATEGORY: CULTURAL RESOURCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.2-8. Installations must develop a Cultural Resource Protection Plan that meets specific requirements (FGS-Japan 12-4.3).	Verify that the installation has developed a Cultural Resource Protection Plan. (1) Verify that the plan meets the requirements of Table 2-2.
JA.2-9. Installations must establish detailed instructions that outline procedures for inadvertent discovery (FGS-Japan 12-4.7).	Verify that the installation has established detailed instructions for the inadvertent discovery of both human remains and other cultural resource remains. (1) (NOTE: See Table 2-4.)
JA.2-10. Installations must conduct a Cultural Resources Site Review before beginning any construction or repair work (FGS-Japan 12-4.6, 12-4.6(b), and 12-4.6(c)).	Verify that, before beginning any construction or repair work, the installation conducts an analysis of the proposed site to determine the presence or absence of cultural and archaeological resources. (1) (NOTE: This requirement applies without regard to the source of the funding for the construction or repair work. It also applies to major military construction (MILCON) and Japanese Facilities Improvement Program (JFIP) projects. JFIP projects also undergo a more extensive GOJ/DFAB coordinated site investigation for unknown cultural assets.) (NOTE: Emergency repair work does not require pre-approval, but DOD staff/contractors should proceed with caution.) Verify that, if a cultural property is adversely effected or discovered inadvertently in the course of emergency repair work, the agent is notified in a timely manner.
JA.2-11. Installations must meet specific minimum requirements with respect to Cultural Resources Site Reviews (FGS-Japan 12-4.6(a)).	Verify that the site analysis clearly identifies the impact (or potential impact) of the proposed project on cultural resources and the resolutions for those impacts. (1) (NOTE: Site approval may specify site limitations, restrictions, or provisos, which remain in effect for the life of the project, regardless of project funding.) Verify that the review includes a site plan illustrating the limit of construction and/or work. (NOTE: Modifications to the project boundaries invalidate the site approval and must be re-evaluated by the agent prior to work commencement.) Verify that the agent maintains records of processed actions.

(1) Cultural Resources Manager (or Environmental Coordinator) (2) Base Staff Judge Advocate

COMPLIANCE CATEGORY: CULTURAL RESOURCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Inventories and Documents -- U.S. Historical Resources/ Architecture	
JA.2-12. Installations must inventory their properties to determine whether any resources or architecture of historic significance are present (FGS-Japan 12-4.8(a)).	Verify that the installation has surveyed its property for the following: (1) - properties 50 yr old or older - properties less than 50 yr old that have unique scientific and technical features - properties that have historical significance equivalent to that of properties included on the National Register of Historic Places.
JA.2-13. Installations must meet preservation and protection requirements with regard to resources or architecture of historic significance (FGS-Japan 12-4.8(b)).	Determine whether the installation has any resources or architecture of historic significance. (1) Verify that the installations protects and preserves such properties in a thoughtful manner. Verify that such properties are used for mission purposes consistent with their preservation. Verify that documentation is maintained when such properties are altered. Verify that such properties are considered during planning and development processes.
JA.2-14. Installations must inventory, preserve, and protect all DOD cultural resources associated with the origins and development of the Cold War (FGS-Japan 12-4.8(c)).	Verify that the installation inventories, preserves, and protects all DOD cultural resources associated with the origins and development of the Cold War. (1) (NOTE: This requirement applies to physical and literary properties.) Verify that there is coordination with COMUSJAPAN on such properties.

(1) Cultural Resources Manager (or Environmental Coordinator) (2) Base Staff Judge Advocate

COMPLIANCE CATEGORY: CULTURAL RESOURCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.2-15. Installations that assume control of cultural resources as owner must contact COMUSJAPAN for further instruction (FGS-Japan 12-4.9).	Determine whether the installation is assuming control as owner of cultural resources. (1) Verify that the installation has contacted COMUSJAPAN for further instructions. (NOTE: Long-term management and preservation of cultural artifacts of U.S. origin requires special permission from the Office of the Deputy Under Secretary of Defense (Environmental Security) Cultural Resources.)
General	
JA.2-16. Installation Commanders (ICs) have specific responsibilities with regard to properties on the host nation's equivalent of the United States' National Register (16 USC 470a-2, Section 402).	Determine whether any Federal undertaking may directly and adversely affect a property that is on the host nation's equivalent of the United States' National Register. (1) Verify that the IC informs the Secretary of the Air Force (SAF/MIQ) of such property. (NOTE: This notification is to be made so that the Secretary of the Air Force may take into account the effect of the undertaking on such property for purposes of avoiding or mitigating any adverse effects.) Verify that the IC takes the above action prior to the approval of the undertaking.
JA.2-17. Installations must meet specific requirements with regard to designated agents (FGS-Japan 12-3.1 and 12-3.2).	Verify that the designated agent has the requisite expertise in world, national, and local history, architecture, and culture. (1) Verify that the agent stays current with DOD, service component, and associated U.S. and GOJ federal agency activities that effect the cultural resource mission. (NOTE: This includes, but is not limited to, attendance at annual workshops, conferences, or symposiums.)
JA.2-18. Installations must use all reasonable measures to manage protection of resources and mitigation of any adverse effects (FGS-Japan 12-4.3(a)).	Verify that the installation uses all reasonable measures to manage protection of cultural resources and mitigation of any adverse effects. (1) Verify that the installation adheres to all provisions in the Cultural Resource Protection Plan that pertain to the protection of cultural resources throughout training areas. Verify that units/activities do not use designated off limits areas.

(1) Cultural Resources Manager (or Environmental Coordinator) (2) Base Staff Judge Advocate

COMPLIANCE CATEGORY: CULTURAL RESOURCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.2-18. (continued)	Verify that military operations and training activities are conducted in accordance with the guidance in FGS-Japan so as to minimize adverse effects on land and cultural resources.
JA.2-19. Units/activities must notify the agent in a timely manner if a cultural resource suffers damage or loss (FGS-Japan 12-4.3(a)).	Verify that units/activities notify the agent in a timely manner if damage or loss occurs. (1)
JA.2-20. Installations must notify the owner in the event of loss or damage to a cultural resource (FGS-Japan 12-4.3(b)).	Verify that the installation notifies the owner in the event of loss or damage to a cultural resource. (1)
JA.2-21. Installations must not conduct certain activities in areas under DOD control without the written permission of the agent (FGS-Japan 12-4.4).	Verify that the written permission of the agent is secured to collect, dig, possess, sell, or trade in cultural artifacts. (1)
JA.2-22. Installations must meet specific requirements with regard to public relations and education (FGS-Japan 12-4.10).	Verify that the installation develops programs to inform the public about its plans and activities for cultural resources protection and management. (1) Verify that the installation takes part in Historic Preservation Week activities or other DOD/community cultural resources programs. Verify that the installation develops environmental education programs with the help of educational institutions for military service members and the public.

(1) Cultural Resources Manager (or Environmental Coordinator) (2) Base Staff Judge Advocate

Table 2-1

Protected Cultural Resources

(FGS-Japan Table 12-1)

Properties on the World Heritage List
Properties on Japan's Special Historical Heritage List
Special Natural Scenery, including mountain valleys and seashores
Specially Designated Flora/Fauna and Historic Environmental Conservation Areas
Monuments and Historic Ruins, including Dumping Places, Tomb Mounds, Ruins of Castles and Other Historically Valuable Ruins
Japanese Preserved Areas for Important Traditional Architecture and Gardens
Buried Cultural Properties
World War II Properties and Artifacts
Cold War Properties and Artifacts

Table 2-2

Cultural Resource Inventory and Protection Plan Outline

(FGS-Japan Table 12-3)

1. General Requirements:

   a. The Inventory, including mapping, must be continuously updated as changes occur; the Protection Plan must be modified as needed.
   b. It must have a consistent format within each service component and be reviewed and approved in accordance with service component directives.
   c. It should be set up for each camp or district geographic area. Remote sites can be consolidated for documentation purposes.
   d. It must insure that any newly acquired land is immediately incorporated into the Inventory and Protection Plan. Any land released is dropped from the Protection Plan; inventory records must be maintained for 5 additional years and copies turned over to the affected City Education Office.
   e. It should identify the key persons and phone numbers of all affected City Education, Prefectural level, and DFAB offices.

2. Historic and Cultural Resource Inventories Must:

   a. Provide a detailed description of the historical or cultural resource and its significance and/or value. They must identify a major historical time period classification, such as "Pre-European prior to 1790," "World War II," etc.
   b. Include a separate section for historic buildings. These include structures which are over 50 years old and have historic significance; properties less than 50 years old which have unique scientific and technical features or are associated with the Cold War; and structures which have historical significance equivalent to that of properties included on the National Register of Historic Places.
   c. Provide a photograph and/or accurate graphic depicting each cultural/historical site.
   d. List each owner, including current address, phone number, and cross referenced to a site.
   e. Have the location accurately mapped, including:
      (1) Grid coordinates and/or horizontal limits shown to scale of known properties above and below ground, as determined by actual field work or observation
      (2) Each resource identified with a unique number
      (3) Areas shown likely to contain archaeological and historic resources. This can be based on scientific studies.

(continued)

Table 2-2 (continued)

3. Protection Plan Requirements Include:

a. Detailed procedures dealing with the physical protection of resources. Specific steps designed to lessen the adverse effects of various DOD actions on a cultural resource can include:
   (1) Limiting the magnitude of the action
   (2) Relocating the action in whole or in part
   (3) Documenting and recording data from properties that may be destroyed or substantially altered, then exhuming and removing
   (4) Documenting and recording data from properties that may be destroyed or substantially altered, then leaving them "in situ" or in place with protection measures.

b. Documenting the extent of damage on a site by factors such as tacit farming practices, erosion, fire, or other adverse impacts.

c. Specifying the responsibilities of military operations and training actions on cultural resources; providing details of "off-limit" training area locations and other restrictions.

d. Detailed procedures dealing with public access to praying sites including tombs, springs, and other special locations.

Table 2-3

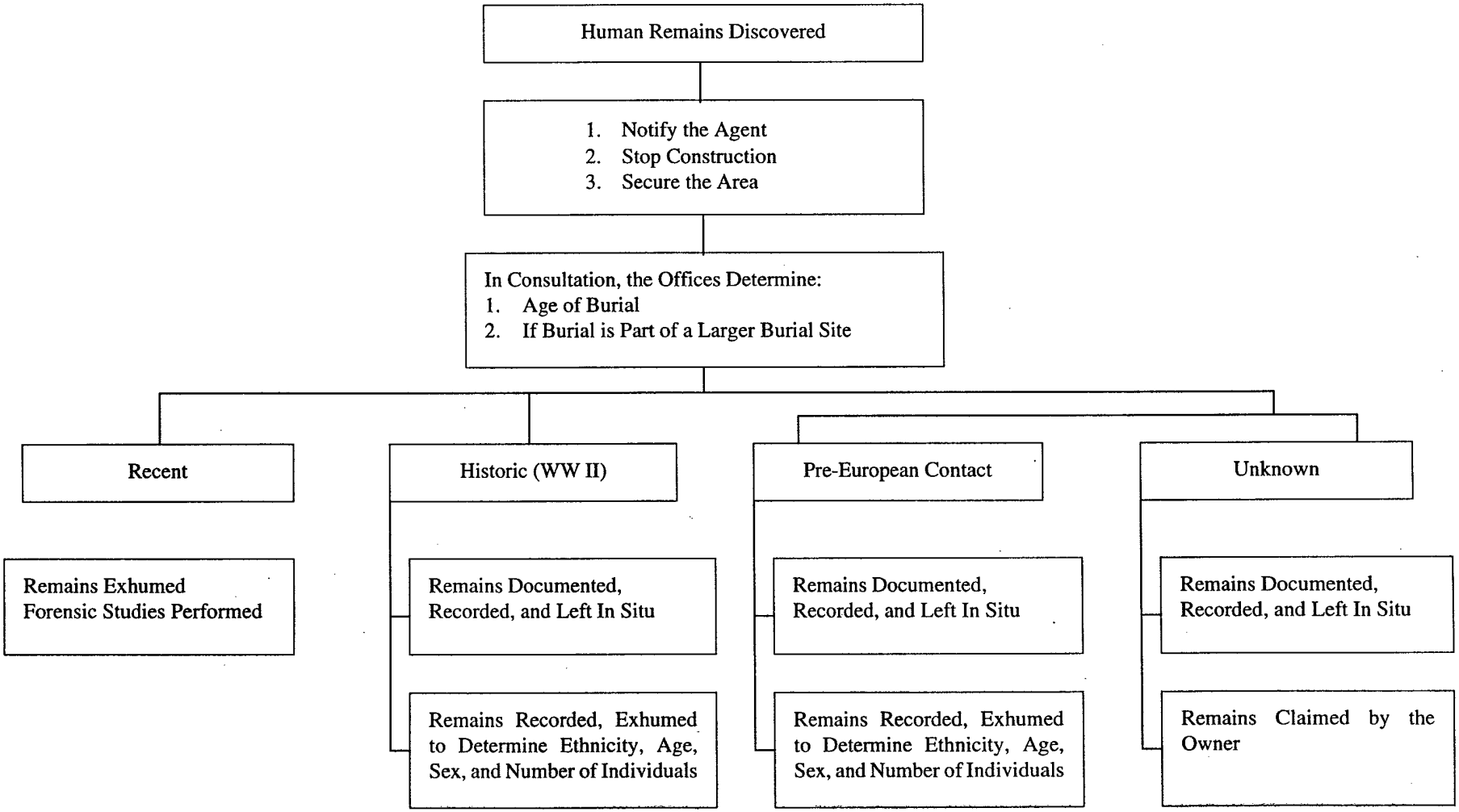
Cultural Resource Inventory Sources

(FGS-Japan Table 12-4)

Aomori Prefecture, *Cultural Administration in Aomori*, Culture Section, Education Agency, 1993
Fukuoka Prefecture, *Designated Cultural Resources*, Board of Education, 1992
Fukuoka Prefecture, *Map of Cultural Properties in Fukuoka*
Hokkaido Prefecture, *List of Designated Cultural Properties Designated by the National Government*
Hokkaido Prefecture, *A List of Designated Cultural Properties Designated by the Hokkaido Prefecture*
Kanagawa Prefecture, *Catalog of Cultural Properties in Kanagawa*
Kanagawa Prefecture, *Location Map of Cultural Properties in Kanagawa*
Nagasaki Prefecture, *Cultural Properties in Nagasaki*, 1991
Okinawa Prefecture, *Guidebook to the Protection of Cultural Resources in Okinawa*, Culture Section, Education Agency, 1992
Okinawa Prefecture, *Cultural Assets of Okinawa*, Education Agency, 1975*
Okinawa Prefecture, *Cultural Properties of Okinawa, Part II: Historic Sites & Places of Scenic Beauty*, Education Agency, 1994*
Saitama Prefecture, *Catalog of Cultural Properties in Saitama*, Board of Education, Political Information Reference Room, 1991
Shizuoka Prefecture, *Handbook of Designated Cultural Properties in Shizuoka*, Shizuoka Association for the Protection of Cultural Resources, 1988
Tokyo, *Cultural Properties in Tokyo*, Tokyo Board of Education, Vol. 1 through 4, 1993
Yamaguchi Prefecture, *Catalog of Designated Cultural Properties in Yamaguchi*, Board of Education, 1993
Yamaguchi Prefecture, *Map of Cultural Properties in Yamaguchi*, Board of Education

(NOTE: Documents flagged with an asterisk are available in English, all others are available in Japanese only.)

Table 2-4
A General System for Treatment of Human Remains in Japan
(FGS-Japan Table 12-5)



INSTALLATION:	COMPLIANCE CATEGORY: CULTURAL RESOURCES MANAGEMENT Japan ECAMP	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 3

HAZARDOUS MATERIALS MANAGEMENT

Japan ECAMP

SECTION 3

HAZARDOUS MATERIALS MANAGEMENT

A. Applicability of this Section

Most Air Force (AF) installations handle many chemicals and substances that may be considered hazardous if not handled, stored, or used properly. A complete list of chemicals used at AF installations would be too lengthy to include in this section, but many of the materials are hazardous, i.e., toxic chemicals, flammable substances, reactive substances, and corrosive materials.

This section primarily addresses the proper storage and handling of chemicals and the spill contingency and response requirements related to hazardous materials. Oil, pesticides, and asbestos are hazardous materials that require special management practices at AF installations and are addressed in separate sections. Radioactive substances and the general category of hazardous wastes are also not included in this section of the manual, and it does not focus on individual hazardous chemicals or substances used at AF installations. It deals, instead, with the generic requirements and Management Practices (MPs) associated with minimizing impacts on the environment from spills or releases of hazardous materials as a result of improper storage and handling. As a general rule, most subsections of this section will be applicable to most AF installations.

The regulatory requirements in this section are based on Department of Defense (DOD) Regulations, Air Force Occupational Safety and Health Standards (AFOSH STD), and Air Force Regulations (AFRs) and Air Force Instructions (AFIs) that apply at overseas installations. MPs are derived from U.S. Environmental Protection Agency (USEPA) regulations and National Fire Protection Association (NFPA) publications that are not mandatory overseas but are important to follow to preserve the health and safety of AF employees and to protect the environment.

B. DOD Directives/Instructions

- *United States Forces-Japan (USFJ) Final Governing Standards* (FGS-Japan), January 1995, Chapter 5, contains criteria for the storage, handling, and disposition of hazardous materials used by DOD installations.

- DOD 4145.19-R-1, *Storage and Materials Handling*. Chapter 5, Section 4, *Hazardous Commodities*, dated September 1979, addresses the storage and handling of compressed gases and other hazardous commodities.

- DOD Directive (DODD) 6050.8, *Storage and Disposal of Non-DOD Owned Hazardous or Toxic Materials on DOD Installations*, dated 27 February 1986, does not allow the storage of non-DOD owned toxic or hazardous materials onsite.

C. U.S. Air Force Documents

- Air Force Manual (AFM) 67-1, *Storage and Related Operations*, requires that the installation have a comprehensive list of all chemicals used or generated onsite.

- AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Prevention, and Health (AFOSH) Program*. This AFI, dated 19 May 1994, outlines the Air Force's Occupational and Environmental Safety, Fire Prevention, and Health Program. It specifically requires the Bioenvironmental Engineering Services (BES) to maintain material safety data sheets (MSDSs) and other related information.

- AFOSH STD 127-43, *Flammable and Combustible Liquids*, 21 September 1980, applies to the storage, use, and handling of flammable and combustible liquids in containers or tanks of 60 gal [≈227 L] or less and in portable tanks of up to 660 gal [≈2498 L] capacity. The standard implements those portions of Title 29, Code of Federal Regulations (29 CFR) 1910.106, *Flammable and Combustible Liquids*, that are applicable to AF operations. In addition, it covers several items not addressed in the Occupational Safety and Health Administration (OSHA) standard.

- AFOSH STD 161-21, *Hazard Communication*, 23 January 1989, contains minimum requirements for an effective hazard communication program for activities that handle or use hazardous materials. It implements 29 CFR 1910.1200, *Hazard Communication*.

D. Responsibility for Compliance

- Base Supply (Logistics) has primary responsibility for receiving, storing, and issuing all hazardous commodities. Base Supply reviews all items that have a potential health hazard and determines if an issue exception code should be assigned to the item before being placed in storage. The receipt of hazardous materials with the proper documentation and shipping papers is also the responsibility of Base Supply. The proper maintenance and operation of flammable/combustible materials storage facilities, acid storage facilities, and compressed gas storage facilities is also the responsibility of Base Supply.

- The Director of Base Medical Services, through the BES, is responsible for reviewing the issue exception codes for hazardous materials assigned by Base Supply and for approving or disapproving the recommendations.

- The Base Civil Engineer (BCE) is responsible for the storage and handling of all hazardous materials used by the civil engineering shops.

- The Base Fire Department provides support in emergency response, spill events, exercises, and fire protection activities. In addition, the department is responsible for making periodic fire safety inspections of flammable/combustible storage and handling areas on the installation.

- The Base Safety Manager is responsible for conducting workplace safety evaluations and inspections of the handling and storage of hazardous materials. The Safety Manager provides the appropriate manager with a report of findings and recommended corrective actions. He or she is also responsible for ensuring the prompt and accurate investigation of any hazardous material mishaps that result in injury or property damage.

E. Definitions

- *Combustible Liquid* - a liquid having a flashpoint at or above 100 °F (37.8 °C). Combustible liquids are categorized as Class II or Class III liquids and are further subdivided as follows (AFOSH STD 127-43, para 2f):
  1. Class II liquids are those having a flashpoint at or above 100 °F (37.8 °C) and below 140 °F (60 °C)
  2. Class IIIA liquids are those having flashpoints at or above 140 °F (60 °C) and below 200 °F (93.3 °C), except any mixture having components with flashpoints of 200 °F (93.3 °C)
  3. Class IIIB liquids are those having flashpoints at or above 200 °F (93.4 °C).

- *Flammable Liquid* - a liquid with a flashpoint below 100 °F (37.8 °C) with a vapor pressure not exceeding 40 psia at 100 °F (37.8 °C). Flammable liquids are categorized as Class I liquids, and are further subdivided as follows (AFOSH STD 127-43, para 2i):
  1. Class IA are those that have a flashpoint below 73 °F (22.8 °C) and boiling point below 100 °F (37.8 °C).
  2. Class IB are those that have flashpoints below 73 °F (22.8 °C) and boiling points at or above 100 °F (37.8 °C).
  3. Class IC are those that have flashpoints at or above 73 °F (22.8 °C) and below 100 °F (37.8 °C).

- *Hazardous Chemical Warning Label* - a label, tag, or marking on a container that provides the following information (FGS-Japan 5-2):
  1. identification/name of hazardous chemicals
  2. appropriate hazard warnings
  3. the name and address of the manufacturer, importer, or other responsible party.

- *Hazardous Material (HM)* - any material that is capable of posing an unreasonable risk to health, safety, or the environment if improperly handled, stored, issued, transported, labeled, or disposed of because: (FGS-Japan 5-2)
  1. it displays a characteristic identified in Table 3-1
  2. it is identified in:
     a) 49 CFR (Department of Transportation (DOT) regulations)
     b) International Air Transportation Association (IATA) regulations
     c) the International Maritime Dangerous Goods (IMDG) Code
  3. it is listed in Table 4-1, Chart A.4 of Section 4, *Hazardous Waste Management.*

- *Hazardous Material Information System (HMIS)* - the computer-based information system developed to accumulate, maintain, and disseminate important information on hazardous material used by DOD (FGS-Japan 5-2).

- *Hazardous Material Shipment* - any movement of hazardous material in an approved DOD or contractor land vehicle either from an installation to a final destination off the installation, or from a point of origin off the installation to a final destination on the installation, in excess of any of the following quantities (FGS-Japan 5-2):
  1. for hazardous material identified as a result of inclusion in Table 4-1, Chart A.4, any quantity in excess of the reportable quantity listed in Table 4-1, Chart A.4
  2. for other liquid or semi-liquid hazardous material, in excess of 415 L (110 gal)

3. for other solid hazardous material, in excess of 225 kg (500 lb)
4. for combinations of liquid, semi-liquid and solid hazardous materials, in excess of 340 kg (750 lb).

- *Hazardous Substance* - see Table 4-1, Chart A.4 (FGS-Japan 19-2).

- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *Material Safety Data Sheet (MSDS)* - a form used by manufacturers of chemical products to communicate to users the chemical, physical, and hazardous properties of their product (FGS-Japan 5-2).

HAZARDOUS MATERIALS MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS: (a)
All Installations	JA.3-1 through JA.3-3	(2)(8)
General	JA.3-4 through JA.3-11	(1)(2)(3)(4)(5)
Documentation	JA.3-12 through JA.3-19	(1)(2)(3)(4)(5)(6)(7)
Flammable/Combustible Liquids		
Handling	JA.3-20	(1)(2)(4)
Storage	JA.3-21 through JA.3-37	(1)(2)(4)(5)
Industrial Storage Areas	JA.3-38 through JA.3-40	(1)(2)(4)(5)
Bulk Storage		
Compressed Gases	JA.3-41 through JA.3-43	(1)(2)(4)(5)
Acids	JA.3-44 and JA.3-45	(1)(2)(4)(5)
Transportation	JA.3-46 through JA.3-48	(2)(4)(5)(7)
Training	JA.3-49	(1)(2)(3)(4)(5)(6)(7)
Releases	JA.3-50	(4)(6)

(a) CONTACT/LOCATION CODE:

(1) Logistics Supply (LGS (Base Supply))
(2) BCE (Base Civil Engineering)
(3) Fire Department
(4) Safety Officer
(5) BES (Bioenvironmental Engineering Services)
(6) Disaster Preparedness Office
(7) LGT (Transportation Officer)
(8) Base Staff Judge Advocate

Records To Review

- Emergency Plan documents
- MSDSs
- Inventory records
- Training records
- Inspection records
- Shipping papers
- Placarding of hazardous materials

Physical Features To Inspect

- Hazardous materials storage areas
- Shop activities
- Shipping and receiving area

People To Interview

- LGS (Base Supply)
- BCE (Base Civil Engineering)
- Fire Department
- Safety Officer
- BES (Bioenvironmental Engineering Services)
- Disaster Preparedness Office
- LGT (Transportation Officer)
- Base Staff Judge Advocate

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
ALL INSTALLATIONS	
JA.3-1. Determine actions or changes since previous review (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (2)
JA.3-2. Copies of all relevant DOD directives/ instructions, U.S. Air Force (USAF) directives, and guidance documents should be maintained at the installation (MP).	Verify that copies of the following regulations are maintained and kept current at the installation: (8) - *USFJ Final Governing Standards* (FGS-Japan), January 1995 - DOD 4145.19-R-1, Chapter 5, Section 4, *Hazardous Commodities*, September 1979 - DODI 6050.5-H, *DOD Hazardous Chemical Warning Label System*, June 1989 - DODD 6050.8, *Storage and Disposal of Non-DOD Owned Hazardous or Toxic Materials on DOD Installations*, 27 February 1986 - AFM 67-1, Vol. 2, Part Two, Chapter 14, *Storage and Related Operations* - AFM 67-1, Vol. 2, Part Two, Chapter 21, *Special Logistical Support Procedures* - AFI 91-301, *Air Force Occupational and Environmental Safety, Fire Prevention, and Health (AFOSH) Program*, 19 May 1994 - AFOSH STD 127-43, *Flammable and Combustible Liquids*, 21 September 1980 - AFOSH STD 161-21, *Hazard Communication*, 23 January 1989 - International Air Transportation Association (IATA) regulations - International Maritime Dangerous Goods (IMDG) Code. Verify that the Base Staff Judge Advocate (SJA) reviews the documents annually for currency and completeness and submits the findings of the review to the Base Environmental Protection Committee.
JA.3-3. Installations must meet regulatory and AF requirements issued since the finalization of the manual (a finding under this checklist item will have the citation of the new regulation as a basis of finding).	Determine whether any new regulations concerning hazardous materials have been issued since the finalization of the manual. (2)(8) Verify that the installation is in compliance with newly issued regulations.

(1) LGS (Base Supply) (2) BCE (Base Civil Engineering) (3) Fire Department (4) Safety Officer (5) BES (Bioenvironmental Engineering Services) (6) Disaster Preparedness Office (7) LGT (Transportation Officer) (8) Base Staff Judge Advocate

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
GENERAL	
JA.3-4. Installations must reduce the use of hazardous materials through resource recovery, recycling, source reduction, acquisition, or other minimization strategies (FGS-Japan 5-3.10).	Verify that the installation has a Hazardous Materials Minimization Program and that it addresses hazardous material management through the use of: (2)(4)(5) - resource recovery - recycling - source reduction - acquisition, etc.
JA.3-5. Installations should arrange for coordination with the fire department concerning the types of hazardous chemicals used at the installation, the areas where they are used, what they are used for, and the quantities used in a given operation (MP).	Verify that the fire department is aware of areas that are at high risk for chemical incidents. (3)
JA.3-6. Installations must not allow the storage of non-DOD-owned toxic or hazardous materials onsite (DODD 6050.8, para D).	Verify that the installation does not allow the storage of non-DOD-owned toxic or hazardous materials onsite. (1)(2)(5) (NOTE: This does not apply to: - agreements with the General Services Administration (GSA) for storage of strategic and critical materials in the National Stockpile Program - agreements between DOD Components and other Federal agencies for temporary storage or disposal of explosives - emergency lifesaving assistance to civil authorities involving temporary storage or disposal of explosives - excess explosives generated under a DOD contract - arrangements with the Department of Energy (DOE) for the temporary storage of nuclear materials or nonnuclear classified materials - military resources used during peacetime civil emergencies - assistance and refuge for commercial carriers containing material of other Federal agencies during transportation emergencies.)

(1) LGS (Base Supply) (2) BCE (Base Civil Engineering) (3) Fire Department (4) Safety Officer (5) BES (Bioenvironmental Engineering Services) (6) Disaster Preparedness Office (7) LGT (Transportation Officer) (8) Base Staff Judge Advocate

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.3-7. Specific persons should be designated responsible for hazardous materials storage areas, and the precise nature of their responsibilities should be specified (MP).	Verify that specific individuals have been designated responsible for hazardous materials storage areas. (2)(5) Verify that the individuals designated responsible for hazardous materials storage areas are aware of the precise nature of their responsibilities.
JA.3-8. Installations must prevent the unauthorized entry of people or livestock into hazardous materials storage areas (FGS-Japan 5-3.12).	Verify that the installation prevents unauthorized entry into hazardous materials storage areas. (2)(4)
JA.3-9. Installations must maintain hazardous materials dispensing areas properly (FGS-Japan 5-3.2).	Verify that drums and containers in hazardous materials dispensing areas are not leaking. (2)(4) Verify that drip pans/absorbent materials are placed under containers as needed in order to collect drips or spills. Verify that container contents are clearly labeled. Verify that dispensing areas are located away from catch basins and storm drains.
JA.3-10. All excess hazardous materials must be processed through the Defense Reutilization and Marketing Service (DRMS) (FGS-Japan 5-3.11).	Verify that excess hazardous materials are processed through DRMS. (1)(2)(4)(5) Verify that, regardless of the quantity of hazardous material shipped, the following criteria are met for turn-in to DRMS: - the shipment is accompanied by shipping papers from its point of origin to its final destination - shipping papers are completed in accordance with 49 CFR (DOT regulations), IATA regulations, or the IMDG Code, depending on the mode of transportation utilized - an MSDS or its equivalent is attached to the shipping paper for each hazardous material listed on the shipping paper - hazardous materials are packaged, marked, and labeled in accordance with 49 CFR, IATA regulations, or the IMDG Code - all hazardous materials have a hazardous chemical warning label (or the equivalent) on each container. (NOTE: A DD Form 1348-1 may be used as a shipping paper for hazardous material shipments over public roads.)

(1) LGS (Base Supply) (2) BCE (Base Civil Engineering) (3) Fire Department (4) Safety Officer (5) BES (Bioenvironmental Engineering Services) (6) Disaster Preparedness Office (7) LGT (Transportation Officer) (8) Base Staff Judge Advocate

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.3-11. Lead-acid batteries that are to be recycled must be treated as hazardous material (FGS-Japan 6-3.9(c)).	Verify that lead-acid batteries that are to be recycled are treated as hazardous material. (2)
DOCUMENTATION	
JA.3-12. The installation must have a comprehensive list of all chemicals used or generated onsite and an assessment of their hazards (AFM 67-1, Volume 2, Part Two, Chapters 14 and 21).	Verify that the installation has a comprehensive list of all chemicals used or generated onsite and an assessment of their hazards. (1)(2)(3)(4)(5)
JA.3-13. Installations must maintain a master listing of all storage facilities for hazardous materials and an inventory of all hazardous materials contained therein (FGS-Japan 5-3.6).	Verify that the installation maintains a master listing of all storage facilities for hazardous materials and the hazardous materials contained therein. (1)(4)
JA.3-14. Installations must ensure that the most current MSDS data is available for all hazardous materials on the installation (FGS-Japan 5-3.8; AFI 91-301, para 2.10.1).	Verify that the installation maintains a current copy of DOD List 6050.5-L, *Hazardous Material Information System Hazardous Item Listing*, With Change 1, November 1992, on compact disc. (5) Verify that the installation maintains copies of other MSDSs for items: - not listed in the HMIS - locally purchased through base supply, medical supply, or civil engineering supply channels.

(1) LGS (Base Supply) (2) BCE (Base Civil Engineering) (3) Fire Department (4) Safety Officer (5) BES (Bioenvironmental Engineering Services) (6) Disaster Preparedness Office (7) LGT (Transportation Officer) (8) Base Staff Judge Advocate

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.3-15. Installations must have MSDSs for each hazardous chemical procured, stored, or used onsite (FGS-Japan 5-3.7 and 5-3.8; AFOSH STD 161-21, para 5c; AFI 91-301, para 2.10.1).	Verify that an MSDS is readily accessible for each hazardous chemical in the work-place during each work shift. (4)(5) Verify that each work center maintains a file of MSDSs for each hazardous material procured, stored, or used at the work center. Verify that English MSDSs are obtained or prepared for locally purchased items.

(1) LGS (Base Supply) (2) BCE (Base Civil Engineering) (3) Fire Department (4) Safety Officer (5) BES (Bioenvironmental Engineering Services) (6) Disaster Preparedness Office (7) LGT (Transportation Officer) (8) Base Staff Judge Advocate

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

JA.3-16. The content of MSDSs must meet specific criteria (Japan 5-3.7).	Verify that the MSDSs are in English and contain at least the following information: (2)(4)(5)
	
	- the identity used on the label:
	  - if the hazardous chemical is a single substance, the chemical and common name of the substance
	  - if the hazardous chemical is a mixture that has been tested as a whole to determine its hazards, the chemical and common name(s) of the ingredients that contribute to these known hazards and the common names(s) of the mixture itself
	  - if the hazardous chemical is a mixture that has not been tested as a whole:
	  - the chemical and common name(s) of all ingredients that have been determined to be health hazards and that comprise 1 percent or greater (0.1 percent or greater for carcinogens) of the composition
	  - the chemical and common name(s) of all ingredients that have been determined to be health hazards and that comprise less than 1 percent (0.1 percent for carcinogens) of the mixture, if there is evidence that the ingredient(s) could be released from the mixture in concentrations that would exceed an established OSHA permissible exposure limit (PEL), or could present a health hazard to personnel
	- physical and chemical characteristics of the hazardous chemical (such as vapor pressure, flash point, etc.)
	- physical hazards of the chemical, including the potential for fire, explosion, and reactivity
	- health hazards of the chemical, including signs and symptoms of exposure and any medical conditions that are generally recognized as being aggravated by exposure to the chemical
	- primary route(s) of entry (e.g., inhalation, skin absorption, ingestion, etc.)
	- OSHA PELs and any other pertinent exposure limit
	- whether the chemical has been found to be a potential carcinogen
	- any generally applicable precautions, including appropriate hygienic practices, protective measures during repair and maintenance of contaminated equipment, and procedures for cleanup of spills and leaks
	- any generally applicable control measures, such as appropriate engineering controls, work practices, or personal protective equipment
	- emergency and first aid procedures
	- date of preparation or last change
	- name, address, and telephone number of the chemical manufacturer, importer, employer, or other responsible party preparing or distributing the MSDS who can provide additional information on the chemical and appropriate emergency procedures.
	- specify if the lead content is 0.06 percent by weight (600 ppm) or greater.

(1) LGS (Base Supply) (2) BCE (Base Civil Engineering) (3) Fire Department (4) Safety Officer (5) BES (Bioenvironmental Engineering Services) (6) Disaster Preparedness Office (7) LGT (Transportation Officer) (8) Base Staff Judge Advocate

COMPLIANCE CATEGORY:
HAZARDOUS MATERIALS MANAGEMENT
Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
JA.3-17. All hazardous materials on DOD installations must be labeled and have MSDS information attached or available through the HMIS (FGS-Japan 5-3.9 and AFOSH STD 161-21, para 5d).	Verify that all hazardous materials are labeled with a Hazardous Chemical Warning Label or the equivalent. (2)(4)(5) (NOTE: See the definitiion of 'Hazardous Chemical Warning Label.') Verify that MSDS information is on hand or available through the HMIS. (NOTE: These requirements apply throughout the life cycle of the hazardous materials.) Verify that labels provided by chemical manufacturers, importers, or distributors are not removed, defaced, or changed.
JA.3-18. Each work area that has hazardous materials must keep an inventory of all the hazardous materials used within the work area (AFOSH STD 161-21, para 5f).	Verify that each work area has an inventory of its hazardous chemicals and that the inventory is attached to the Workplace Hazard Communication Program. (2)(4)(5) Verify that supervisors maintain the inventory and update it as necessary. Verify that BES reviews the inventory annually. (NOTE: This requirement does not apply to areas where personnel only handle materials in sealed containers.)
JA.3-19. Installations must have a written Hazard Communication Program that details specific information at each workplace where hazardous materials are used or handled (AFOSH STD 161-21, para 5a).	Verify that each workplace has a copy of the written Hazard Communication Program that includes the following: (1)(2)(4)(5)(6)(7) - location and access to MSDSs - requirements for personnel training - availability of personnel training - work area hazardous chemical inventory - standard operation procedures, operating instructions, or technical orders concerning nonroutine tasks that involve hazardous materials - any contractor operations/interface.

(1) LGS (Base Supply) (2) BCE (Base Civil Engineering) (3) Fire Department (4) Safety Officer (5) BES (Bioenvironmental Engineering Services) (6) Disaster Preparedness Office (7) LGT (Transportation Officer) (8) Base Staff Judge Advocate

COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
FLAMMABLE/ COMBUSTIBLE LIQUIDS	(NOTE: FGS-Japan incorporates the requirements of DOD 4145.19-R-1 by reference. Therefore, since the requirements of AFOSH STD 127-43 are substantially identical to those of DOD 4145.19-R-1, all citations to the AFOSH STD must be considered to be requirements of FGS-Japan as well. DOD 4145.19-R-1 is cited directly only where its requirements are not found in the AFOSH STD.)
Handling	

JA.3-20. Flammable/ Combustible liquids must be handled according to specific procedures (AFOSH STD 127-43, para 4g).	Verify that the following procedures are followed when flammable/combustible materials are handled: (1)(2)(4)
	- transfer of liquids from or into vessels, containers, or portable tanks within a building takes place only by means of the following methods:
	  - a closed piping system
	  - safety cans
	  - a device drawing from the top
	  - from a container or tank by gravity through an approved self-closing valve
	- transfer of liquids from a safety can is by means of a device drawing through the top
	- transfer of liquids from a container or tank is done by gravity through an approved self-closing valve
	- approved safety cans are used for transporting and dispensing flammable liquids in quantities of 19 L (5 gal) or less
	- flammable liquids are kept in covered containers when not actually in use
	- Class I liquids are used only when there are no open flames or other sources of ignition.
	
	Verify that safety cans and other portable containers of flammable liquids having a flashpoint at or below 80 °F [26 °C] are painted red with some additional clearly visible identification either in the form of a yellow band around the can or the name of the contents conspicuously stenciled or painted on the can in yellow.
	
	(NOTE: This provision does not apply to shipping containers.)

Storage	
JA.3-21. Flammable or combustible liquids must not be stored in ways that limit the use of exits, stairways, or areas normally used for the safe egress of people (AFOSH STD 127-43, para 4d(1)).	Verify that exits and common traffic routes are not blocked. (1)(4)

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.3-22. Specific MPs should be considered when storing and handling flammable/combustible materials (MP).	Verify that the installation observes the following MPs: (1)(4) - no positive sources of ignition (open flames, welding, radial heat, mechanical sparks) are in the immediate area - no items are stored against pipes or coils that produce heat - paint drums that are stored horizontally are rolled a half turn every 90 days - containers of paint are palletized prior to storage - aerosol containers are stored in well ventilated areas. (NOTE: These MPs are suggested in DOD 4145.19-R-1.)
JA.3-23. Flammable and combustible liquid containers must meet specific capacity standards (AFOSH STD 127-43, para 4a).	Verify that containers meet the capacity standards in Table 3-2. (1)(2)(4)
JA.3-24. Plastic containers should not be used to store certain liquids in general purpose warehousing (MP).	Verify that plastic containers are not used to store Class I or II liquids in general purpose warehousing. (1)
JA.3-25. Flammable/ combustible material containers must be stored and handled in accordance with specific requirements (FGS-Japan 5-3.1 and DOD 4145.19-R-1, para 5-404i).	Verify that containers are stored and handled such that: (1)(2)(4)(5) - open flame devices are not in use in the storage area - combustible materials, other than wood pallets used in the storage of flammable/combustibles, are not stored in the storage facility - labels are not damaged - materials received without a date of manufacture label are marked with the shipping document date - leaking containers are removed from the storage area immediately - containers are stored so that they are issued or used in the order of dates of manufacture, with the oldest material used first - there are no open containers - containers are inspected periodically while in storage.

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.3-26. Flammable and combustible liquid storage cabinets must meet specific structural requirements (AFOSH STD 127-43, para 4b(2)).	Verify that flammable and combustible storage cabinets meet the following structural requirements: (1)(2)(4)(5) - all cabinets are constructed to limit internal temperature to no more than 163 °C (325 °F) when subject to the standard 10 min fire test specified in NFPA 251-196 - the bottom, top, door, and sides of metal cabinets are at least 18 gauge sheet steel and double-walled with 1.5 in. [≈4 cm] air space, and joints are riveted or welded - the doors of metal cabinets have a three-point lock and the door sill is raised at least 2 in. [≈5 cm] above the bottom of the steel cabinet - existing wood cabinets are knot free and of at least 1 in. [≈3 cm] nominal thickness, and all joints are rabbeted and fastened in two directions with flathead wood screws.
JA.3-27. Flammable and combustible liquid storage cabinets are subject to specific limitations on their contents (AFOSH STD 127-43, para 4b(1)).	Verify that the following storage requirements are met: (1)(2)(4)(5) - no more than 455 L (120 gal) of Class I, Class II, and Class IIIA liquids are stored in any cabinet - no more than 227 L (60 gal) of the 455 L (120 gal) are Class I or II liquids.
JA.3-28. Flammable/ combustible liquid storage cabinets should meet specific requirements (MP).	Verify that newly purchased cabinets are of steel rather than wood. (1)(2)(4)(5)
JA.3-29. Flammable/ combustible liquid storage cabinets should be handled properly (MP).	Verify that materials within storage cabinets are segregated. (1)(2)(4)(5) Verify that all containers in cabinets are labeled. Verify that cabinets are constantly closed. Verify that cabinets are conspicuously labeled FLAMMABLE--KEEP FIRE AWAY.
JA.3-30. Installations must not have more than three cabinets in a single fire area (AFOSH STD 127-43, para 4b(1)).	Verify that no more than three cabinets are located in a single fire area. (1)(2)(4)(5) (NOTE: This requirement does not apply to industrial areas.) (NOTE: The limit of three cabinets in a single area may be increased where small cabinets are used; however, the maximum amount of flammable storage cannot exceed 1365 L (360 gal) total.)

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.3-30. (continued)	(NOTE: Additional cabinets may be located in the same fire area of an industrial area if the additional cabinet, or group of not more than three 455 L (120 gal) cabinets, is separated from other cabinets or group of cabinets by at least 30.5 m (100 ft).)
JA.3-31. Indoor flammable/ combustible storage rooms must meet specific standards (AFOSH STD 127-43, para 4c).	Verify that the installation's flammable/combustible storage rooms have: (1)(2)(4) - walls that meet fire resistance test NFPA 251-1969 - liquid tight wall/floor joints - self-closing fire doors (NFPA 80) - one clear aisle at least 3 ft [≈1 m] wide - a continuous mechanical exhaust ventilation system. Verify that a 4 in. [≈10 cm] raised sill or ramp is provided to adjacent rooms or buildings or that the floor of the storage area is 4 in. [≈10 cm] lower than the surrounding floors. Verify that, if a sill or ramp is not present, the building has an open grated trench that drains to a safe area. Verify that wooden shelving, flooring, dunnage, scuffboards, and/or floor overlay is at least 1 in. [≈3 cm] thick. Verify that electrical wiring and equipment meet NFPA 70 requirements. Verify that dispensing is done by an approved pump or self-closing faucet. Verify that storage in the rooms meets the requirements in Table 3-3. Verify that mechanical exhaust systems are controlled by a switch outside the door and have exhaust outlets on exterior walls. Verify that makeup and exhaust air openings are within 12 in. [≈30 cm] above the floor on one side of the room with one or more makeup air inlets located on the opposite wall. Verify that air movement occurs across all portions of the floor, as far as practical. Verify that containers of over 114 L (30 gal) capacity are not stacked one upon the other.
JA.3-32. Flammable/ combustible liquids stored in buildings where storage rooms or cabinets are not used must meet specific standards (AFOSH STD 127-43, para 4d(2) and 4d(4)).	Verify that containers in indoor storage areas are tightly sealed. (1)(2)(4) (NOTE: This provision does not apply when container contents are transferred, poured, or applied.) Verify that flammable paints, oils, and varnishes in 3.8 L or 19 L (1 gal or 5 gal) containers used for building maintenance are stored temporarily in closed containers at the job site for fewer than 10 calendar days.

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.3-32. (continued)	Verify that the storage of flammable/combustible liquids does not physically obstruct means of egress from the building or area.
JA.3-33. Flammable and combustible liquid storage buildings must meet specific structural requirements (AFOSH STD 127-43, para 4d(3)).	Verify that flammable/combustible storage buildings are one story and devoted principally to the handling and storing of flammable or combustible liquids. (1)(2)(4) Verify that such buildings have 2 h fire-rated exterior walls with no openings within 3 m (10 ft) of the storage area.
JA.3-34. The storage of flammable/combustible liquids in warehouses or storage buildings must meet specific requirements (FGS-Japan 5-3.1; DOD 4145.19-R-1, para 5-404d; AFOSH STD 127-43, para 5d).	Verify that the following requirements are met: (1)(2)(4)(5) - if the storage building is located 15 m (50 ft) or fewer from a building or line of adjoining property that may be built upon, the wall facing the building or property line is a blank wall with a fire-resistance rating of at least 2 h - any quantity of liquids may be stored as long as the storage arrangements outlined in Table 3-4 are met - stacked containers are separated by pallets or dunnage when necessary to provide stability and prevent excess stress on container walls - portable tanks stored over one tier high are designed to nest securely - no stack is closer than 1 m (3 ft) to the nearest beam, chord, girder, or other obstruction - piles are 1 m (3 ft) below sprinkler deflectors or discharge points of water spray or other fire protection system - containers have clearly legible labels that identify contents and indicate hazards - aisles are at least 1 m (3 ft) wide when necessary for access to doors, windows, or standpipe connections.
JA.3-35. Installations must meet specific requirements with regard to flammable/combustible materials stored outside (FGS-Japan 5-3.1; DOD 4145.19-R-1, para 5-404e and 5-404f; AFOSH STD 127-43, para 4e).	Verify that no more than 4169 L (1100 gal) of flammable/combustible liquids are stored adjacent to buildings. (1)(2)(4)(5) Verify that the quantity and arrangement of materials is in accordance with Table 3-4. Verify that the storage area is graded to divert spills or is surrounded by a curb at least 15 cm (6 in.) high. Verify that drains terminate in a safe location.

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.3-36. When flammable/ combustible liquids are stored outside, specific procedures and practices should be followed (MP).	Verify that no leaking or severely corroded drums are present. (1)(2)(4)(5) Verify that drums stored in outdoor storage areas are placed horizontally (on sides) in double rows, butt-to-butt, with closures (bungs and vents) facing outward. Verify that the end drum of the bottom tier is braced to prevent rolling.
JA.3-37. Flammable/ combustible storage areas must meet certain fire protection standards (FGS-Japan 5-3.1; DOD 4145.19-R-1, para 5-404g; AFOSH STD 127-43, para 4f).	Verify that flammable/combustible storage locations meet the following requirements: (1)(2)(4)(5) - at least one portable fire extinguisher rated not less than 10-BC is located outside the door of any room used for storage and within 3 m (10 ft) of the door opening - at least one portable fire extinguisher rated not less than 20-BC is located within 3 to 7.5 m (10 to 25 ft) of any Class I or Class II liquid storage area outside of a storage room, but inside a building - fire extinguishing systems are sprinklers, water spray, or other USAF approved systems - open flames and smoking are not permitted within 15 m (50 ft) of flammable/ combustible liquid storage areas - water reactive materials are not stored in the same room with flammable/combustible liquids, except for small quantities that can be stored in laboratories - containers and portable tanks used for Class I liquids are electrically bonded and grounded during transfer of liquids - liquid containers are protected from heat sources. Verify that the installation takes positive measures to eliminate sources of ignition, such as open flames, electrical smoking, cutting and welding, hot surfaces, static, mechanical sparks, radiant heat, and spontaneous ignition.

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Industrial Storage Areas	(NOTE: Checklist items JA.3-38 through JA.3-40 pertain to industrial areas in which the use of flammable or combustible liquid is incidental to the principal business or where flammable or combustible liquids are handled or used only in unit physical operations that do not involve chemical reactions.)

JA.3-38. Areas where flammable/combustible materials are stored, dispensed, or used in industrial plants should meet specific guidelines (MP).	Verify that the following requirements are met: (1)(2)(4)(5)
	- portable fire extinguishers and fire control equipment are in place in quantity and type as needed for the hazards of operation and storage at the site
	- adequate precautions are taken to prevent sources of ignition at the site
	- Class I liquids are not dispensed into containers unless nozzles and containers are electrically interconnected
	- operations such as welding and cutting for repairs to equipment are done under the supervision of an individual in charge
	- maintenance and operating practices control leakage and prevent the accidental escape of flammable or combustible liquids:
	  - adequate aisles are maintained
	  - combustible waste materials and residues are kept to a minimum, stored in covered metal containers, and disposed of daily
	  - the grounds area around the buildings and unit operating areas are kept free of weeds, trash, or other unnecessary combustibles
	- tank vehicle and tank car loading or unloading facilities are separated from aboveground tanks, warehouses, and other plant buildings or nearest line of adjoining property by a distance of 25 ft [≈7 m] for Class I liquids and 15 ft [≈5 m] for Class II and III liquids.

JA.3-39. Installations must meet specific requirements with regard to incidental storage of flammable/combustible liquids in industrial areas (AFOSH STD 127-43, para 4h).	Verify that the following requirements are met in industrial areas: (1)(2)(4)(5) - storage is in metal cabinets stenciled FLAMMABLE KEEP FIRE AWAY - storage is limited to 4 L (1 gal) of Class I or 40 L (10 gal) of Class II and III liquids - amount of liquid stored in the cabinet does not exceed 40 L (10 gal) - containers in the cabinet are closed - storage is limited to a 5-day supply - each work center has only one cabinet. Verify that the fire department was consulted prior to the establishment of incidental storage areas in industrial shops.

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.3-40. Areas where flammable/combustible liquids are used in unit operations, such as mixing, drying, evaporating, filtering, or distilling, should meet specific operating standards (MP).	Verify that the following requirements are met: (1)(2)(4)(5) - areas are located so that each building or unit of equipment is accessible from at least one side for fire fighting - areas where unstable liquids are handled or small scale unit chemical processes are carried on are separated from the remainder of the area by a fire wall of 2 h minimum fire resistance rating - emergency drainage systems direct leakage and fire protection water to a safe location - emergency drainage systems, if connected to public sewers or discharged into public waterways, are equipped with traps or a separator - when Class I liquids are being used, ventilation is provided at a rate of not less than 1 $ft^3/min/ft^2$ of solid floor area through either natural or mechanical means - equipment is designed to limit flammable vapor-air mixtures.
BULK STORAGE **Compressed Gases**	
JA.3-41. Installations must meet specific requirements with regard to storage of compressed gases in roofed, open-sided sheds (FGS-Japan 5-3.1 and DOD 4145.19-R-1, para 5-405d(1)).	Verify that the compressed gas storage sheds meet the following requirements: (1)(2)(4)(5) - they are on concrete slabs above grade - they are located in a secured area - they are separated from other buildings by at least 15 m (50 ft) - if they have one or more sides, provisions are made to ensure complete change of air at least six times per hour - they are unheated. Verify that flammable gases and gases that support combustion are stored in separate sheds with at least 15 m (50 ft) between sheds. Verify that, if necessary, stationary or rotating roof vents are used to lower temperature near ceilings to ambient conditions during warm weather. Verify that cylinders and portable tanks have pressure relief devices installed.

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.3-42. Storage of compressed gas cylinders in enclosed storage facilities must meet certain criteria (FGS-Japan 5-3.1 and DOD 4145.19-R-1, para 5-405d(2)).	Verify that the compressed gases storage areas meet the following requirements: (1)(2)(4)(5) - buildings are one story in height, above grade, of noncombustible construction - separate storage compartments or rooms are available for flammable gases and gases that support combustion - at least one wall of each storage room or compartment for combustible gases is an exterior wall - every storage room or compartment is provided with either a gravity or a mechanical exhaust ventilation system designed to provide complete change of air at least six times per hour - buildings are not heated - cylinders and portable tanks have pressure relief devices installed.
JA.3-43. Compressed gases must be handled in accordance with specific good practices (FGS-Japan 5-3.1 and DOD 4145.19-R-1, para 5-405c(6) through 5-405c(9), 5-405c(14), and 5-405c(22)).	Verify that the following practices and procedures are observed in the handling of compressed gases: (1)(2)(4)(5) - oxygen cylinders are free from grease or oil - numbers or markings that are stamped on the cylinders are not altered or defaced - additional markings are not applied to cylinders without approval - empty cylinders are stored separately but in the same manner as full cylinders - valves on empty cylinders are closed - NO SMOKING signs are posted in and around compressed gas storage sheds.
Acids	
JA.3-44. Installations must meet specific requirements with regard to the storage and handling of acids in bulk (FGS-Japan 5-3.1 and DOD 4145.19-R-1, para 5-406).	Verify that the bulk acid storage areas meet the following: (1)(2)(4)(5) - buildings are one story in height, of noncombustible or fire-resistant construction - permanent louvered openings at floor and ceiling levels or other gravity ventilation methods are provided - safety equipment is available and operational (eye wash, deluge shower, self-contained breathing apparatus, protective clothing) - buildings are heated to prevent freezing (if applicable) - different acids are stored separately in designated areas - NO SMOKING signs are posted - there are either floor drains or wall scuppers, if the building has automatic - sprinkler protection - workers are provided with protective safety equipment and a copious, flowing supply of fresh, clean water for first aid.

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.3-44. (continued)	(NOTE: Acid storage buildings should have automatic sprinkler protection.) (NOTE: In lieu of aisle space, noncombustible barriers that are at least 3 ft [≈ 1 m] high and sealed at floor level may be used to obtain maximum storage space.)
JA.3-45. Workers in facilities where acids are stored in bulk should be provided with a copious, flowing supply of fresh, clean water for first aid (MP).	Verify that workers in facilities in which acids are stored in bulk are provided with a copious, flowing supply of fresh, clean water for first aid. (2)(4)
TRANSPORTATION	
JA.3-46. Hazardous materials shipments must meet specific standards (FGS-Japan 5-3.4).	Verify that hazardous materials shipments are accompanied by shipping papers from the point of origin to the final destination. (2)(4)(5) Verify that shipping papers are completed in accordance with 49 CFR (DOT regulations), IATA regulations, or the IMDG Code, depending on the mode of transportation utilized. Verify that an MSDS or its equivalent is attached to the shipping paper for each hazardous material listed on the shipping paper. (NOTE: A DOD Form 1348-1 may be used as a shipping paper for hazardous material shipments over public roads.) Verify that all drivers of hazardous material shipments are briefed on the hazardous material included in the shipment. Verify that all drivers of hazardous material shipments carry a copy of the *Emergency Response Guidebook* (DOT Research and Special Programs Administration Publication 5800.6) in their vehicles. Verify that supervisory personnel do a walk-around inspection of the vehicles before and after the material is loaded. Verify that hazardous materials are packaged, marked, and labeled in accordance with 49 CFR, IATA regulations, or the IMDG Code. Verify that DOD vehicles are not placarded, especially when traveling outside the installation. Verify that all hazardous materials have a hazardous chemical warning label (or the equivalent) on each container.

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.3-46. (continued)	Verify that, if the installation uses commercial transporters, such transporters have applicable licenses or permits for operation. Verify that all vehicles transporting hazardous materials have a spill contingency kit on board that consists of adequate materials to respond properly to a possible release or spill.
JA.3-47. Air and water shipments of hazardous materials originating from a DOD installation must meet specific standards (FGS-Japan 5-3.5).	Determine whether the installation ships hazardous materials by air. (7) Verify that the following shipping standards are met: - 49 CFR or - IATA regulations. Determine whether the installation ships hazardous materials by water. (7) Verify that the shipping standards of the IMDG Code are met.
JA.3-48. Certain practices should be carried out in the course of onsite transportation of hazardous materials between buildings (MP).	Verify that procedures exist to manage movement of hazardous materials throughout the installation. (7) Verify that drivers are trained in spill control procedures. Verify that provisions have been made for securing hazardous materials in vehicles when transporting.
TRAINING	
JA.3-49. Personnel who manage, use, store, and/or ultimately dispose of hazardous materials must be trained (FGS-Japan 5-3.3, 5-3.8, and 5-3.9; AFOSH STD 161-21, para 5e).	Verify that personnel who manage, use, store, and/or ultimately dispose of hazardous materials are trained in spill response and related handling issues. (1)(2)(3)(4)(5)(6)(7) Verify that the installation provides personnel with effective information and training on the hazardous chemicals in their work area. Verify that information and training are provided at the time of initial assignment and whenever a new physical or health hazard on which personnel have not been trained is introduced into the work area. Verify that personnel are informed of the following: - any operations in their work area where hazardous chemicals are present - the location and availability of the written hazard communication program, including the required list(s) of hazardous chemicals, and MSDSs.

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

JA.3-49. (continued)	Verify that personnel are trained with the following:
	
	- awareness/familiarization training to enable the employee to recognize and identify hazardous property
	- function-specific training for the mode of transportation utilized
	- safety training to educate employees on:
	  - emergency response
	  - measures to protect employees from the hazards to which they may be exposed
	  - methods and procedures to avoid accidents through proper handling.
	
	Verify that the training provided to personnel includes at least the following:
	
	- methods and observations that may be used to detect the presence of or release of a hazardous chemical in the work area (such as monitoring conducted by the installation, continuous monitoring devices, visual appearance or odor of hazardous chemicals when being released, etc.)
	- the physical and health hazards of the chemicals in the work area
	- the measures that personnel can take to protect themselves from these hazards, including specific procedures implemented to protect personnel from exposure to hazardous chemicals, such as appropriate work practices, emergency procedures, and personal protective equipment to be used
	- the details of the hazard communication program developed by the installation, including an explanation of the labeling system and the MSDS, and how personnel can obtain and use the appropriate hazard information.
	
	Verify that, if necessary, the training is bilingual.
	
	Verify that, if hazardous chemical warning labels are not provided in Japanese, bilingual training includes an explanation in Japanese of the information on a hazardous chemical warning label.
	
	Verify that, if MSDSs are not provided in Japanese, bilingual training includes an explanation in Japanese of the information on an MSDS.

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COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
RELEASES **JA.3-50.** Installations must take specific actions in the event of hazardous substance spills (FGS-Japan 18-3.1(c)).	Verify that spills of reportable quantities (RQs) of hazardous substances are reported to the Installation On-Scene Coordinator (IOSC) immediately. (4)(6) Verify that immediate action is taken to eliminate the source and contain the spill. Verify that the appropriate installation or activity chain of command (including COMUSJAPAN/J4) is notified within 4 h when any of the following occur: - the spill or release occurs inside a DOD installation and cannot be contained within any required berm or secondary containment - the spill exceeds 415 L (110 gal) of POL/fuel - a waster resource has been impacted - any toxic or hazardous material or waste has been spilled - the spill occurs off-base (including spills on the ocean, public roadways, or into a drainage system) - the IOSC has determined that the spill or release is significant. Verify that COMUSJAPAN/J4 and local Japanese officials are notified immediately when a hazardous substance release either: - occurs inside a DOD installation and cannot be contained within the installation's boundaries - threatens off-base Japanese people, property, or drinking water resources in an emergency situation. (NOTE: In the latter case, no prior J4 approval should be required since time may be of the essence and local off-base spill response actions will normally be needed at once to alleviate any threat to people or the environment.) Verify that, in the latter case, notification is made to J4 via telephone/fax prior to informing local Japanese officials.

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Table 3-1

Typical Hazardous Material Characteristics

(FGS-Japan, Table 5-1)

I.	The item is a health or physical hazard. Health hazards include carcinogens, corrosive materials, irritants, sensitizers, toxic materials, and materials that damage the skin, eyes, or internal organs. Physical hazards include combustible liquids, compressed gases, explosives, flammable materials, organic peroxides, oxidizers, pyrophoric materials, unstable (reactive) materials, and water-reactive materials.
II.	The item and/or its disposal is regulated by the host nation because of its hazardous nature.
III.	The item contains asbestos, mercury, or polychlorinated biphenyls (PCBs).
IV.	The item has a flashpoint below 93 °C (200 °F) closed cup, or is subject to spontaneous heating, or is subject to polymerization with release of large amounts of energy when handled, stored, and shipped without adequate control.
V.	The item is a flammable solid, or is an oxidizer, or is a strong oxidizing or reducing agent with a standard reduction potential of greater than 1.0 V or less than -1.0 V.
VI.	In the course of normal operations, accidents, leaks, or spills, the item may produce dusts, gases, fumes, vapors, mists, or smokes with one or more of the above characteristics.
VII.	The item has special characteristics that, in the opinion of the manufacturer or the DOD Components, could cause harm to personnel if used or stored improperly.

Table 3-2

Maximum Allowable Capacity of Containers and Portable Tanks for Hazardous Materials

(AFOSH STD 127-43, Table 1)

Container Type	Flammable Liquids			Combustible Liquids	
	IA	*IB*	*IC*	*II*	*II*
Glass or approved plastic[1]	1 pt[2]	1 qt[2]	1[3]	1	1
Metal (other than Department of Transportation (DOT) drums))	1	5	5	5	5
Safety cans	2	5	5	5	5
Metal drums (DOT specifications)	60	60	60	60	60
Approved portable tanks	660	660	660	660	660

[1] Nearest metric size is also acceptable for the glass and plastic containers listed.

[2] 1 gal or nearest metric equivalent size may be used if metal containers must be avoided because of chemical reaction with their contents.

[3] Quantities are in gallons for the rest of this table.

Table 3-3

Storage of Hazardous Materials in Inside Rooms

(AFOSH STD 127-43, Table 2)

Fire Protection Provided[1]	Fire Resistance	Maximum Size	Total Allowable Quantities[2] (gal/ft^2 floor area)
Yes	2 h	500 ft^2	10
No	2 h	500 ft^2	4
Yes	1 h	150 ft^2	5
No	1 h	150 ft^2	2

[1] Fire protection system will be sprinkler, water spray, or other approved method.

[2] If metric containers are being stored, use the nearest metric equivalent.

Table 3-4

Indoor/Outdoor Storage for Flammable/Combustible Materials

(DOD 4145.19-R-1, Tables 5-1 through 5-4)

Indoor Container Storage			
Class Liquid	*Storage Level*	**Protected Storage Maximum per Pile In Gallons*	*Unprotected Storage Maximum per Pile In Gallons*
IA	Ground and upper floors	2750 (50)	600 (12)
	Basement	Not permitted	Not permitted
IB	Ground and upper floors	5500 (100)	1375 (25)
	Basement	Not permitted	Not permitted
IC	Ground and upper floors	16,500 (300)	4125 (25)
	Basement	Not permitted	Not permitted
II	Ground and upper floors	16,500 (300)	4125 (75)
	Basement	5500 (100)	Not permitted
III	Ground and upper floors	55,000 (1000)	13,750 (250)
	Basement	8250 (450)	Not permitted

*A sprinkler or equivalent fire protection system installed in accordance with NFPA Standard 30.

NOTES:

1. When two or more classes of materials are stored in a single pile, the maximum gallonage permitted in that pile must be the smallest of the two or more separate maximum gallonages.

2. Aisles must be provided so that no container is more than 4 m (12 ft) from an aisle. Main aisles must be at least 2 m (8 ft) wide and side aisles at least 1 m (4 ft) wide. (Numbers in parentheses indicate the number of 55-gal [≈208-L] drums.)

3. Each pile must be separated from each other by at least 1 m (4 ft).

(continued)

Outdoor Container Storage				
Class Liquid	*Maximum per pile* [1] *(gal)*	*Distance between piles* [2] *(ft)*	*Distance to property line that can be built upon* [1,3] *(ft)*	*Distance to street, alley, public way* [4] *(ft)*
IA	1100	5	20	10
IB	2200	5	20	10
IC	4400	5	20	10
II	8800	5	10	5
III	22,000	5	10	5

[1] When two or more classes of materials are stored in a single pile, the maximum gallonage permitted in that pile must be the smallest of the two or more separate maximum gallonages.

[2] Within 200 ft [≈61 m] of each container, there must be a 12 ft [≈4 m] wide accessway to permit access to fire control apparatus.

[3] The distances listed apply to properties that have protection for exposures as defined. If there are exposures, and such protection for exposures does not exist, the distances in column 4 must be doubled.

[4] When total quantity stored does not exceed 50 percent of maximum per pile, the distance in columns 4 and 5 may be reduced 50 percent, but not to less than 3 ft [≈1 m].

(continued)

Indoor Portable Tank Storage			
Class Liquid	*Storage Level*	**Protected Storage Maximum per Pile In Gallons*	*Unprotected Storage Maximum per Pile In Gallons*
IA	Ground and upper floors Basement	Not permitted Not permitted	Not permitted Not permitted
IB	Ground and upper floors Basement	20,000 Not permitted	2000 Not permitted
IC	Ground and upper floors Basement	40,000 Not permitted	5500 Not permitted
II	Ground and upper floors Basement	40,000 20,000	5500 Not permitted
III	Ground and upper floors Basement	60,000 20,000	22,000 Not permitted

*A sprinkler or equivalent fire protection system installed in accordance with NFPA Standard 30.

NOTES:

1. When two or more classes of materials are stored in a single pile, the maximum gallonage permitted in that pile must be the smallest of the two or more separate maximum gallonages.

2. Aisles must be provided so that no container is more than 4 m (12 ft) from an aisle. Main aisles must be at least 2 m (8 ft) wide and side aisles at least 1 m (4 ft) wide.

3. Each pile must be separated from each other by at least 1 m (4 ft).

(continued)

Table 3-4 (continued)

Outdoor Portable Tank Storage				
Class Liquid	*Maximum per pile* [1] *(gal)*	*Distance between piles* [2] *(ft)*	*Distance to property line that can be built upon* [1,3] *(ft)*	*Distance to street, alley, public way* [4] *(ft)*
IA	2200	5	20	10
IB	4400	5	20	10
IC	8800	5	20	10
II	17,600	5	10	5
III	44,000	5	10	5

INSTALLATION:	COMPLIANCE CATEGORY: HAZARDOUS MATERIALS MANAGEMENT Japan ECAMP	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 4

HAZARDOUS WASTE MANAGEMENT

Japan ECAMP

SECTION 4

HAZARDOUS WASTE MANAGEMENT

A. Applicability of this Section

This section applies to U.S. Air Force (USAF) installations that generate, store, treat, or dispose of any type of hazardous waste.

The regulatory requirements in this section are based on Department of Defense (DOD) regulations, Air Force Regulations (AFRs), and Air Force Instructions (AFIs) that apply at overseas installations. Management practices (MPs) are derived from U.S. Environmental Protection Agency (USEPA) regulations that are not mandatory overseas but are important to follow to preserve the health and safety of AF employees and protect the environment.

B. DOD Directives/Instructions

- *United States Forces-Japan (USFJ) Final Governing Standards* (FGS-Japan), January 1995, Chapter 6, addresses the management of hazardous waste. It includes criteria for the identification, accumulation, storage, transportation, and disposal of hazardous waste.

C. U.S. Air Force Documents

- AFI 48-119, *Medical Service Environmental Quality Programs*, 25 July 1994, provides directive requirements for the Medical Service Environmental Quality Programs. Included are responsibilities in cleanup, compliance, conservation, and pollution prevention.

- AF Hazardous Waste Management Policy Letter, 6 June 1991, provides guidance on the management of hazardous waste, employee training, turn-in and disposal procedures, contracting, and pollution prevention.

- AF Policy Letter, 21 January 1994, *Air Force Policy on the Application of the Resources Conservation and Recovery Act to Conventional Explosive Ordnance Operations*, addresses the issue of when waste ordnance is to be handled as a hazardous waste; only that portion of the letter that specifies the procedures for identifying when conventional explosive ordnance becomes a waste is applicable to AF components located outside the United States and its territories.

D. Responsibility for Compliance

- The Installation Commander (IC) - The installation commander is responsible for establishing and maintaining an active surveillance program of users, generators, transporters, and storers of hazardous wastes; for the waste minimization program; and for disposal activities. By DOD direction, the IC is responsible for compliance with host nation regulations involving host and tenant organizations on the installation. In either case, operational responsibility for the hazardous waste program rests with the activities that generate, treat, store, transport, or dispose of the waste and the activities responsible for implementing health, safety, and environmental protection programs.

- The Installation Environmental Protection Committee (EPC) - The EPC is responsible for reviewing and coordinating the IC's hazardous waste program. The EPC reviews summary data on waste generation, personnel training, and disposal practices.

- The Base Civil Engineer (BCE) or designated Environmental Management Office (EMO) - The BCE/EMO develops installation-specific policy for all aspects of hazardous waste management for all activities on the installation, including AF and non-AF tenants. The BCE/EMO: manages the hazardous waste program; reviews all hazardous waste storage, treatment, and disposal facilities and ensures their compatibility with hazardous waste regulations; serves as Office of Primary Responsibility (OPR) for developing and implementing the hazardous waste management plan; identifies to the contracting office those hazardous wastes that the installation elects to dispose of by local contract, along with the necessary conditions the contractor is required to meet; and approves siting and design of all hazardous waste management facilities.

- Base Fire Department - This department provides support in emergency response, spill events, exercises, and fire protection activities. In addition, the department will be responsible for making periodic fire safety inspections of hazardous waste storage areas and accumulation points on the installation.

- Civil Engineering Environmental Planning Function or EMO Subgroup - The environmental planner is responsible for monitoring day-to-day hazardous waste management activities, maintaining hazardous waste files, and establishing procedures for transfer of accountability and/or custody of hazardous waste from the generating activity to the Defense Reutilization and Marketing Office (DRMO).

- Bioenvironmental Engineering Services (BES) - BES reviews workplace processes and practices to ensure all hazardous materials/wastes are identified; conducts or arranges for environmental monitoring as required; interprets monitoring results for health risks; reviews plans to build or modify facilities used to treat, store, or dispose of hazardous wastes; reviews all material requests for issues of stock classes listed in Federal Standard 313; and maintains a master file of material safety data sheets (MSDSs).

- The Environmental Health Officer (EHO) - The EHO conducts Hazardous Communication Training for all supervisors who have personnel who handle hazardous materials.

- The Supply Officer - The supply officer: receives, stores, and issues hazardous materials; ensures that turn-in hazardous waste documents contain information necessary to comply with all regulatory requirements; and ensures all hazardous materials are properly labeled.

- The Ground Safety Officer - The ground safety officer performs workplace safety inspections, monitors hazardous conditions, and performs occupational safety training.

- The Transportation Officer - The transportation officer coordinates as necessary with shipping activities to ensure hazardous wastes are properly labeled, packaged, manifested, and transported in appropriate vehicles (contract or AF-owned vehicles).

- The Deputy Commander for Maintenance (DCM)/Chief of Maintenance - The DCM ensures that nonhazardous/nontoxic materials are used where possible; maintains a list of hazardous materials used in the work area by shop and maintenance-related task; ensures personnel are properly trained

in ordering, using, handling, controlling, and storing hazardous materials and wastes; and ensures hazardous waste is properly labeled.

- Hazardous Waste Generators - Generators manage hazardous waste in their custody, including proper storage, inspection, recordkeeping, labeling of containers, and transfer for disposal.

- Hazardous Waste Treatment, Storage, and Disposal Facility (TSDF) Operators - Each TSDF operator is responsible for ensuring compliance with hazardous waste regulations applicable to the facility, including maintaining operational and training records.

- Defense Reutilization and Marketing Office (DRMO) - This agency may or may not be located on the installation, but it is the single agency designated by DOD to provide hazardous waste disposal service on a pay for services rendered basis to the installation. The DRMO is responsible for compliance with all host nation national and local regulations, and AF (including base guidance) regulations at its storage/disposal facility. The DRMO is not in the scope of the assessment unless it is located on the installation.

E. Definitions

- *Acute Hazardous Waste* - those wastes listed in Table 4-1, Chart A.4 with a USEPA waste number with the designator "P" (FGS-Japan 6-2).

- *Disposal* - the utilization of those methods of treatment and/or containment technologies, as are approved in FGS-Japan 6-3.11, that effectively mitigate the hazards to human health or the environment of the discharge, deposit, injection, dumping, spilling, leaking, or placing of a hazardous waste into, or on any land or water in a manner that, without application of such methods, such hazardous wastes or any constituent thereof may enter the environment or be emitted into the air or discharged into any waters, including groundwater (FGS-Japan 6-2).

- *DOD Hazardous Waste Generator* - a generator is considered to be the installation or activity on an installation that produces a regulated hazardous waste (FGS-Japan 6-2).

- *Hazardous Constituent* - a chemical compound that is listed by name in Table 4-1 or possesses a characteristic described in Table 4-1 (FGS-Japan 6-2).

- *Hazardous Waste (HW)* - a discarded material that may be solid, semisolid, liquid, or contained gas and either exhibits a characteristic of a HW in Table 4-1, Section A-1 or is listed as a HW in Table 4-1, Chart A.4 (FGS-Japan 6-2).

- *Hazardous Waste Accumulation Point (HWAP)* - an area at or near the point of generation where HW is temporarily stored, up to 208 L (55 gal) of HW or 1L (1 qt) of acute HW, from each waste stream, until removed to a Hazardous Waste Storage Area (HWSA) or shipped for treatment or disposal (FGS-Japan 6-2).

- *Hazardous Waste Fuel* - HW burned for energy recovery is termed "hazardous waste fuel." Fuel produced from HW by processing, blending, or other treatment is also hazardous waste fuel (FGS-Japan 6-2).

- *Hazardous Waste Generation* - any act or process that produces HW as defined in FGS-Japan (FGS-Japan 6-2).

- *Hazardous Waste Profile Sheet (HWPS)* - a document that identifies and characterizes the waste by providing user's knowledge of the waste and/or lab analysis, and details the physical, chemical, and other descriptive properties or processes that created the HW (FGS-Japan 6-2).

- *Hazardous Waste Storage Area* - a location on a DOD installation where more than 208 L (55 gal) of HW or 1 L (1 qt) of acute HW from any one waste stream is stored prior to shipment for treatment or disposal (FGS-Japan 6-2).

- *HWAP/HWSA Site Manager* - a person at the HWAP/HWSA assigned the operational responsibility for receiving, storing, inspecting, and general management of the site's HW management program (FGS-Japan 6-2).

- *Land Disposal* - placement in or on the land, including, but not limited to, land treatment, surface impoundments, underground injection wells, salt dome formations, salt bed formations, underground mines, or caves (FGS-Japan 6-2).

- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *Non-Regulated Waste* - a discarded material that does not meet the definition of a HW but meets the definition of a hazardous material in Table 3-1 (Section 3, *Hazardous Material Management*) or a discarded material contaminated with a non-regulated waste, and requires special handling (FGS-Japan 6-2).

- *Specially Controlled General Wastes (SCGWs)* - this term includes: (FGS-Japan 6-2)
  1. components that contain polychlorinated biphenyls (PCBs) that have been removed from air conditioners, TVs, or microwave ranges as solid waste
  2. ashes from incinerators with a capacity of 5 tons/day or more
  3. infectious general waste from specific sources.

  Only ashes are pertinent to this section of the manual; the other types of SCGW are addressed elsewhere.

- *Specially Controlled Industrial Wastes (SCIWs)* - this term includes the following five types of wastes: (FGS-Japan 6-2)
  1. ignitable petroleum wastes (gasoline, kerosene, diesel oils; Type 1 in Table 4-2, flashpoint less than 70 ^{o}C
  2. waste acids (pH less than 2.0; Type 2 in Table 4-2)
  3. waste alkalies (pH greater than 12.5; Type 3 in Table 4-2)
  4. infectious industrial waste from specific sources (see Section 9, *Solid Waste Management*)
  5. Specified Hazardous Industrial Waste (SHIW) (q.v.).

- *Specified Hazardous Industrial Wastes (SHIWs)* - this term includes Types 5 through 20 in Table 4-2, which indicates sources and applicable or allowable limits for contaminants. The maximum limits in Table 4-2 represent the limits above which the waste is determined to be SCIW (FGS-Japan 6-2).

- *Treatment* - any method, technique, or process, including neutralization, designed to change the physical, chemical, or biological character or composition of any HW so as to neutralize such waste, recover energy or material resources from the waste, or render such waste nonhazardous, or less hazardous; safer to transport, store, or dispose of; or amenable for recovery, amenable for storage, or reduced in volume (FGS-Japan 6-2).

- *Treatment, Storage, and Disposal Facility (TSDF)* - any facility not located on a DOD installation that is used for the collection, source separation, storage, transportation, transfer, processing, treatment, or disposal of HW (FGS-Japan 6-2).

- *Unique Identification Number* - a number assigned to generators of HW to identify the generator and used to assist in tracking the waste from point of generation to ultimate disposal. The number will be the DOD Activity Address Code (DODAAC). (FGS-Japan 6-2).

- *Used Oil* - any oil or other waste POL product that has been refined from crude oil, or is a synthetic oil, that has been used and as a result of such use is contaminated by physical or chemical impurities. The following apply to used oil: (FGS-Japan 6-2)
  a) Used oil that exhibits a characteristic of HW is considered to be used oil and not HW ***unless it has been mixed*** with another characteristic waste. However, if the resultant mixture does not exhibit any characteristic of a HW, it is still considered used oil. If, however, the resultant mixture does continue to exhibit a characteristic of a HW, it is considered a HW.
  b) Used oil that has been mixed with a listed HW is considered to be a HW.
  c) Used oil burned for energy recovery must not exceed the following specifications. Used oil that does exceed these specifications is considered to be a HW:

Levels of Contaminates Beyond Which Used Oil is Considered Hazardous Waste	
Arsenic	5 ppm maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum
Lead	100 ppm maximum
Flash point	100 ^{o}F minimum
Total halogens	1000 ppm maximum

HAZARDOUS WASTE MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS: (a)
All Installations	JA.4-1 through JA.4-11	(1)(2)(5)(6)(7)(8)(9)(10)(11)
Training	JA.4-12 and JA.4-13	(1)(2)(3)(4)(5)(6)(9)
Transportation of Hazardous Waste	JA.4-14 through JA.4-17	(7)(8)
Hazardous Waste Generators	JA.4-18 through JA.4-23	(2)(4)(5)(7)(9)(10)
Hazardous Waste Accumulation Points	JA.4-24 through JA.4-29	(3)(9)
Hazardous Waste Storage Areas		
General	JA.4-30 through JA.4-41	(2)(5)
Containers	JA.4-42 through JA.4-45	(2)(5)
Documentation	JA.4-46 through JA.4-48	(2)(3)(5)(9)
Hazardous Waste Disposal		
General	JA.4-49 through JA.4-54	(1)(2)(5)(7)(8)(9)
Land Disposal	JA.4-55 and JA.4-56	(1)(2)(5)
Land Disposal of Specially Controlled Industrial Waste	JA.4-57 through JA.4-60	(1)(2)(5)
Incinerators	JA.4-61 through JA.4-63	(1)(2)(5)
Treatment Technologies	JA.4-64 and JA.4-65	(1)(2)(5)
Specific Wastes	JA.4-66 and JA.4-67	(1)(2)(3)(5)(9)
Non-Regulated Waste		
Generators of Non-Regulated Waste	JA.4-68 through JA.4-70	(1)(9)
Transportation of Non-Regulated Waste	JA.4-71 through JA.4-75	(1)(2)(3)(5)(7)(9)
Containers	JA.4-76	(2)(3)(5)
Training	JA.4-77 and JA.4-78	(1)(2)(3)(4)(5)(6)(9)
Conventional Explosive Ordnance	JA.4-79 and JA.4-80	(1)(9)

(a) CONTACT/LOCATION CODE:

(1) BCE (Environmental Planning)
(2) DRMO (Defense Reutilization and Marketing Office)
(3) Accumulation Point Managers
(4) Fire Department
(5) TSDF (Treatment, Storage, and Disposal Facility) Officer
(6) Safety Manager
(7) Transportation Officer
(8) Base Supply
(9) Generating Activities
(10) BES (Bioenvironmental Engineering Services)
(11) Base Staff Judge Advocate

Records To Review

- Generators (including TSDFs if they are also considered generators):

  Hazardous waste manifests
  Manifest exception reports
  Personnel training documentation
  Contingency plan
  Notifications of hazardous waste oil fuel marketing or blending activity
  Hazardous waste disposal turn-in document (DD Form 1348-1)

- TSDFs (in addition to the above records):

  Unmanifested waste reports
  Facility audit reports (inspection log)
  Waste analysis plan(s)
  Operating record
  Groundwater monitoring records and annual reports
  Closure/post-closure plans
  Closure/post-closure notices (where applicable)

Physical Features To Inspect

- Disposal sites
- Generating areas
- Accumulation points
- Incinerators
- Vehicles used for transport
- Storage facilities (including drums)

People To Interview

- BCE (Environmental Planning)
- DRMO (Defense Reutilization and Marketing Office)
- Accumulation Point Managers
- Fire Department
- TSDF Officer
- Safety Manager
- Transportation Officer
- Base Supply
- Generating Activities
- Base Staff Judge Advocate

COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
ALL INSTALLATIONS	
JA.4-1. Determine actions or changes since the previous review of HW management (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (1)(2)
JA.4-2. Installations must maintain copies of certain U.S. laws and applicable host nation HW laws (AF Hazardous Waste Management Policy Letter, 6 June 1991, para (IIa)).	Verify that the installation maintains copies of the following laws: (1)(11) - *Occupational Safety and Health Act* - *Hazardous Material Transportation Act* (HMTA) - *Resource Conservation and Recovery Act* and Hazardous and Solid Waste Amendments (RCRA/HSWA) - *Comprehensive Environmental Restoration, Compensation, and Liability Act* (CERCLA) and *Surperfund Amendment and Reauthorization Act* (SARA) - *Hazardous Materials Transportation Uniform Safety Act* - AFI 48-119, *Medical Service Environmental Quality Programs*, 25 July 1994. Verify that the Base Staff Judge Advocate (SJA) reviews the documents annually for currency and completeness and submits the findings of the review to the Base Environmental Protection Committee.
JA.4-3. Copies of all relevant DOD directives/ instructions, USAF directives, and guidance documents should be maintained at the installation (MP).	Verify that copies of the following regulations are maintained and kept current at the installation: (1)(11) - *USFJ Final Governing Standards* (FGS-Japan), January 1995 - AF Hazardous Waste Management Policy Letter, 6 June 1991 - AF Policy Letter, 21 January 1994.
JA.4-4. Installations must meet regulatory and AF requirements issued since the finalization of the manual (a finding under this checklist item will have the citation of the new regulations as a basis of finding).	Determine whether any new regulations concerning HW have been issued since the finalization of the manual. (1)(7) Verify that the installation is in compliance with newly issued regulations.

(1) BCE (Environmental Planning) (2) DRMO (Defense Reutilization and Marketing Office) (3) Accumulation Point Managers (4) Fire Department (5) TSDF (Treatment, Storage, and Disposal Facility) Officer (6) Safety Manager (7) Transportation Officer (8) Base Supply (9) Generating Activities (10) BES (Bioenvironmental Engineering Services) (11) Base Staff Judge Advocate

COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-5. Generators of HW must develop a management plan for the storage, treatment, and disposal of HW (FGS-Japan 6-3.1(e) and AF Hazardous Waste Management Policy 6 June 1991, para III(b)).	Verify that the installation has a Hazardous Waste Management Plan that includes the following: (1)(6)(7) - letter of instruction - information and emergency contacts - introductory materials - introduction - responsibilities - organizational chart - location maps - waste inventory - waste analysis plan - recordkeeping - reporting - training - contingency plan preparedness and spill prevention - pollution prevention. Verify that the plan addresses the following elements: - name(s) of HWAP/HWSA site manager(s) - organization for management and emergency contact network - type, generated and processed quantities, and characteristics of HW - target for waste reduction or other appropriate measures for treatment - methods of process and disposal - method of storage at the installation/activity - methods of collection and transportation - in cases where the process or disposal is contracted, permitting for the contractor and terms of the waste disposal contract, as applicable. Verify that the plan is made available to all interested employees.
JA.4-6. Installations must develop a waste analysis plan (FGS-Japan 6-3.3(c)(1) and AFI 48-119, para 9.3.1).	Verify that the installation, in conjunction with the HWSA manager, has developed a plan to determine how and when wastes are to be analyzed. (2)(5) Verify that the plan includes: - procedures for characterizing and verifying the testing of both onsite and offsite HW - testing parameters and the rationale for selecting them - frequency of analysis - test and sampling methods.

(1) BCE (Environmental Planning) (2) DRMO (Defense Reutilization and Marketing Office) (3) Accumulation Point Managers (4) Fire Department (5) TSDF (Treatment, Storage, and Disposal Facility) Officer (6) Safety Manager (7) Transportation Officer (8) Base Supply (9) Generating Activities (10) BES (Bioenvironmental Engineering Services) (11) Base Staff Judge Advocate

COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-7. The HW analysis plan must be updated every 3 yr (AFI 48-119, para 9.3.1).	Verify that BES updates the HW analysis plan at least every 3 yr. (10)
JA.4-8. Installations must identify and characterize the wastes generated at their sites (FGS-Japan 6-3.1(a); AF Hazardous Waste Management Policy, 6 June 1991, para III(c); AFI 48-119, para 9.3.1 and 9.3.4).	Determine whether the installation generates, transports, treats, stores, or disposes of any HW (see Table 4-1 for guidance). (1)(9) Verify that the installation identifies and characterizes its wastes. (NOTE: Used oil must also be characterized.) (NOTE: Wastes may be identified and characterized on the basis of knowledge of the materials and processes that generated the wastes, or on the basis of laboratory analysis of the waste.) Verify that an HWPS is used to identify each HW stream. (NOTE: This requirement does not apply to used batteries or to manufacturer's unopened containers; for these waste streams MSDSs are acceptable.) Verify that BES maintains copies of HWPSs after completing the health sections. Verify that the installation has a HW inventory that identifies all waste streams and a HW analysis plan that identifies and characterizes the HW streams.
JA.4-9. Generators must identify inherent hazardous characteristics associated with a waste (FGS-Japan 6-3.1(b)).	Verify that wastes have been identified on the HWPS according to the inherent hazardous characteristics associated with the wastes in terms of: (9) - physical properties (solid, liquid, contained gases) - chemical properties (chemical constituents, technical or chemical name) - other descriptive properties (ignitable, corrosive, reactive, toxic). (NOTE: See Tables 4-3 and 4-4.) Verify that the installation uses USEPA accepted test methodologies (as listed in SW-846) to analyze for properties of wastes. Verify that SW-1311, the Toxicity Characteristics Leaching Procedure (TCLP), is used to analyze for the contaminants listed in Tables 4-5 and 4-6.

(1) BCE (Environmental Planning) (2) DRMO (Defense Reutilization and Marketing Office) (3) Accumulation Point Managers (4) Fire Department (5) TSDF (Treatment, Storage, and Disposal Facility) Officer (6) Safety Manager (7) Transportation Officer (8) Base Supply (9) Generating Activities (10) BES (Bioenvironmental Engineering Services) (11) Base Staff Judge Advocate

COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-10. Installations must not use HW, used oil, or used oil contaminated with HW for dust suppression or road treatment (FGS-Japan 6-3.9(b)).	Verify that neither used oil, HW, nor used oil contaminated with any HW is used for dust suppression or road treatment. (1)(7)
JA.4-11. Import and export of SCIW is subject to specific requirements (FGS-Japan 6-3.11(i)).	Verify that the DRMOs coordinate with USFJ/J42E on any specific Japanese requirements for the export of HW/SCIW. (2) Verify that no HW/SCIW is imported into Japan without prior coordination and specific, case-by-case, written approval from the EA. (NOTE: Any coordination with the government of Japan will be accomplished by USFJ/J42E through normal channels.)
TRAINING	
JA.4-12. Installation personnel who handle HW must meet specific training requirements (FGS-Japan 6-3.1(e) and 6-3.10(a) through 6-3.10(d)).	Verify that all DOD personnel (including U.S. military, civilian, and local national personnel) whose duties involve actual or potential exposure to HW receive training. (1)(2)(3)(4)(5)(6)(9) (NOTE: The following persons are subject to this requirement: - those who determine which wastes are HWs - those who complete HW recordkeeping requirements, unless the duties are restricted entirely to clerical functions - those who handle/store HW containers - those who transfer HW to or from accumulation tanks or containers - those who transport HW - those who perform HW cleanup (nonemergency) - those who inspect, manage, or work at an HWAP or HWSA - those who collect HW samples - those who conduct other HW-related activities as designated by the Base Commanders and/or ECs.) Verify that the training program is conducted by qualified trainers who have completed an instructor training program in the subject or who have comparable academic credentials and experience. Verify that the training program includes sufficient information to enable personnel to comply fully with and carry out requirements in FGS-Japan.

(1) BCE (Environmental Planning) (2) DRMO (Defense Reutilization and Marketing Office) (3) Accumulation Point Managers (4) Fire Department (5) TSDF (Treatment, Storage, and Disposal Facility) Officer (6) Safety Manager (7) Transportation Officer (8) Base Supply (9) Generating Activities (10) BES (Bioenvironmental Engineering Services) (11) Base Staff Judge Advocate

COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

JA.4-12. (continued)	Verify that the program is designed to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, equipment, and systems.
	
	Verify that training for personnel whose duties include HW handling and management addresses the following in particular:
	
	- emergency procedures (response to fire/explosion/spills; use of communications/alarm systems; body and equipment cleanup)
	- handling and storage of drums and containers
	- safe use of HW equipment
	- protection of personnel, including:
	  - personal protective equipment (PPE)
	  - safety and health hazards
	  - hazard communication
	  - worker exposure
	- for generators and HW storage area operators:
	  - recordkeeping
	  - security
	  - inspections
	  - contingency plans
	  - storage requirements
	  - transportation requirements.
	
	Verify that training for personnel who transport HW or prepare it for transport includes:
	
	- awareness/familiarization training to enable the employee to recognize and identify hazardous property
	- function-specific training for the mode of transportation utilized
	- safety training to educate the employees on:
	  - emergency response
	  - measures to protect the employees from hazards to which they may be exposed
	  - methods and procedures to avoid accidents through proper handling.
	
	Verify that initial training is at least 24 h in duration.
	
	Verify that training for new personnel assigned to duties involving actual or potential exposure to HWs is completed prior to their assuming those duties.
	
	Verify that such personnel work under direct supervision until training is completed.
	
	Verify that an 8 h annual refresher of initial training is provided.
	
	Verify that all employees working with or around HW are trained on any existe hazards and their control and on the requirements of the Hazardous Waste Manage ment Plan.

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-12. (continued)	(NOTE: Hazardous Waste Operations and Emergency Response (HAZWOPER) training may fulfill the requirements of this checklist item, depending on the duties of the individual.)
JA.4-13. Installations must document all HW training for each individual assigned duties involving actual or potential exposure to HW (FGS-Japan 6-3.5(g), 6-3.10(d)(5)(d), and 6-3.10(e); Hazardous Waste Management Policy, 6 June 1991, para III(d)(2)).	Verify that all HW training is documented. (1)(2)(5)(6)(9) Verify that training records are up-to-date. Verify that training records are retained for 3 yr after termination of employment at the installation.
TRANSPORTATION OF HAZARDOUS WASTE	
JA.4-14. Installations must prepare HW shipments in accordance with applicable regulations (FGS-Japan 6-3.1(d)(1)).	Verify that the installation prepares HW shipments in accordance with the following regulations, as applicable: (7) - 49 CFR for land shipments - IMDG Code for water shipments - IATA rules, for air shipments. (NOTE: Placarding of vehicles is not authorized in Japan.)
JA.4-15. All HW that leaves the installation must be accompanied by a serially numbered manifest (FGS-Japan 6-3.1(d)(2)).	Verify that all HW that leaves the installation is accompanied by a serially numbered manifest. (7) Verify that the installation uses Japanese forms when the destination is a Japanese facility. Verify that DD Form 1348-1 is used in all other cases.

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-15. (continued)	Verify that the DD Form 1348-1 contains the following information in its proper place: - generator's name (HWAP/HWSA unit name and site manager), address, and telephone number - transporter's name, address, and telephone number - destination name, address, and telephone number - description of waste - total quantity of waste, in pounds - date of shipment - signature and date of receipt.
JA.4-16. Shipments of HW must meet specific standards (FGS-Japan 6-3.1(f)).	Verify that hazardous materials shipments are accompanied by shipping papers from the point of origin to the final destination. Verify that an MSDS or its equivalent is attached to the shipping paper for each hazardous material listed on the shipping paper. Verify that all drivers of HW shipments are briefed on the HW included in the shipment. Verify that all drivers of HW shipments carry a copy of the *Emergency Response Guidebook* (DOT Research and Special Programs Administration Publication 5800.6) in their vehicles. Verify that supervisory personnel do a walk-around inspection of the vehicles before and after the waste is loaded. Verify that HW is packaged, marked, and labeled in accordance with 49 CFR, IATA regulations, or the IMDG Code. Verify that DOD vehicles are not placarded, especially when traveling outside the installation. Verify that all HW has a hazardous chemical warning label (or the equivalent) on each container. Verify that, if the installation uses commercial transporters, such transporters have applicable licenses or permits for operation.

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-17. Installations should ensure that transportation of HWs between buildings is accomplished so as to help prevent spills, releases, and accidents (MP).	Verify that procedures exist to manage movement of HWs throughout the installation. (7)(8) Verify that drivers are trained in spill control procedures. Verify that provisions are made to secure wastes in vehicles during transport.
HAZARDOUS WASTE GENERATORS	
JA.4-18. Installations must conduct annual surveys of industrial processes and waste storage facilities (AFI 48-119, para 9.3.7).	Verify that BES conducts annual surveys of industrial processes and waste storage facilities to assess compliance with applicable worker and environmental protection requirements. (10)
JA.4-19. Each generator must use its unique identification number for all recordkeeping, reports, and manifests for HW (FGS-Japan 6-3.1(c)).	Verify that each generator uses its unique identification number for all record keeping, reports, and manifests for HW. (9)
JA.4-20. Generators must maintain an audit trail of HW from the point of generation to disposal (FGS-Japan 6-3.1(d)(3)(a)).	Verify that generators maintain an audit trail of HW from the point of generation to disposal. (2)(9) Verify that generators using DRMS disposal services have a signed copy of DD Form 1348-1 from the initial DRMS recipient of the waste. Verify that, if a generator uses a HW management and/or disposal program of a DOD component with a different unique identification number, it obtains a signed copy of the manifest from the receiving component.

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

JA.4-21. Installations that dispose of their wastes outside of the DRMS system must develop their own manifest tracking systems that meet specific requirements (FGS-Japan 6-3.1(d)(3)(b)).	Determine whether the installation disposes of its HW outside of the DRMS system. (1)(7)(9)
	
	Verify that the installation has developed a manifest tracking system that includes the following controls:
	
	- transportation contractors return a copy of each manifest to the generator upon completion of transportation
	- disposal contractors send a copy of each manifest to the generator upon completion of disposal
	- in case a copy of the manifest is not received within 60 days after issuance, the issuer investigates the contractor's work for transportation or disposal and reports findings to USFJ/J42E, including:
	  - type and quantity of HW
	  - name and address of contractor
	  - contract issuance date
	  - method of investigation
	  - findings.
	
	Verify that copies of the manifests are kept on file for 5 yr.

JA.4-22. Installations that generate HWs and use the DRMO for disposal of HW must follow established procedures (AFI 48-119, para 9.3.6; AF Hazardous Waste Management Policy, 6 June 1991, para III(e)(2) and Appendix C, Section B).	Verify that: (2)(9)
	
	- generators provide an HWPS along with the waste
	- generators hand-carry AF Form 2005 to Base Supply to initiate timely action
	- generators hand-carry DD Form 1348-1 when received from Base Supply, to BCE for certification
	- generators hand-carry certified DD Form 1348-1 from BCE to the DRMO.
	
	(NOTE: HQ USAF/CEV 25 September Memorandum, *Hazardous Waste Disposal*, allows installations to use alternate procedures in which the installation HW managers prepare and certify the DD Form 1348-1 instead of Base Supply. The Hazardous Waste Management Plan needs to indicate what procedure is used. In the approved alternate procedure no AF Form 2005 is prepared, and the HW managers also maintain records of all transactions.)
	
	Verify, by examining records and interviewing the staff at Base Supply (Customer Service Unit), that:
	
	- computer records of all HW transfer actions are maintained
	- a DD Form 1348-1 is processed for each transaction and includes:
	  - the HW stock number
	  - waste quantity
	  - applicable disposal cost and funding information.

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
	Verify, by examining records and interviewing BCE personnel, that: - a letter identifying personnel eligible to certify HW disposal turn-in documents (DD Form 1348-1) is current and on file at the servicing DRMO - all DD Forms 1348-1 are properly certified, indicating that HW is properly identified (USEPA identification number), labeled, and packaged - DD Form 448, Military Interdepartmental Purchase Request (MIPR), has been executed with DRMO, and the Accounting and Finance Office (AFO) maintains DD Form 448 after execution - billings from DRMO are on a standard form (SF) 1080 and are reviewed and certified for payment by BCE through the AFO. Verify, by examining records and interviewing BES personnel, that: - BES conducts a semiannual review of the health hazard listing to review all issue exception code (IEX) 8 and 9 items and determines whether health hazard items produce a specific HW - nomenclatures are included in the health hazard listing - BES reviews all plans to build or modify facilities used to treat, store, or dispose of HW.
JA.4-23. Installations with HWSAs should provide specific information to certain agencies (MP).	Verify that police, fire departments, and emergency response teams are familiar with the layout of the facility, properties of the waste being handled, and general operations. (4)(5) Verify that the hospital is familiar with the site and the types of injuries that could result in an emergency.
HAZARDOUS WASTE ACCUMULATION POINTS	
JA.4-24. HWAPs must meet specific design and operating standards (FGS-Japan 6-3.2(a) and 6-3.2(b)).	Verify that an HWAP is at or near the point of generation and that no more than 208 L (55 gal) of HW or 1 L (1 qt) of acute HW (see Table 4-1) from each waste stream is accumulated there. (3) Verify that, when the above accumulation limits are reached, the generator makes arrangements either to move the HW to an HWSA or to ship it offsite for treatment or disposal. Verify that each HWAP is designed and operated to provide appropriate segregation for different waste streams, including those that are chemically incompatible. (NOTE: See Table 4-7 for a list of incompatible wastes.)

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-24. (continued)	Verify that each HWAP has warning signs appropriate to the waste being accumulated at the site.
JA.4-25. Containers at HWAPs must meet specific requirements (FGS-Japan 6-3.2(c) and 6-3.4(a)(1) through 6-3.4(a)(4)).	Verify that containers are in good condition and free from severe rusting, bulging, or structural defects. (3) Verify that containers meet the applicable transportation regulatory packaging requirements. Verify that containers, including overpack containers, are compatible with the materials stored. Verify that containers are kept closed, except when they need to be opened to add or remove waste. Verify that containers are not opened, handled, or stored in a manner that could cause a rupture or a leak. Verify that containers are marked with a bilingual (English and Japanese) HW marking and a label indicating the hazard class of the contents (flammable, corrosive, etc.).
JA.4-26. HWAP container storage areas must have containment systems (FGS-Japan 6-3.2(c)).	Verify that each container storage area has a containment system, such as a drip pan, with sufficient capacity to contain 10 percent of the volume of the containers or the volume of the largest container, whichever is greater. (3) (NOTE: This applies only to containers that hold free liquids.)
JA.4-27. HWAPs must be inspected weekly for leaking containers and deterioration of the containment system caused by corrosion and other factors (FGS-Japan 6-3.2(c) and 6-3.4(a)(5)).	Verify that a weekly inspection is performed for leaking containers and for deterioration of containers and the containment system. (3)(9) Verify that secondary containment systems are inspected for defects and emptied of accumulated releases.

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-28. HWAPs that have containers holding ignitable or reactive waste must be located at least 16 m (50 ft) inside the installation boundary (FGS-Japan 6-3.2(c) and 6-3.4(c)).	Verify that containers which hold ignitable or reactive waste are at least 16 m (50 ft) inside the installation boundary. (3)(9)
JA.4-29. HWAPs must handle incompatible wastes according to specific requirements (FGS-Japan 6-3.2(c) and 6-3.4(d)).	Verify that incompatible wastes and materials are not placed in the same container. (3)(9) Verify that storage containers holding a HW that is incompatible with any waste or other materials stored nearby in containers, piles, open tanks, or surface impoundments, are separated from the other materials or protected from them by means of a dike, berm, wall, or other device.
HAZARDOUS WASTE STORAGE AREAS **General**	
JA.4-30. New HWSAs must be located so as to minimize the risk of a release due to seismic activity, floods, or other natural events (FGS-Japan 6-3.3(a)).	Verify that new HWSAs are (to the maximum extent possible) located so as to minimize the risks from natural disasters. (5) Verify that, for storage areas located where such risks may be encountered, the installation spill prevention and control plan addresses the risk.
JA.4-31. HWSAs must meet specific security requirements (FGS-Japan 6-3.3(d)).	Verify that the installation prevents the unknowing entry, and minimizes the possibility of unauthorized entry, of people or livestock onto HWSA grounds. (5) Verify that the HWSA security system consists of either: - a 24-h surveillance system (e.g., television monitors, surveillance by guards) that continuously monitors and controls entry - an artificial or natural barrier (e.g., a fence in good repair or a fence combined with a cliff) that completely surrounds the area, combined with a means to control entrance at all times (e.g., an attendant, television monitors, locked gate, or controlled roadway access).

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-31. (continued)	Verify that a sign is posted with the words DANGER UNAUTHORIZED PERSONNEL KEEP OUT at each entrance and at other locations in sufficient numbers to be seen from any approach to the HWSA. Verify that the legend is written in English and Japanese. Verify that signs are legible from 8 m or 25 ft. (NOTE: Existing signs with a legend other than the above may be used if the legend indicates that only authorized personnel are allowed to enter, and that entry can be dangerous.)
JA.4-32. HWSAs must be designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned release of HW (FGS-Japan 6-3.3(b), 6-3.3(e), and 6-3.3(g)).	Verify that the HWSA is designed, constructed, maintained, and operated to minimize the possibility of a fire, explosion, or any unplanned release of HW or HW constituents. (5) Verify that the following equipment is easily accessible to personnel in HWSAs and in working condition: - internal communications or alarm system capable of providing immediate emergency instructions to facility personnel - a device, such as an intrinsically safe telephone (immediately available at the scene of the operation) or a hand-held, two-way radio, capable of summoning emergency assistance - portable fire extinguishers and special extinguishing equipment (foam, inert gas, or dry chemicals) - spill control equipment - decontamination equipment - water (reservoir, storage tank, etc.) with adequate volume and pressure to supply water hose streams, foam producing equipment, automatic sprinklers, or water spray systems - readily available PPE appropriate to the materials stored - eyewash and shower facilities. Verify that the equipment is tested and maintained as necessary to ensure proper operation in an emergency. Verify that sufficient aisle space is maintained to allow unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of the facility operation. Verify that no containers obstruct exits.

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-33. Installations must meet specific requirements with regard to access to communications or alarm systems in HWSAs (FGS-Japan 6-3.3(f)).	Verify that, whenever HW is being poured, mixed, or otherwise handled, all personnel involved in the operation have immediate access to an internal alarm or emergency communications device, either directly or through visual or voice contact with another person. (5) Verify that, if there is only one person on duty in the HWSA, said person has immediate access to a device, such as a telephone (immediately available at the scene of the operation) or a hand-held, two-way radio capable of summoning external emergency assistance.
JA.4-34. The storage of ignitable, reactive, or incompatible wastes at HWSAs must not threaten human health or the environment (FGS-Japan 6-3.3(i)).	Verify that the storage of ignitable, reactive, or incompatible wastes is accomplished so as to prevent threats to human health or the environment. (2)(5) Verify that the HWSA manager takes precautions to prevent accidental ignition or reaction of ignitable or reactive wastes. Verify that ignitable, reactive, and incompatible wastes are separated and protected from sources of ignition or reaction. (NOTE: Sources of ignition or reaction include but are not limited to, open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, or mechanical), spontaneous ignition (e.g., from heat-producing chemical reactions), and radiant heat.) Verify that smoking and open flames are confined to specially designated areas while ignitable or reactive waste is being stored or handled. Verify that NO SMOKING signs are conspicuously placed wherever there is a hazard from ignitable or reactive waste. Verify that the NO SMOKING legend is written in English and Japanese. Verify that water reactive waste is not stored in the same area as flammable and combustible liquids.
JA.4-35. HWSAs must handle incompatible wastes in accordance with specific requirements (FGS-Japan 6-3.4(d)).	Verify that incompatible wastes and materials are not placed in the same container. (2)(5) Verify that storage containers holding a HW that is incompatible with any waste or other materials stored nearby in containers, piles, open tanks, or surface impoundments are separated from the other materials or protected from them by means of a dike, berm, wall, or other device.

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-36. Certain precautions with regard to handling ignitable, reactive, or incompatible wastes should be taken in HWSAs (MP).	Verify that, when treating, storing, or disposing of ignitable or reactive wastes, or when mixing incompatible wastes and other materials, precautions are taken to prevent dangerous reactions, including: - generation of extreme heat or pressure, fires or explosions, or violent reactions - production of uncontrolled toxic mists, fumes, dusts, or gases sufficient to threaten human health or the environment - production of uncontrolled flammable fumes or gases sufficient to pose a risk of fire or explosions - damage to the structural integrity of the device or facility.
JA.4-37. Installations must maintain an HWPS (or MSDS, as appropriate) for each waste stream handled by each HWSA (FGS-Japan 6-3.3(c)(2)).	Verify that the installation maintains an HWPS (or MSDS, as appropriate) for each waste stream handled by each HWSA. (2)(5) Verify that the HWSA accepts no waste for storage unless it has received an HWPS (or MSDS, as appropriate). Verify that the generator updates the HWPS as needed to reflect any new waste streams or process modifications that change the character of the HW being handled at the storage area.
JA.4-38. HWSA managers must conduct periodic random verification testing of the HW in storage (FGS-Japan 6-3.3(c)(2)).	Verify that periodic random testing is carried out to ensure that the generator has accurately identified the stored HW. (2)(5)
JA.4-39. Prior to accepting waste from a generator, the HWSA manager must follow specific procedures (FGS-Japan 6-3.3(c)(3)).	Verify that, prior to accepting waste from generators, the HWSA manager: (2)(5) - inspects the waste to ensure that it is properly classified, marked, labeled, packaged, and ready for turn in - requires a new HWPS from the generator if there is reason to believe that the process generating the waste has changed - analyzes waste shipments to see if they match the waste description on the accompanying manifest and documents - rejects shipments that do not match the accompanying waste descriptions, until the generator provides an accurate description.

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-40. Installations must inspect HWSAs for malfunction, deterioration, operator errors, and discharges (FGS-Japan 6-3.3(h)).	Verify that inspections are conducted according to a written schedule kept at the HWSA and at a sufficient frequency to identify problems in time to correct them before they harm human health or the environment. (2)(5) Verify that the schedule identifies the type of problems to be looked for during the inspection. Verify that inspections cover all equipment and areas involved in the storage and handling of HW. Verify that areas subject to spills, such as loading and unloading areas, are inspected daily when in use. (NOTE: FGS-Japan has established inspection frequency for the following equipment/facilities: - containers at HWAPs and HWSAs - container storage areas - tank systems. The frequency at which other equipment/facilities are inspected should be based on the rate of possible deterioration of the equipment and probability of an environmental or human health incident if the deterioration of malfunction or any operator error goes undetected between inspections.) Verify that the installation remedies any deterioration or malfunction of equipment or structures that the inspection reveals on a schedule that ensures that the problem does not lead to an environmental or human health hazard. Verify that, when an imminent hazard is identified or one has already occurred, the installation takes immediate action. Verify that inspections are recorded in an inspection log or summary that is kept for at least 5 yr from the date of inspection and includes at least: - the date and time of inspection - the name of the inspector - notation of the observations made - the date and nature of any repairs or other remedial actions.
JA.4-41. At the closure of an HWSA, all HW and HW residues must be removed (FGS-Japan 6-3.7).	Verify that, at the closure of an HWSA, all HW and HW residues, including remaining containers, liners and bases, are removed from the containment system. (2)(5) Verify that the closure is done in a manner which eliminates or minimizes the need for future maintenance or the potential for future releases of HW. Verify that the HWSA is closed in accordance with the Closure Plan.

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Containers	
JA.4-42. Containers at HWSAs must meet specific standards (FGS-Japan 6-3.4(a)(1) through 6-3.4(a)(4)).	Verify that containers holding HW are in good condition, and free from severe rusting, bulging, or structural defects. (2)(5) Verify that containers holding HW meet the applicable transportation regulatory packaging requirements. Verify that containers, including overpack containers, are compatible with the materials stored. Verify that containers are kept closed, except when they need to be opened to add or remove waste. Verify that containers are not opened, handled, or stored in a manner that could cause a rupture or a leak. Verify that containers are marked in English and Japanese with a HW marking and a label indicating the hazard class of the contents (flammable, corrosive, etc.).
JA.4-43. HWSA container storage areas must have a containment system (FGS-Japan 6-3.4(b)).	Verify that the container storage area has a containment system that has sufficient capacity to contain 10 percent of the volume of the containers or the volume of the largest container, whichever is greater. (2)(5) Verify that the HWSA is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed. (NOTE: Areas for the storage of containers holding only wastes that do not contain free liquids need not have such a containment system, provided that the storage area is sloped or otherwise designed and operated to drain and remove liquid from precipitation, or the containers are elevated or otherwise protected from contact with accumulated liquid.)
JA.4-44. HWSAs must be inspected weekly for leaking containers and for deterioration of containers and the containment system caused by corrosion and other factors (FGS-Japan 6-3.4(a)(5)).	Verify that a weekly inspection is performed. (2)(5) Verify that secondary containment systems are inspected for defects and emptied of accumulated releases.

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-45. HWSAs that have containers holding ignitable or reactive waste must be located at least 16 m (50 ft) inside the installation boundary (FGS-Japan 6-3.4(c)).	Verify that containers which hold ignitable or reactive waste are at least 16 m (50 ft) from the installation boundary. (2)(5)
DOCUMENTATION	
JA.4-46. HWSAs and HWAPs must maintain a HW log, inspection logs, manifests, and waste analysis/characterization records (FGS-Japan 6-3.5(a) through 6-3.5(e)).	Verify that HWSA/HWAP site managers keep the following written records for each type of HW at their site: (2)(3)(5)(9) - name/address of the generator and DODAAC - description of the HW and HW codes - description of the waste's physical form (solid, liquid, gas) and the process producing the waste - number and types of containers - quantity of HW (in pounds) - date received - storage location - incoming manifest numbers - outgoing manifest numbers and date removed. Verify that the HW log is available to emergency personnel in the event of a fire or a spill and is maintained until closure of the installation. Verify that the installation maintains inspection logs for 5 yr. Verify that the installation maintains manifests of HW that goes to TSDFs in Japan until closure. Verify that the installation retains all other manifests of incoming and outgoing HW for 5 yr. Verify that the installation retains waste analysis/characterization records until 5 yr after closure.
JA.4-47. HWSAs must have a written closure plan (FGS-Japan 6-3.5(f)).	Verify that the HWSA has a closure plan that includes: (2)(5) - estimates of the storage capacity of HW - the steps to be taken to remove or decontaminate all waste residues - an estimate of the expected date of closure. Verify that the installation develops a closure plan prior to opening a new HWSA.

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-48. Installations/ activities must have a contingency plan to manage spills and releases of HW (FGS-Japan 6-3.6).	Verify that the installation/activity has a contingency plan to manage spills and releases of HW. (2)(5) Verify that the plan meets the requirements of FGS-Japan, Chapter 18. (See Section 8, *POL Management.*) Verify that a current copy of the contingency plan is maintained at the HWSA and each HWAP. Verify that a current copy of the plan has been submitted to all police departments, fire departments, hospitals, and emergency response teams upon which the plan relies to provide emergency services. Verify that the plan is available in both English and Japanese, as applicable.
HAZARDOUS WASTE DISPOSAL **General**	
JA.4-49. The EA must determine whether DOD HW may be disposed of in Japan (FGS-Japan 6-3.11(b)(2)).	Verify that the installation has consulted with the EA and established which HWs may be disposed of in Japan. (1)(2)(5)
JA.4-50. DOD HW must normally be disposed of through the DRMS (FGS-Japan 6-3.11(a); AF Hazardous Waste Management Policy 6 June 1991, para III(f)).	Verify that the installation normally disposes of its DOD HW through the DRMS. (1)(5) Verify that, if the installation does not use the DRMS for disposal, the Staff Judge Advocate and the Base Civil Engineer review the contract prior to its submission to the Base Contracts Office (BCO) to ensure that host nation laws are followed. (NOTE: A decision not to use the DRMS for HW disposal may be made for best accomplishment of the mission, but the decision should be concurred in by the component chain of command and USFJ/J42E to ensure that installation contracts and disposal criteria are at least as protective as the criteria used by the DRMS.)

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-51. Installations that transship HW to a country other than the United States must meet specific requirements (FGS-Japan 6-3.11(b)(1) and 6-3.11(b) (2)).	Determine whether the installation has HW that cannot be disposed of in Japan in accordance with FGS-Japan. (7) Verify that, if final governing standards cannot be met, the waste is either retrograded to the U.S. or transferred to another country where applicable final governing standards allow for disposal. Verify that the transshipment meets applicable international agreements. Verify that methods of disposal meet the requirements of the final governing standards for the nation in which the waste is disposed, if any such standards exist. Verify that the transshipment has been approved by at least the EA. (NOTE: The determination of whether particular DOD-generated HW may be disposed of in Japan is made by the EA, in coordination with DRMO officials in Japan.)
JA.4-52. Installations must meet specific requirements with regard to the management of waste disposal contracts (FGS-Japan 6-3.11(b)(3), 6-3.11(c)(3), and 6-3.11(c)(4)).	Verify that existing HW streams are disposed of in accordance with existing contracts. (1)(2)(3)(5)(7)(9) Verify that future contracts are not awarded until a pre-award audit has evaluated proposed contractor(s) in terms of the criteria of FGS-Japan, Chapter 6. Verify that the pre-award audit is conducted by the installation or activity in coordination with the EA. Verify that the pre-award audit is supported with a written report. Verify that contractors for transportation or disposal of HW are licensed by the prefectural government or the mayor of a city. Verify that the generator of HW informs contractors of waste characteristics and constituents prior to any transfer actions. Verify that the generator of HW confirms the capabilities of the contractor and concludes a written contract. Verify that the installation or activity (in coordination with the EA) conducts an annual audit in the contractor facilities to verify continued compliance with regulatory and contractual requirements.
JA.4-53. Japanese facilities that store, treat, or dispose of DOD-generated waste must be evaluated and approved (FGS-Japan 6-3.11(e)).	Verify that all Japanese facilities that the installation uses to dispose of DOD-generated waste are evaluated and approved by appropriate governmental authorities as being in compliance with their regulatory requirements. (1)(2)(5) (NOTE: This evaluation and approval may consist of having a valid permit by Japanese officials for the HW that will be handled.)

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
JA.4-54. Hazardous material that meets the definition of HW must be disposed of as a HW in certain circumstances (FGS-Japan 6-3.11(d)).	Determine whether the installation has any hazardous materials that meet the definition of HW. (1)(2)(5)(8) Verify that the installation disposes of such materials as HW whenever: - the installation is discarding the materials as being no longer useful - the materials have failed the Defense Reutilization and Marketing Service (DRMS) reutilization, transfer, or sales cycles.
Land Disposal	

JA.4-55. Land disposal facilities for HW must meet specific criteria (FGS-Japan 6-3.11(f)(1) through 6-3.11(f)(3)).	Verify that there is a reasonable degree of certainty that hazardous constituents will not migrate from the disposal site for as long as the wastes remain hazardous. (1)(2)(5)
	
	Verify that the land disposal system has:
	
	- a liner of natural or manmade materials that:
	  - restricts the downward or lateral escape of HW, hazardous constituents, or leachate
	  - has a permeability no greater than 10^{-7} cm/s [3.94×10^{-8} in./s]
	- a leachate collection system
	- a groundwater monitoring program capable of determining the facility's impact on the quality of water in the aquifers underlying the facility.
	
	(NOTE: The EA may waive these requirements for a particular land disposal site.)

JA.4-56. The Base Environmental Manager must provide the information required on the HWPS concerning land disposal restrictions (AF Hazardous Waste Management Policy, 6 June 1991, Appendix C, Section B, para 2(c)(1)(c)).	Verify that the following information is provided on the HWPS: (1)(2)(5) - treatability groups - USEPA HW codes - all subcategories if there is more than one code - the five letter treatment code or the section of the CFR where the treatment appears - whether or not a lab pack contains a waste identified as a restricted waste.

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Land Disposal of Specially Controlled Industrial Wastes	
JA.4-57. Installations must meet specific criteria with regard to the land disposal of SCIW (FGS-Japan 6-3.11(f)(4)(a) through 6-3.11(f)(4)(f), 6-3.11(f)(4)(i), and 6-3.11 (f)(4)(j)).	Verify that the disposal of SCIW does not affect human health or cause damage to the environment. (1)(2)(5) Verify that the installation prevents scattering and outflow of SCIW. Verify that the installation takes the measures necessary to prevent impacts to the living environment from odor, noise, and vibration at the landfill. Verify that no underground cavity is used for the disposal of SCIW. Verify that the landfill site is completely fenced and posted with a sign indicating that it is a site for the disposal of SCIW. Verify that sludges classified as SCIW are either: - incinerated - treated so as to reduce the water content to below 85 percent prior to landfilling. Verify that water areas are filled with organic sludges classified as SCIW only after the sludges have been combusted in an incinerator. Verify that, upon completion of the landfill, the fill site is covered with earth to prevent impacts on the living environment.
JA.4-58. Installations must take specific actions if leachate from the landfill is contaminated by SCIW (FGS-Japan 6-3.11(f)(4) (h)).	Determine whether leachate from the landfill is contaminated by SCIW. (1)(2)(5) Verify that the installation takes the necessary precautions to prevent contamination of public water areas and groundwater. Verify that used oils classified as SCIW are combusted in an incinerator prior to landfilling. Verify that used acid and used alkali classified as SCIW are not disposed of in a landfill.

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-59. Installations must meet specific criteria with regard to the disposal of SCIW that contains heavy metals in excess of regulatory levels (FGS-Japan 6-3.11(f)(4)(g) and 6-3.11(f)(4)(l)).	Verify that SCIW that contains heavy metals in excess of the regulatory level (see Table 4-8) is landfilled only at a site that is isolated from public water areas and groundwater. (1)(2)(5) Verify that such SCIW is solidified in accordance with applicable standards.
JA.4-60. Installations must meet specific criteria with regard to the disposal of SCIW that contains certain decomposing materials (FGS-Japan 6-3.11(f)(4)(k)).	Determine whether the installation landfills decomposing materials other than the following: (1)(2)(5) - organic sludges incinerated to below 15 percent ignition loss or solidified by concrete - materials treated for disposal of organic sludges and incinerated to below 15 percent ignition loss or solidified by concrete. Verify that decomposing materials other than the above are landfilled in layers that are 3 m thick. Verify that, for SCIW containing more than 40 percent decomposing materials, the layers are 50 cm thick. Verify that in both of the above instances each layer is covered with 50 cm of earth. (NOTE: These requirements do not apply to small-scale landfills.)
Incinerators	(NOTE: The requirements of this section apply to incinerators that incinerate HW, as well as to boilers and industrial furnaces that burn HW for any recycling purposes.) (NOTE: Specific requirements for incineration of polychlorinated biphenyl (PCB)-containing wastes are set forth in Section 11, *Toxic Substances Management*.)
JA.4-61. Incinerators used to dispose of HW must be licensed or permitted to accept the type of waste being burned (FGS-Japan 6-3.11(g)(2)).	Verify that incinerators used to dispose of HW are licensed or permitted by a competent host nation authority or approved by the EA. (1)(2)(5) Verify that the license, permit, or approval makes provisions for the following: - effluent gas processing equipment - outlet temperature of main combustion chamber higher than 1800 °F (800 °C) - auxiliary combustion equipment for raising the oven (sic) temperature quickly and maintaining a constant temperature - equipment to regulate the air flow supply - containment dike, impervious floor or ground surface for waste treatment facilities.

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-61. (continued)	Verify that the above criteria are evidenced with a current valid license from the local or prefectural government.
JA.4-62. Incinerators for HW must meet specific standards as a prerequisite for licensing, permitting, or approval (FGS-Japan 6-3.11(g)(1)).	Verify that incinerators are designed to include appropriate equipment to effectively destroy hazardous constituents and control harmful emissions. (1)(2)(5) Verify that incinerators are operated according to management practices (including proper combustion temperature, waste feed rate, combustion gas velocity, and other relevant criteria) so as to effectively destroy hazardous constituents and control harmful emissions.

JA.4-63. HW incinerators must meet specific operating standards (FGS-Japan 6-3.11(g)(1)(a) and FGS-Japan 6-3.11(g)(1) (b)).	Verify that incinerators achieve either of the following operating standards: (1)(2)(5)
	
	- the incinerator must:
	  - achieve a destruction and removal efficiency of 99.99 percent for the organic hazardous constituents which represent the greatest degree of difficulty of incineration in each waste or mixture of waste
	  - minimize CO in stack exhaust gas
	  - minimize emission of particulate matter
	  - emit no more than 1.8 kg (4 lb) of hydrogen chloride per hour
	- the incinerator has demonstrated the ability to effectively destroy the organic hazardous constituents which represent the greatest degree of difficulty of incineration in each waste of mixture of waste to be burned.
	
	(NOTE: For example, the latter standard may be met by requiring the incinerator to conduct a trial burn, submit a waste feed analysis and a detailed engineering description of the facility, and provide other information that may be required to enable the competent host nation authority or the EA to conclude that the incinerator will effectively destroy the principal organic hazardous constituents of each waste to be burned.)

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

Treatment Technologies
 	
JA.4-64. HW that is disposed of as solid waste must be treated prior to disposal so that it no longer exhibits hazardous characteristics (FGS-Japan 6-3.11(h)(1) through 6-3.11(h)(4)).
	Determine whether HW has been disposed of as solid waste. (1)(2)(5)
	
	Verify that the following approved treatment technologies are used prior to disposal:
	
	- for organics:
	  - incineration
	  - fuel substitution where the units are operated so that destruction of hazardous constituents is at least as efficient, and hazardous emissions are no greater than those produced by incineration
	  - biodegradation
	  - recovery
	  - chemical degradation
	- for heavy metals:
	  - stabilization or fixation
	  - recovery
	- for reactives:
	  - treatments that change the chemical or physical composition of a material so that it no longer exhibits the characteristic of reactivity
	- for corrosives:
	  - neutralization of corrosives to a pH value between 6.0 and 9.0
	  - recovery
	  - incineration
	  - chemical or electrolytic oxidation
	  - chemical reduction
	  - stabilization.

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

JA.4-65. Treatment residues of wastes categorized as hazardous must be managed as HW (FGS-Japan 6-3.11(h)(1) through 6-3.11(h)(4)).	Verify that treatment residues from the following technologies are managed as HW: (1)(2)(5)
	- for organics:
	  - incineration
	  - fuel substitution where the units are operated so that destruction of hazardous constituents is at least as efficient, and hazardous emissions are no greater than those produced by incineration
	  - degradation by microbial action
	  - recovery
	  - chemical degradation
	- for heavy metals:
	  - stabilization or fixation
	  - recovery
	- for reactives:
	  - treatments that change the chemical or physical composition of a material so that it no longer exhibits the characteristic of reactivity
	- for corrosives:
	  - neutralization of corrosives to a pH value between 6.0 and 9.0
	  - recovery
	  - incineration
	  - chemical or electrolytic oxidation
	  - chemical reduction
	  - stabilization.

Specific Wastes	
JA.4-66. Installations must manage lead-acid batteries that are not recycled as HW (FGS-Japan 6-3.9(c)).	Determine whether the installation has lead-acid batteries that have exhausted their lifecycle and are not recycled. (1)(3)(5)(9) Verify that the installation manages such batteries as HW.
JA.4-67. Mercury, nickel-cadmium, lithium, and lead-acid batteries must be treated prior to disposal (FGS-Japan 6-3.11(h)(5)).	Verify that mercury, nickel-cadmium, lithium, and lead-acid batteries are being treated prior to disposal to stabilize, fix, or recover heavy metals and neutralize any corrosives. (2)(5)

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
NON-REGULATED WASTE **Generators of Non-Regulated Waste**	(NOTE: See definition.)
JA.4-68. Installations must identify and characterize the non-regulated wastes generated at their sites (FGS-Japan 6-3.12(a)(1)).	Determine whether the installation generates, transports, treats, stores, or disposes of any non-regulated waste. (1)(9)(10) Verify that the installation identifies and characterizes its non-regulated wastes. (NOTE: Wastes may be identified and characterized on the basis of knowledge of the materials and processes that generated the wastes, or on the basis of laboratory analysis of the waste.) Verify that a waste profile sheet is used to identify each waste stream.
JA.4-69. Generators must identify inherent hazardous characteristics associated with a non-regulated waste (FGS-Japan 6-3.12(a)(2)).	Verify that wastes have been identified according to the inherent hazardous characteristics associated with the wastes in terms of: (9) - physical properties (solid, liquid, contained gases) - chemical properties (chemical constituents, technical or chemical name) - other descriptive properties (ignitable, corrosive, reactive, toxic). (NOTE: The properties defining the characteristics should be measurable by standardized and available testing protocols.)
JA.4-70. Each generator must use its DODAAC for all record keeping, reports, and manifests for non-regulated waste (FGS-Japan 6-3.12(a)(3)).	Verify that each generator uses its DODAAC for all record keeping, reports, and manifests for non-regulated waste. (9)
Transportation of Non-Regulated Waste	(NOTE: Non-regulated waste may be regulated by 49 CFR; if so, installations must prepare shipments of it in accordance with those requirements.)
JA.4-71. All non-regulated waste that leaves the installation must be accompanied by a manifest (FGS-Japan 6-3.12(b)(2)).	Verify that all HW that leaves the installation is accompanied by a manifest. (7) Verify that the installation uses Japanese forms when the destination is a Japanese facility. Verify that DD Form 1348-1 is used in all other cases.

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-71. (continued)	Verify that the DD Form 1348-1 contains the following information in its proper place: - generator's name (HWAP/HWSA unit name and SCIW manager), address, and telephone number - transporter's name, address, and telephone number - destination name, address, and telephone number - description of waste - total quantity of waste, in pounds - date of shipment - signature and date of receipt.
JA.4-72. Generators must maintain an audit trail of non-regulated waste from the point of generation to disposal (FGS-Japan 6-3.12(b)(3)).	Verify that generators maintain an audit trail of non-regulated waste from the point of generation to disposal. (1)(5) Verify that generators using DRMS disposal services have a signed copy of DD Form 1348-1 from the initial DRMS recipient of the waste. (2)(9) Verify that, if a generator uses a HW management and/or disposal program of a DOD component with a different DODAAC, it obtains a signed copy of the manifest from the receiving component.
JA.4-73. Installations that dispose of their non-regulated wastes outside of the DRMS system must develop their own manifest tracking systems that meet specific requirements (FGS-Japan 6-3.12(b)(3)).	Determine whether the installation disposes of its non-regulated waste outside of the DRMS system. (1)(5) Verify that the installation has developed a manifest tracking system that provides an audit trail from point of generation to ultimate disposal.
JA.4-74. Generating activities must provide identification of incoming waste to the destination DOD activity (FGS-Japan 6-3.12(c)).	Verify that the generating activity provides identification of incoming waste to the destination DOD activity. (9) Verify that a waste profile sheet is used for this purpose.

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-75. The destination activity must take specific actions prior to receiving incoming non-regulated waste (FGS-Japan 6-3.12(c)).	Verify that the waste is inspected to ensure that it matches the description provided. (3)(5) Verify that a new waste profile sheet is requested if there is reason to believe the process generating the waste has changed or if the waste is from a new waste stream. Verify that shipments are rejected if they do not match the accompanying description, unless the generator provides an accurate description.
Containers	
JA.4-76. Containers for non-regulated waste must meet specific requirements (FGS-Japan 6-12(d)).	Verify that containers are in good condition and free from severe rusting, bulging, or structural defects. (2)(3)(5) Verify that containers, including overpack containers, are compatible with the materials stored. Verify that containers are kept closed, except when they need to be opened to add or remove waste. Verify that containers are not opened, handled, or stored in a manner that could cause a rupture or a leak. Verify that containers holding non-regulated waste are marked with a bilingual NON-REGULATED WASTE marking and a label indicating the hazard class of the waste, if applicable.
Training	(NOTE: The EA approves and encourages training that addresses two or more requirements in one training event.)
JA.4-77. Installation personnel whose duties involve actual or potential exposure to non-regulated waste must meet specific training requirements (FGS-Japan 6-3.12(e)).	Verify that all DOD personnel (including U.S. military, civilian, and local national personnel) whose duties involve actual or potential exposure to non-regulated waste receive training. (1)(2)(3)(4)(5)(6)(9) (NOTE: The following persons in particular are subject to this requirement: - those who classify non-regulated wastes and differentiate them from regulated waste - those who complete manifests - those who handle/store containers of non-regulated waste - those who transfer waste to or from accumulation tanks or containers - those who transport non-regulated waste - those who perform waste cleanup (nonemergency) - those who collect waste samples - those who conduct other waste-related activities as designated by the IC and/or Environmental Coordinators.)

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-77. (continued)	Verify that personnel assigned to duties involving actual or potential exposure to non-regulated waste successfully complete the DOD hazard communication program (DODI 6050.5) prior to assuming their duties. Verify that personnel assigned to such duty after the effective date of FGS-Japan work under direct supervision until they have completed appropriate training.
JA.4-78. Installations must document training related to non-regulated waste (FGS-Japan 6-3.12(e)(2)).	Verify that the installation documents all training for each individual assigned to duties involving actual or potential exposure to non-regulated waste. (1)(2)(3)(4)(5)(6)(9) Verify that up-dated training records on such personnel are kept by the responsible installation office. Verify that such records are retained for at least 3 yr after termination of duty of these personnel.
CONVENTIONAL EXPLOSIVE ORDNANCE	(NOTE: Generally, conventional explosive ordnance manufacture, assembly, testing, training, intended use, or range management do not constitute HW management.)
JA.4-79. Installations must identify conventional explosive ordnance as HW in specific circumstances (AF Policy Letter, 21 January 1994, para IV.c.2, IV.c.3, and IV.c.7).	Verify that the installation identifies conventional explosive ordnance as HW when: (1)(9) - an authorized official records in writing a determination that the conventional explosive ordnance will be discarded - custodians of the conventional explosive ordnance receive this written determination. (NOTE: The authorized official is identified by being designated in writing.) (NOTE: Prior written authorization is not required if safety or other considerations (such as an emergency response conducted by an Explosive Ordnance Disposal Unit or a response to mitigate an imminent hazard) preclude obtaining prior written authorization.) (NOTE: An authorized official may make a written designation that conventional explosive ordnance that has previously been designated as waste, but for which a legitimate use is subsequently identified, is no longer waste. If the official cannot make this redesignation, the waste remains a HW until it ceases to exhibit a characteristic of a HW, or until it has been specifically excluded by regulation (i.e., delisted).)

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COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.4-80. Authorized individuals must take into account the facts and circumstances applicable to each situation in making a determination to discard (AF Policy Letter, 21 January 1994, para IV.c.4).	Verify that decisions to discard conventional explosive ordnance are based on the facts and circumstances applicable to each situation. (1)(9) (NOTE: The following guidelines should be used in making the determination to discard: - a determination to discard excess conventional explosive material that is safe and stable in normal logistical environments may be made only after all efforts have been exhausted to reuse, recycle, recover, or sell such material - a determination to discard conventional explosive ordnance that may be unstable or unsafe to store or transport should be made by an authorized official after conducting appropriate testing or inspection, if conditions allow, or if it is readily apparent that there is no reasonable alternative to discarding the material.)

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Table 4-1

Characteristics of Hazardous Wastes
and
Lists of Hazardous Wastes and Hazardous Materials

(FGS-Japan 6-3.11(j) and FGS-Japan Appendix A)

A-1 CHARACTERISTICS OF HAZARDOUS WASTE

A. General

1. A solid waste is a hazardous waste if it exhibits any of the characteristics identified in this section.

2. A hazardous waste that is identified by a characteristic in this section is assigned every USEPA Hazardous Waste Number that is applicable. This number must be used in complying with the notification, recordkeeping, and reporting requirements of these alternate standards.

B. Characteristic of Ignitability

1. A waste exhibits the characteristic of ignitability if a representative sample of the waste has any of the following properties:

   a. It is a liquid, other than an aqueous solution that contains less than 24 percent alcohol by volume and has a flash point less than 60 °C (140 °F), as determined by a Pensky-Martens Closed Cup Tester, using the test method specified in American Society for Testing and Materials (ASTM) Standard D-93-80, or a Setaflash Closed Cup Tester, using the test method specified in ASTM Standard D-3278-78, or as determined by an equivalent test method.

   b. It is not a liquid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a hazard.

   c. It is an ignitable, compressed gas as determined by appropriate test methods or the USEPA.

   d. It is an oxidizer.

2. A waste that exhibits the characteristic of ignitability hass the USEPA Hazardous Waste Number of D001.

C. Characteristic of Corrosivity

1. A waste exhibits the characteristic of corrosivity if a representative sample of the waste has either of the following properties:

   a. It is aqueous and has a pH less than or equal to 2.0 or greater than or equal to 12.5, as determined by a pH meter.

(continued)

b. It is a liquid and corrodes steel (SAE 1020) at a rate greater than 6.35 mm or 0.250 in. per year at a test temperature of 55 °C (130 °F) as determined by the test method specified in National Association of Corrosion Engineers (NACE) Standard Technical Manual (TM)-01-69 as standardized in *Test Methods for the Evaluation of Solid Waste, Physical/Chemical Methods*.

2. A waste that exhibits the characteristic of corrosivity has the USEPA Hazardous Waste Number of D002.

D. Characteristic of Reactivity

1. A waste exhibits the characteristic of reactivity if a representative sample of the waste has any of the following properties:

a. It is normally unstable and readily undergoes violent change without detonating.

b. It reacts violently with water.

c. It forms potentially explosive mixtures with water.

d. When mixed with water, it generates toxic gases, vapors, or fumes in a quantity sufficient to present danger to human health or the environment.

e. It is a cyanide or sulfide bearing waste that, when exposed to pH conditions between 2.0 and 12.5, can generate toxic gases, vapors, or fumes in a quantity sufficient to present a danger to human health or the environment.

f. It is capable of detonation or explosive reaction if subjected to a strong initiating source or if heated under confinement.

g. It is readily capable of detonation, explosive decomposition, or reaction at standard temperature and pressure.

h. It is a forbidden explosive.

2. A waste that exhibits the characteristic of reactivity has the USEPA Hazardous Waste Number of D003.

E. Characteristic of Toxicity

1. A waste exhibits the characteristic of toxicity if, the extract from a representative sample of the waste contains any of the contaminants listed in Charts A.1 or A.2 at the concentration equal to or greater than the respective value given in that Table. Where the waste contains less than 0.5 percent filterable solids, the waste itself is considered to be the extract for the purpose of this section.

2. A waste that exhibits the characteristic of toxicity has the USEPA Hazardous Waste Number specified in Charts A.1 or A.2 that corresponds to the toxic contaminant causing it to be hazardous.

(continued)

A-2 LISTS OF HAZARDOUS WASTES

A. General

1. A solid waste is a hazardous waste if it is listed in this section.

2. The basis for listing the classes or types of wastes listed employed one or more of the following Hazard Codes:

Ignitable Waste	(I)
Corrosive Waste	(C)
Reactive Waste	(R)
Toxicity Characteristic Waste	(E)
Acute Hazardous Waste	(H)
Toxic Waste	(T)

3. Each hazardous waste listed in Section A-2 is assigned either a USEPA Hazardous Waste Number or Japanese SCIW number. This number must be used in complying with the notification, recordkeeping and reporting requirements of these alternative standards.

B. Hazardous Wastes from Nonspecific Sources

The solid wastes in Chart A.3 are listed hazardous wastes from nonspecific sources.

C. Hazardous Wastes from Specific Sources

The solid wastes listed in Chart A.4, denoted "K" as the first character in the USEPA number are listed hazardous wastes from specific sources.

D. Discarded Commercial Chemical Products, Off-Specification Species, Container Residues, and Spill Residue Thereof

The following materials or items are hazardous wastes if and when they are discarded or intended to be discarded: when they are mixed with waste oil or used oil, or other material and applied to the land for dust suppression or road treatment: when they are otherwise applied to the land in lieu of their original intended use; when they are contained in products that are applied to the land in lieu of their original intended use; or when, in lieu of their original intended use, they are produced for use as (or as a component of) a fuel, distributed for use as a fuel, or burned as a fuel.

1. Any commercial chemical product, or manufacturing chemical intermediate with the generic name listed in Chart A.4, annotated "P" or "U" as the first character in the USEPA waste number.

2. Any off-specification commercial chemical product or manufacturing chemical intermediate that, if it met specifications, would have the generic name listed in Chart A.4, annotated "P" or "U" as the first character in the USEPA waste number.

3. Any residue remaining in a container or in an inner liner removed from a container that has held any commercial chemical product or manufacturing chemical intermediate having the generic name listed in Chart A.4, annotated "P" or "U" as the first character in the USEPA waste number, unless the container is empty.

(continued)

(NOTE: Unless the residue is being beneficially used or reused, being legitimately recycled or reclaimed, or being accumulated, stored, transported, or treated prior to such use, reuse, recycling or reclamation, the residue should be discarded, and is thus, a hazardous waste. An example of a legitimate reuse of the residue would be where the residue remains in the container, and the container is used to hold the same commercial chemical product or manufacturing chemical intermediate it previously held. An example of the discard of the residue would be where the drum is sent to a drum reconditioner who reconditions the drum but discards the residue.)

4. Any residue or contaminated soil, water or other debris resulting from the cleanup of a spill into or on any land or water of any commercial chemical product or manufacturing chemical intermediate having the generic name listed in Chart A.4, annotated "P" or "U" as the first character in the USEPA waste number, or any residue or contaminated soil, water or other debris resulting from the cleanup of a spill into or on any land or water of any off-specification chemical product and manufacturing chemical intermediate that, if it me specifications, would have the generic name listed in Chart A.4, annotated "P" or "U" as the first character in the USEPA waste number of this section.

   (NOTE: The phrase "commercial chemical product or manufacturing chemical intermediate having the generic name listed in..." refers to a chemical substance that is manufactured or formulated for commercial or manufacturing use that consists of the commercially pure grade of the chemical, any technical grades of the chemical that are produced or marketed, and all formulation in which the chemical is the sole active ingredient. It does not refer to a material, such as a manufacturing process waste, that contains any of the substances listed in Chart A.4, annotated "P" or "U" as the first character in the USEPA waste number. Where a manufacturing process waste is deemed to be a hazardous waste because it contains a substance listed in Chart A.4, annotated "P" or "U" as the first character in the USEPA waste number, such waste will be listed in Chart A.3 or will be identified as a hazardous waste by the characteristics set forth in section A-1.)

5. The commercial chemical products, manufacturing chemical intermediates, or off-specification commercial chemical products or manufacturing chemical intermediates referred to in Chart A.4, denoted "P" as the first character in the USEPA waste number, are hereby identified as acute hazardous wastes (H).

   (NOTE: For the convenience of the regulated community, the primary hazardous properties of these materials have been indicated by the letters T (Toxicity) and R (Reactivity). Absence of a letter indicates that the compound only is listed for acute toxicity.)

   These wastes and their corresponding USEPA Hazardous Waste Numbers are listed in Chart A.4, annotated "P" as the first character in the USEPA waste number.

6. The commercial chemical products, manufacturing chemical intermediates, or off-specification commercial chemical products referred to in Chart A.4 are hereby identified as toxic wastes (T), unless otherwise designated.

   (NOTE: For the convenience of the regulated community, the primary hazardous properties of these materials have been indicated by the letter T (Toxicity), R (Reactivity), I (Ignitability), and C (Corrosivity). Absence of a letter indicates that the compound is only listed for toxicity.)

(continued)

Chart A.1

Maximum Concentration of Contaminants for the Toxicity Characteristics

USEPA HW No.[1]	Contaminant	CAS No.[2]	Regulatory Level (mg/L)
D004	arsenic	7440-38-2	5.0
D005	barium	7440-39-3	100.0
D006	cadmium	7440-43-2	1.0
D007	chromium	7440-47-3	5.0
D016	2,4-D	94-75-7	10.0
D012	endrin	72-20-8	0.02
D008	lead	7439-92-1	5.0
D013	lindane	58-89-9	0.4
D009	mercury	7439-97-6	0.2
D014	methoxychlor	72-43-5	10.0
D010	selenium	7782-49-2	1.0
D011	silver	7440-22-4	5.0
D015	toxaphene	8001-35-2	0.5
D017	2,4,5-TP (Silvex)	93-72-1	1.0
J001	Organophosphorous Compounds		1.0
J002	Cyanide		1.0

[1] USEPA Hazardous Waste Number.

[2] Chemical Abstracts Service Number.

(continued)

Chart A.2

MAXIMUM CONCENTRATION OF CONTAMINANTS FOR NONWASTEWATER

USEPA HW No.[1]	Contaminant	CAS No.[2]	Regulatory Level mg/kg
D018	Benzene	71-43-2	36
D019	Carbon tetrachloride	56-23-5	5.6
D020	Chlordane	57-74-9	0.13
D021	Chlorobenzene	108-90-7	5.7
D022	Chloroform	67-66-3	5.6
D023	o-Cresol	95-48-7	5.6
D024	m-Cresol	108-39-4	3.2
D025	P-Cresol	106-44-5	3.2
D026	Cresol		3.2
D027	1,4-Dichlorobenzene	106-46-7	6.2
D028	1,2-Dichloroethane	107-06-2	7.2
D029	1,1-Dichloroethylene	75-35-4	33
D030	2,4-Dinitrotoluene	121-14-2	140
D031	Heptachlor (and its epoxide)	76-44-8	0.066
D032	Hexachlorobenzene	118-74-1	37
D033	Hexachlorobutadiene	87-68-3	28
D034	Hexachloroethane	67-72-1	28
D035	Methyl Ethyl Ketone	78-93-3	36
D036	Nitrobenzene	98-95-3	14
D037	Pentachlorophenol	87-86-5	7.4
D038	Pyridine	110-86-1	16
D039	Tetrachloroethylene	127-18-4	5.6
D040	Trichloroethylene	79-01-6	5.6
D041	2,4,5-Trichlorophenol	95-95-4	37
D042	2,4,6-Trichlorophenol	88-06-2	37
D043	Vinyl Chloride	75-01-4	33

[1] USEPA Hazardous Waste Number.

[2] Chemical Abstracts Service Number.

(continued)

Chart A.3

LISTED HAZARDOUS WASTES FROM NONSPECIFIC SOURCES

USEPA Waste No.[1]	Hazardous Waste	Hazard Code
F001	The following spent halogenated solvents used in degreasing: tetrachloroethylene, trichloroethylene, methylene chloride, 1,1,1-trichloroethane, carbon tetrachloride, and chlorinated fluorocarbons; all spent solvent mixtures/blends used in degreasing containing, before use, a total of 10 percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
F002	The following spent halogenated solvents: tetrachloroethylene, methylene chloride, trichloroethylene, 1,1,1-trichloroethane, chlorobenzene, 1,1,2-trichloro-1,2,2-trifluoroethane, orthodichlorobenzene, trichlorofluoromethane, and 1,1,2-trichloroethane; all spent solvent mixtures/blends containing, before use, a total of 10 percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)
F003	The following spent nonhalogenated solvents: xylene, acetone, ethyl acetate, ethyl benzene, ethyl ether, methyl isobutyl ketone, n-butyl alcohol, cyclohexanone, and methanol; all spent solvent mixtures/blends containing, before use, only the above spent nonhalogenated solvents; and all spent solvent mixtures/blends containing, before use, one or more of the above nonhalogenated solvents and a total of 10 percent or more (by volume) of one or more of those solvents listed in F001, F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(I,T)[2]
F004	The following spent nonhalogenated solvents: cresols and cresylic acid, and nitrobenzene; all spent solvent mixtures/blends containing, before use, a total of 10 percent or more (by volume) of one or more of the above nonhalogenated solvents or those solvents listed in F001, F002, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.	(T)

(continued)

Table 4-1 (continued)

USEPA Waste No.[1]	Hazardous Waste	Hazard Code
F005	The following spent nonhalogenated solvents: Toluene, methyl- ethyl ketone, carbon disulfide, isobutanol, pyridine, benzene, 2-ethoxyethanol, and 2-nitropropane; all spent solvent mixtures/blends containing, before use, a total of 10 percent or more (by volume) of one or more of the above nonhalogenated solvents or those solvents listed in F001, F002, or F004; and still bottoms from the recovery of these spent solvents and spent solvent mixtures	(I,T)[2]
F006	Wastewater treatment sludges from electroplating operations except from the following processes: (1) sulfuric acid anodizing of aluminum; (2) tin plating on carbon steel; (3) zinc planting (segregated basis) on carbon steel; (4) aluminum or zinc-aluminum plating on carbon steel; (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel; and (6) chemical etching and milling of aluminum.	(T)
F007	Spent cyanide plating bath solutions from electroplating operations.	(R,T)
F008	Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.	(R,T)
F009	Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.	(R,T)
F010	Quenching bath residues from oil baths from metal heat treating operations where cyanides are used in the process.	(R,T)
F011	Spent cyanide solutions from salt bath pot cleaning from metal heat treating operations.	(R,T)
F012	Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process.	(T)
F019	Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusion conversion coating process.	(T)

1. USEPA Hazardous Waste Number

2. (I,T) should be used to specify mixtures containing ignitable and toxic constituents.

(continued)

Chart A.4

LIST OF HAZARDOUS WASTE/SUBSTANCES/MATERIALS

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Acenaphthene	83329			100
Acenaphthylene	208968			5000
Acetaldehyde (i)	75070		U001	1000
Acetaldehyde, chloro-	107200		P023	1000
Acetaldehyde, trichloro-	75876		U034	5000
Acetamide, N-(aminothioxomethyl)-	591082		P002	1000
Acetamide, N-(4-ethoxyphenyl)-	62442		U187	100
Acetamide, 2-fluoro-	640197		P057	100
Acetamide, N-9H-fluoren-2-yl-	53963		U005	1
Acetic acid	64197			5000
Acetic acid (2,4-dichlorophenoxy)-	94757		U240	100
Acetic acid, lead(2+) salt	301042		U144	$
Acetic acid, thallium(1+) salt	563688		U214	100
Acetic acid, ethyl ester (I)	141786		U112	5000
Acetic acid, fluoro-, sodium salt	62748		P058	10
Acetic anhydride	108247			5000
Acetone (I)	67641		U002	5000
Acetone cyanohydrin	75865	1000	P069	10
Acetone thiosemicarbazide	1752303	1000/10,000		1
Acetonitrile (I,T)	75058		U003	5000
Acetophenone	98862		U004	5000
2-Acetylaminofluorene	53963		U005	1
Acetyl bromide	506967			5000
Acetyl chloride (C,R,T)	75365		U006	5000
1-Acetyl-2-thiourea	591082		P002	1000
Acrolein	107028	500	P003	1
Acrylamide	79061	1000/10,000	U007	5000
Acrylic acid (I)	97107		U008	5000
Acrylonitrile	107131	10,000	U009	100
Acrylyl chloride	814686	100		1
Adipic acid	124049			5000
Adiponitrile	111693	1000		1
Aldicarb	116063	100/10,000	P070	1

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Aldrin	309002	500/10,000	P004	1
Allyl alchol	107186	1000	P005	100
Allylamine	107119	500		100
Ally chloride	107051			1000
Aluminum phosphide (R,T)	20859738	500	P005	100
Aluminum sulfate	10043013			5000
5-(Aminomethyl)-3-isoxazolol	2763964		P007	1000
Aminoptenn	54626	500/10,000		1
4-Aminopyndine	504245		P008	1000
Amiton	78535	500		1
Amiton oxalate	3734972	100/10,000		1
Amitrole	61825		U011	10
Ammonia	7664417	500		100
Ammonium acetate	631618			5000
Ammonium benzoate	1863634			5000
Ammonium bicarbonate	1066337			5000
Ammonium bichromate	7789095			10
Ammonium bifluonde	1341497			100
Ammonium bisulfite	10192300			5000
Ammonium carbamate	1111780			5000
Ammonium carbonate	506876			5000
Ammonium chloride	12125029			5000
Ammonium chromate	778989			10
Ammonium citrate, dibasic	3012655			5000
Ammonium fluoborate	13826830			5000
Ammonium fluoride	12125018			100
Ammonium hydroxide	1336216			1000
Ammonium oxalate	6009707 5972736 14258492			5000
Ammonium picrate (R)	131748		P009	10
Ammonium silicofluoride	16919190			1000
Ammonium sulfamate	7773060			5000
Ammonium sulfide	12135761			100
Ammonium tartrate	14307438 3164292			5000
Ammonium thiocyanate	1762954			5000
Ammonium vanadate	7803556		P119	1000
Amphetamine	300629	1000		1

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Amyl acetate iso-Amyl acetate Sec-Amyl acetate tert-Amyl acetate	628637 123922 626380 625161			5000
Aniline (I,T)	62533	1000	U012	5000
Aniline, 2,4,6- trimethyl	88051	500		1
Anthracene	120127			5000
Antimony++	7440360			5000
Antimony pentachloride	7647189			1000
Antimony pentafluoride	7783702	500		1
Antimony potassium tartrate	28300745			100
Antimony tribromide	7789619			1000
Antimony trichloride	10025919			1000
Antimony trifluoride	7783564			1000
Antimony trioxide	1309644			1000
Antimycine A	1397940	1000/10,000		1
ANTU	86884	500/10,000		100
Argentate(1-), bis(cyano-C)-, potassium	506616		P099	1
Aroclor 1016	12674112			1
Aroclor 1221	11104282			1
Arcolor 1232	11141165			1
Aroclor 1242	53469219			1
Aroclor 1248	12672296			1
Aroclor 1254	11097691			1
Aroclor 1260	11096825			1
Arsenic++	7440382			1
Arsenic acid H_3AsO_4	1327522 7778394		P010	1
Arsenic disulfide	1303328			1
Arsenic oxide As_2O_3	1327533		P012	1
Arsenic oxide As_2O_5	1303282		P011	1
Arsenic pentoxide	1303282	100/10,000	P011	1
Arsenic trichloride	7784341			1
Arsenic trioxide	1327533		P012	1
Arsenic trisulfide	1303339			1
Arsenous trichloride	7784341	500		5000
Arsine	7784421	100		1
Arsine, diethyl-	692422		P038	1
Arsinic acid, dimethyl-	75605		U136	1

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Arsorous dichloride, phenyl-	696286		P036	1
Asbestos+++	1332214			1
Auramine	492808		U014	100
Azasenne	115028		U015	1
Azindine	151564		P054	1
Azindine, 2-methyl-	75558		P067	1
Azinno[2',3',3,4]pyrrolo[1,2-a] indole-4, 7-dione,6-amino-8- [(aminocarbonylooxy) methyl]-1,1a,2,8,8a,8b-hexahydro-8a-methoxy-5-methyl-,[1aS-(1a-alpha,8-beta, 8a-alpha, 8b-alpha)]-	50077		U010	10
Aziphos-ethyl	2642719	100/10,000		1
Azinphos-methyl	86500	10/10,000		1
Banum cyanide	542621		P013	10
Benz[1]aceanthrylene, 1,2-dihydro-3-methyl-	56421		U157	10
Benz[c]acridine	225514		U016	100
Benzal chloride	98873	500	U017	5000
Benzamide, 3,5-dichloro-N-(1,1-dimethyl-2-propynyl)-	23950595		U192	5000
Benz[a]anthracene	56553		U018	10
1,2-Benzathracene	56553		U018	10
Benz[a]anthracene, 7,12-dimethyl-	57976		U094	1
Benzenamine (I,T)	62533		U012	5000
Benzenamine, 3-(Trifluoromethyl)	98168	500		1
Benzenamine, 4,4'-carbonimidoylbis (N,N-dimethyl-	492808		U014	100
Benzenamine, 4-chloro-	106478		P024	1000
Benzenamine 4-chloro-2-methyl-hydrochloride,	3165933		U049	100
Benzenamine, N,N-dimethyl-4-(phenylazo-)	60117		U093	10
Benzenamine, 2-methyl-	95534		U328	100
Benzenamine, 4-methyl-	106490		U353	100
Benzenamine, 4,4'-methylenebis(2-chloro-	101144		U158	10
Benzenamine, 2-methyl-, hydrochloride	636215		U222	100
Benzenamine, 2-methyl-5-nitro-	99558		U181	100

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Benzenamine, 4-nitro-	100016		P077	5000
Benzene (I,T)	71432		U109	10
Benzene, 1-(Chloromethyl)-4-Nitro-	100141	500/10,000		1
Benzeneacetic acid, 4-chloro-alpha-(4-chlorophenyl)-alpha-hydroxy-, ethyl ester	510156		U038	1
Benzene, 1-bromo-4-phenoxy-	101553		U030	100
Benzenearsonic Acid	98055	10/10,000		1
Benzenebutanoic acid, 4-[bis (2-chloroethyl)amino]-	305033		U035	10
Benzene, chloro-	108907		U037	100
Benzene, chloromethyl-	100447		P028	100
Benzenediamin, ar-methyl-	95807 496720 823405		U221	10
1,2-Benzenedicarboxylic acid, dioctyl ester	117840		U107	5000
1,2-Benzenedicarboxylic acid, [bis(2-ethylhexyl)]-ester	117817		U028	100
1,2-Benzenedicarboxylic acid, dibutyl ester	84742		U069	10
1,2-Benzenedicarbosylic acid, diethyl ester	84662		U088	1000
1,2-Benzenedicarbosylic acid, dimethyl ester	131113		U102	5000
Benzene, 1,2-dichloro-	95501		U070	100
Benzene, 1,3-dichloro-	541731		U071	100
Benzene, 1,4-dichloro-	106467		U072	100
Benzene, 1,1'-(2,2-dichloroethylidene) bis[4-chloro-	72548		U060	1
Benzene, dichloromethyl-	98873		U017	5000
Benzene, 1,3-diisocyanotomethyl- (R,T)	584849 91087 264716254		U223	100
Benzene, dimethyl (I,T) m-Benzene, dimethyl o-Benzene, dimethyl p-Benzene, dimethyl	1330207 108383 95476 106423		U239	1000
1,3-Benzenediol	108463		U201	5000
1,2-Benzenediol, 4-[1 -hydroxy-2-(methylamino)ethyl]- (R)	51434		P042	1000

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Benzeneethanamine, alpha, alpha-dimethyl-	122098		P046	5000
Benzene, hexachloro-	118741		U127	10
Benzene, hexahydro- (I)	110827		U056	1000
Benzene, hydroxy-	108952		U188	1000
Benzene, methyl-	108883		U220	1000
Benzene, 2-methyl-1,3-dinitro-	606202		U106	100
Benzene, 1-methyl-2,4-dinitro-	121142		U105	10
Benzene, 1-methylethyl- (I)	98828		U055	5000
Benzene, nitro-	98953		U169	1000
Benzene, pentachloro	608935		U183	10
Benzene, pentachloronitro-	82688		U185	100
Benzenesulfonic acid chloride (C,R)	98099		U020	100
Benzenesulfonyl chloride	98099		U020	100
Benzene, 1,2,4,5-tetrachloro-	95943		U207	5000
Benzenethiol	108985		P014	100
Benzene, 1,1'-(2,2,2-tri-chloroethylidene)bis[4-chloro-	50293		U061	1
Benzene, 1,1'-(2,2,2-tri-chloroethylidene)bis[4-methoxy-	72435		U247	1
Benzene,(trichloromethyl)-	98077		U023	10
Benzene, 1,3,5-trinitro-	99354		U234	10
Benzidine	92875		U021	1
Benzimidazole, 4,5-Dichloro-2-(Trifluormethyl)-	3615212	500/10,000		1
1,2-Benzisothiazol-3(2H)-one, 1,1-dioxide	81072		U202	100
Benzo[a]anthracene	56553		U018	10
Benzo[b]fluoranthene	205992			1
Benzo[k]fluoranthene	207089			5000
Benzo[j,k]fluorene	206440		U120	100
1,3-Benzodioxole, 5-(1-propenyl)-	120581		U141	100
1,3-Benzodioxole, 5-(2-propenyl)-	94597		U203	100
1,3-Benzodioxole, 5-propyl	94586		U090	10
Benzoic acid	65850			5000
Benzonitrile	100470			5000
Benzo[rst]pentaphene	189559		U064	10
Benzo[ghi]perylene	191242			5000

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
2H-1-Benzophyran-2-one, 4-hydroxy-3-oxo-1-phenyl-butyl)-, & salts, when present at concentrations greater than 0.3%	81812		P001	100
Benzo[a]pyrene	50328		U022	1
3,4-Benzopyrene	50328		U022	1
p-Benzoquinone	106514		U197	10
Benzotrichloride (C,R,T)	98077	100	U023	10
Benzoyl chloride	98884			1000
1,2-Benzphenanthrene	218019		U050	100
Benzyl chloride	100447	500	P028	100
Benzy cyanide	140294	500		1
Beryllium++	7440417		P015	10
Beryllium chloride	7787475			1
Beryllium fluoride	7787497			1
Beryllium nitrate	13597994 7787555			1
alpha-BHC	319846			10
beta-BHC	319857			1
delta-BHC	319868			1
gamma-BHC	58899		U129	1
Bicyclo [2,2,1]Heptane-2-carbonitrile, 5-chloro-6-(((Methylamino)Carbonyl)Oxy-lmino)-, (1s-(1-alpha, 2-beta, 4-alpha, 5-alpha, 6E))-	15271417	500/10,000		1
2,2'-Bioxirane	1464535		U085	10
(1,1'-Biphenyl)-4,4'diamine	92875		U021	1
(1,1'-Biphenyl)-4,4'diamine, 3,3'dichloro-	91941		U073	1
(1,1'-Biphenyl)-4,4'diamine, 3,3'dimethoxy-	119904		U091	100
(1,1'-Biphenyl)-4,4'diamine, 3,3'dimethyl-	119937		U095	10
Bis(chloromethyl) ketone	534076	10/10,000		1
Bis(2-chloroethyl)ether	111444		U025	10
Bis(2-chloroethoxy)methane	111911		U024	1000
Bis(2-ethylhexyl)phthalate	117817		U028	100
Bitoscanate	4044659	500/10,000		1

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Boron trichloride	10294345	500		1
Boron trifluoride	7637072	500		1
Boron trifluoride compound with methyl ether (1:1)	353424	1000		1
Bromoacetone	598312		P017	1000
Bromadiolone	28772567	100/10,000		1
Bromine	7726956	500		1
Bromoform	75252		U225	100
4-Bromophenyl phenyl ether	101553		U030	100
Brucine	357573		P018	100
1,3-Butadiene, 1,1,2,3,4,4-hexachloro-	87683		U128	1
1-Butanamine, N-butyl-N-nitroso-	924163		U172	1
1-Butanol	71363		U031	5000
2-Butanone	78933		U159	5000
2-Butanone peroxide (R,T)	1338234		U160	10
2-Butanone, 3,3-dimethyl-1-(methylthio)-, O[(methylamno) carbonyl] oxime	3916184		P045	100
2-Butenal	123739 4170303		U053	100
2-Butene, 1,4-dichloro- (I,T)	764410		U074	1
2-Butenoic acid, 2-methyl-, 7[[2, 3-dihydroxy-2-(1-meth- oxyethyl)-3-methyl-1-oxobutoxy]methyl]-2,3,5, 7a-tetrahydro-1H- pyrrolizine-1-yl ester, [1S-[1- alpha(Z), 7(2S*,3R*), 7a-alpha]]-	303344		U143	10
Butyl acetate iso-Butyl acetate sec-Butyl acetate tert-Butyl acetate	123864 110190 105464 540885			5000
n-Butyl alcohol (I)	71363		U031	5000
Butylamine iso-Butylamine sec-Butylamine tert-Butylamine	109739 78819 513495 13952846 75649			1000
Butyl benzyl phthalate	85687			100
n-Butyl phthalate	84742		U069	10
Butyric acid	107926			5000
iso Butyric acid	79312			

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Cacodylic acid	75605		U136	1
Cadmium++2^{+}	7440439			10
Cadmium acetate	543908			10
Cadmium bromide	7789426			10
Cadmium chloride	10108642			10
Cadmium oxide	1306190	100/10,000		1
Cadmium stearate	2223930	1000/10,000		1
Calcium arsenate	7778441	500/10,000		1
Calcium arsenite	52740166			1
Calcium carbide	75207			10
Calcium chromate	13765190		U032	10
Calcium cyanide Ca(CN)2	592018		P0221	10
Calcium dodecylbenzenesulfonate	26264062			1000
Calcium hypochlorite	7778543			10
Camphechlor	8001352	500/10,000		1
Camphene, octachloro-	8001352		P123	1
Cantharidin	56257	100/10,000		1
Carbachol chloride	51832	500/10,000		1
Captan	133062			10
Carbamic acid, ethyl ester	51796		U238	100
Carbamic acid, methylnitroso-, ethyl ester	615532		U178	1
Carbamic acid, Methyl-, 0-(((2,4-Dimethyl-1, 3-Dithiolan-2-yl)Methyliene)Amino)-	26419738	100/10,000		1
Carbamic chloride, dimethyl-	79447		U097	1
Carbamodithioic acid, 1,2-ethaneiylbis, salts & esters	111546		U114	5000
Carbamothioic acid, bis(1-methylethyl)-, S-(2,3-dichloro-2-propenyl) ester	2303164		U062	100
Carbaryl	63252			100
Carbofuran	1563662	10/10,000		10
Carbon disulfide	75150	10,000	P022	100
Carbon oxyfluoride (R,T)	353504		U033	1000
Carbon tetrachloride	56235		U211	10
Carbonic acid, dithallium(1+)salt	6533739		U215	100
Carbonic dichloride	75445		P095	10
Carbonic difluoride	353504		U033	100
Carbonochloridic acid, methyl ester	79221		U156	100
Carbophenothion	786196	500		1

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Chloral	75876		U034	5000
Chlorambucil	305033		U035	10
Chlordane	57749	1000	U036	1
Chlordane, alpha & gamma isomers	57749		U036	1
Chlordane, technical	57749		U036	1
Chlorfenvinfos	470906	500		1
Chlorine	7782505	100		10
Chlormephos	24934916	500		1
Chlormequat chloride	999815	100/10,000		1
Chlornaphazine	494031		U026	100
Chloroacetaldehyde	107200		P023	1000
Chloroacetic acid	79118	100/10,000		1
p-Chloroaniline	106478		P024	1000
Chlorobenzene	108907		U037	100
Chlorobenzilate	510156		U038	10
p-Chloro-m-cresol	59507		U039	5000
Chlorodibromomethane	124481			100
Chloroethane	75003			100
Chloroethanol	107073	500		1
Chlorethyl chlorofomate	627112	1000		1
2-Chloroethyl vinyl ether	110758		U042	1000
Chloroform	67663	10,000	U044	10
Chloromethyl ether	542881	100		1
Chloromethyl methyl ether	107302	100	U046	10
beta-Chloronaphthalene	91587		U047	5000
2-Chloronaphthalene	91587		U047	5000
Chlorophacinone	3691358	100/10,000		1
o-Chlorophenol (2)	95578		U048	100
4-Chlorophenol phenyl ether	7005723			5000
1-(o-Chlorophenyl)thiourea	5344821		P026	100
3-Chloropropionitrile	542767		P027	1000
Chlorosulfonic acid	7790945			1000
4-Chloro-o-toluidine, hydrochloride	3165933		U049	100
Chlorphyrifos	2921882			1
Chloroxuron	1982474	500/10,000		1
Chlorthiophos	21923239	500		1
Chromic acetate	1066304			1000
Chromic acid	11115745 7738945			10
Chromic acid H_2CrO_4, calcium salt	13765190		U032	10

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Chromic chloride	10025737	1/10,000		1
Chromic sulfate	10101538			1000
Chromium++	7440473			5000
Chromous chloride	10049055			1000
Chrysene	218019		U050	100
Colbalt, ((2,2'-(1,2-ethanediylbis (Nitrilomethylidyne)) Bis(6-fluoro-phenolato))(2-)-N,N',O,O')-,	62207765	100/10,000		1
Cobaltous bromide	7789437			1000
Colbalt carabonyl	10210681	10/10,000		1
Cobaltous formate	544183			1000
Colbaltous sulfamate	14017415			1000
Coke Oven Emissions	NA			1
Colchicine	64868	10/10,000		1
Copper cyanide	544923		P029	10
Coumaphos	56724	100/10,000		10
Coumatetralyl	5836293	500/10,000		1
Creosote	8001589		U051	1
Cresol(s) m-Cresol o-Cresol p-Cresol	1319773 108394 95487 106445	1000/10,000	U052	1000 1000
Cresylic acid m-Cresol o-Cresol p-Cresol	1319773 108394 95487 106445		U052	1000
Crimidine	535897	100/10,000		1
Crotonaldehyde	123739 4170303	1000 100	U053	100 100
Cumene (I)	98828		U055	5000
Cupric acetate	142712			100
Cupric acetoarsenite	12002038			1
Cupric chloride	7447394			10
Cuprice nitrae	3251238			100
Cupric oxalate	5893663			100
Cupric sulfate	7758987			10
Cupric sultate, ammoniated	10380297			100
Cupric tartrate	815827			100

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Cyanides (soluble salts and complexes) not otherwise specified	57125		P030	10
Cyanogen	460195		P031	100
Cyanogen bromide	506683	500/10,000	U246	1000
Cyanogen chloride	506774		P033	10
Cyanogen iodide	506785	1000/10,000		1
Cyanophos	2636262	1000		1
Cyanuric fluoride	675149	100		1
2,5-Cyclohexadiene-1,4-dione	106514		U197	10
Cyclohexane (I)	110827		U056	1000
Cyclohexane, 1,2,3,4,5,6-hexachloro, (1-alpha, 2-alpha, 3-beta, 4-alpha, 5-alpha, 6-beta)-	58899		U129	1
Cyclohexanone (I)	108941		Y057	5000
2Cyclohexanone	131895		P034	100
Cycloheximide	66819	100/10,000		1
Cyclohexylamine	108918	10,000		1
1,3-Cyclopentadiene, 1,2,3,4,5,5-hexachloro-	77474		U130	10
Cyclophosphamide	50180		U058	10
2,4-D Acid	94757		U240	100
2,4-D Ester	94111 94791 94804 1320189 1928387 1928616 1929733 2971382 25168267 53467111			100
2,4-D, salts & esters	94757		U240	100
Daunomycin	20830813		U059	10
Decarborane(14)	17702419	500/10,000		1
Demeton	8065483	500		1
Demeton-S-Methyl	919868	500		1
DDD, 4,4'DDD	72548		U060	1
DDD, 4,4'DDE	72559			1
DDT, 4,4'DDT	50293		U061	1
Diallate	2303164		U062	100
Dialifor	10311849	100/10,000		1

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Diazinon	333415			1
Dibenz[a,h]anthracene	53703		U063	1
1,2:5,6-Dibenzanthracene	53703		U063	1
Dibenzo[a,h]anthracene	53703		U063	1
Dibenz[a,i]pyrene	189559		U064	10
1,2-Dibromo-3-chloropropane	96128		U066	1
Diborane	19287457	100		1
Dibutyl phthalate	84742		U069	10
Di-n-butyl phthalate	84742		U069	10
Dicamba	1918009			1000
Dichlobenil	119456			100
Dichlone	117806			1
Dichlorobenzene	25321226			100
m-Dichlorobenzene (1,3)	541731		U071	100
o-Dichlorobenzene (1,2)	95501		U070	100
p-Dichlorobenzene (1,4)	106467		U072	100
3,3'-Dichlorobenzidine	91941		U073	1
Dichlorobromomethane	75274			5000
1,4-Dichloro-2-butene (I,T)	764410		U074	1
Dichloroifluoromethane	75718		U075	5000
1,1-Dichloroethane	75343		U076	1000
1,2-Dichloroethane	107062		U077	100
1,1-Dichloroethylene	75354		U078	100
1,2-Dichloroethylene	156605		U079	1000
Dichloroethyl ether	11444	10,000	U025	10
Dichloroisopropyl ether	108601		U027	1000
Dichloromethoxy ethane	111911		U024	1000
Dichloromethyl ether	542881		P016	10
Dichloromethylphenylsilane	149746	1000		1
2,4-Dichlorophenol	120832		U081	100
2,6-Dichlorophenol	87650		U082	100
Dichlorophenylarsine	696286		P036	1
Dichloropropane 1,1-Dichloropropane 1,3-Dichloropropane	26638197 78999 142289			1000
1,2-Dichloropropane	78875		U083	1000
Dichloropropane-Dichloropropene (mixture)	8003198			100
Dichloropropene 2,3-Dichloropropene	26952238 78886			100

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
1,3-Dichloropropene	542756		U084	100
2,2-Dichloropropionic acid	75990			5000
Dichlorvos	62737	1000		100
Dicofol	115322			10
Dicrotophos	141662	100		1
Dieldrin	60571		P037	1
1,2:3,4-Diepoxybutane (I,T)	1464535	500	U085	10
Diethyl chlorophospate	814493	500		1
Diethylamine	109897			100
Diethylarsine	692422		P038	1
Diethylcarbmazine citrate	1642542	100/10,000		1
1,4-Diethylenedioxide	123911		U108	100
Diethylhexyl phthalate	117817		U028	100
N,n'-Diethylhydrazine	1615801		U086	10
O,O-Diethyl S-methyl dithiophosphate	3288582		U087	5000
Diethyl-p-nitrophenyl phosphate	311455		P041	100
Diethyl phthalate	84662		P088	1000
O,O-Diethyl O-pyrazinyl phosphorothioate	297972		P040	100
Diethylstilbestrol	56531		U089	1
Digitoxin	71636	100/10,000		1
Diglycidyl Ether	2238075	1000		1
Digoxin	20830755	10/1000		1
Dihydrosafrole	94586		U090	10
Diisopropylfluorophosphate, 1,2,3,4, 10,10-10-hexa-chloro-1,4,4a,5,8, 8a-hexahydro-(1-alpha, 4-alpha, 4-beta, 5-alpha, 8-alpha,	309002		U004	1
8a-beta)1,4,5,8-Dimethanonaphtha-lene, 1,2,3,4,10,10-hexachloro-1,4,4a,5, 8,8a-hexahydro, (1-alpha, 4-alpha, 4a-beta, 5a-beta, 8-beta,	465736		P060	1
8a-beta)-2,7:3,6-Dimethanon-aphth[2,3 b]oxirene,3,4,5,6,9,9-hexachloro-1a,2,2a,3,6,6a,7,7a-octahydro-, (1a-alph, 2-beta, 2a-alpha, 3-beta, 6-beta	60571		P037	1

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
6a-alpha, 7beta, 7a-alpha)-2,7:3,6 Dimethanonaphth[2,3-b]oxirene, 3,4,5,6,9,9-hexachloro-1a,2,2a, 3,6,6a,7,7a-octa-hydro-, (1a-alpha, 2-beta, 2a-beta, 3-alpha, 6-alpha,	72206		P051	1
6a-beta, 7-beta, 7a-alpha)-Dimethoate	60515		P044	10
3,3'-Dimethoxybenzidine	119904		U091	100
Dimefox	115264	500		1
Dimethoate	60515	500/10,000		10
Dimethyl Phosphorochloridothioate	2524030	500		1
Dimethyl sulfate	77781	500		1
Dimethyl sulfide	75183	100		1
Dimethylamine (I)	124403		U092	1000
p-Dimethylaminoazobenzene	60117		U093	10
7,12-Dimethylbenz[a]anthracene	57976		U094	1
3,3'Dimethylbenzidine	119937		U095	10
alpha, alpha-Dimethylbenzylhydroperoxide (R)	80159		U096	10
Dimethylcarbamoyl chloride	79447		U097	1
Dimethyldichlorosilane	75785	500		1
1,1-Dimethylhydrazine	57147	1000	U098	1
1,2-Dimethylhydrazine	540738		U099	1
alpha, alph-Dimethylphenethylamine	122098		P046	5000
Dimethyl-p-phenylenediamine	99989	10/10,000		1
2,4-Dimethylphenol	105679		U101	100
Dimethyl phthalate	131113		U102	5000
Dimethyl sulfate	77781		U103	100
Dimetilian	644644	500/10,000		1
Dinitrobenzene (mixed) m-Dinitrobenzene o-Dinitrobenzene p-Dinitrobenzene	25154545 99650 528290 100254			100
4,6-Dinitro-o-cresol and salts	534521	10/10,000	P047	10
Dinitrophenol 2,5-Dinitrophenol 2,6-Dinitrophenol	25550587 329715 573568			10
2,4-Dinitrophenol	51285		P048	10
Dinitrotoluene 3,4-Dinitrotoluene	25321146 610399			1
2,4-Dinitrotoluene	121142		U105	1

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
2,6-Dinitrotoluene	606202		U106	100
Dinoseb	88857	100/10,000	P020	1000
Dinoterb	1420071	500/10,000		1
Di-n-octyl phthalate	117840		U107	5000
1,4-Dioxane	123911		U108	100
Dioxathion	78342	500		1
Diphacinone	82666	10/10,000		1
1,2-Diphenylhydrazine	122667		U109	10
Disphosphoramide, octamethyl-	152169	100	P085	100
Diphosphoric acid, tetraethyl ester	107493		P111	10
Dipropylamine	142847		U110	5000
Di-n-propylnitrosamine	621647		U111	10
Diquat	85007 2764729			1000
Disulfoton	298044	500	P039	1
Dithiazanine iodine	514738	500/10,000		1
Dithiobiuret	541537	100/10,000	P049	100
Diuron	330541			100
Dodecylbenzenesulfonic acid	27176870			1000
Emetine, Dihydrochloride	316427	1/10,000		1
Endosulfan	115297	10/10,000	P050	1
alpha-Endosulfan	959988			1
beta-Endosulfan	33213659			1
Endosulfant sulfate	1031078			1
Endothall	145733		P088	1000
Endothion	2778043	500/10,000		1
Endrin	72208	500/1000	P051	1
Endrin aldehyde	742934			1
Endrin & metabolites	72208		P051	1
Epichlorohydrin	106898	1000	U041	1000
Epinephrine	51434		P042	1000
EPN	2104645	100/10,000		1
Ergocalciferol	50146	1000/10,000		1
Ergotamine tartrate	379793	500/10,000		1
Ethanal	75070		U001	1000
Ethanamine, N-ethyl-N-nitroso-	55185		U174	1
1,2-Ethanediamine, N,N-dimethyl-N'- 2-pyridinyl-N'-(2-thienylmethyl)-	91805		U155	5000
Ethane, 1,2-dibromo-	106934		U067	1

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Ethane, 1,1-dichloro-	75343		U076	1000
Ethane, 1,2-dichloro-	107062		U077	100
Ethanedinitrile	460195		P031	100
Ethane, hexachloro-	67721		U131	100
Ethane, 1,1'-[methylenebis(oxy)] bis(2-chloro-	111911		U024	1000
Ethane, 1,1'-oxybis-	60297		U117	100
Ethane, 1,1'-oxybis(2-chloro-	111444		U025	10
Ethane, pentachloro-	76017		U184	10
Ethanesulfonyl chloride, 2-chloro	1622328	500		1
Ethane, 1,1,1,2-tetrachloro-	630206		U208	100
Ethane, 1,1,2,2-tetrachloro-	79345		U209	100
Ethanethioamide	62555		U218	10
Ethane, 1,1,1-trichloro-	71556		U226	1000
Ethane, 1,1,2-trichloro-	79005		U227	100
Ethanimidothioic acid, N-[[(methylamino) carbonyl]oxy]-, methyl ester	16752775		P066	100
Ethanol, 1,2-Dichloro-, acetate	10140871	1000		1
Ethanol, 2-ethoxy-	110805		U359	1000
Ethanol, 2,2'-(nitrosoimino)bis-	1116547		U173	1
Ethanone, 1-phenyl-	98862		U004	5000
Ethene, chloro-	75014		U043	1
Ethene, 2-chloroethoxy-	110758		U042	1000
Ethene, 1,1-dichloro-	75354		U078	100
Ethene, 1,2-dichloro- (E)	156605		U079	1000
Ethene, tetrachloro-	127184		U210	100
Ethene, trichloro-	79016		U228	100
Ethion	563122	1000		10
Ethoprophos	13194484	1000		1
Ethyl acetate (I)	141786		U112	5000
Ethyl acrylate (I)	140885		U113	1000
Ethylbenzene	100414			1000
Ethylbis(2-Chloroethyl)amine	538078	500		1
Ethyl carbamate (urethane)	51796		U238	100
Ethyl cyanide	107120		P101	10
Ethylenebisdithiocarbamic acid, salts & esters	111546		U114	5000
Ethylenediamine	107153			5000

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Ethylenediamine-tetraacetic acid (EDTA)	60004			5000
Ethylene dibromide	106934		U067	1
Ethylene dichloride	107062		U077	100
Ethylene fluorohydrin	371620	10		1
Ethylene glycol monoethyl ether	110805		U359	1000
Ethylene oxide (I,T)	75218	1000	U115	10
Ethylenediamine	107153	10,000		5000
Ethylenethiourea	96457		U116	10
Ethylenimine	151564	500	P054	1
Ethyl ether (I)	60297		U117	100
Ethylthiocyanate	542905	10,000		1
Ethylidene dichloride	75343		U076	1000
Ethyl methacrylate	97632		U118	1000
Ethyl methanesulfonate	62500		U119	1
Famphur	52857		P097	1000
Fenamiphos	22224926	10/10,000		1
Fenitrothion	122145	500		1
Fensulfothion	115902	500		1
Ferric ammonium citrate	1185575			1000
Ferric ammonium oxalate	2944674 55488874			1000
Ferric chloride	7705080			100
Ferric fluoride	7783508			1000
Ferric nitrate	10421484			1000
Ferric sulfate	10028225			1000
Ferrous ammonium sulfate	10045893			1000
Ferrous chloride	7758943			100
Ferrous sulfate	7720787 7782630			1000
Fluentil	4301502	100/10,000		1
Fluoranthene	206440		U120	100
Fluorene	86737			5000
Fluorine	7782414	500	P056	10
Fluoroacentamide	640197	100/10,000	P057	100
Fluoracetic acid	144490	10/10,000		1
Fluoroacetic acid, sodium salt	62786		P058	10
Fluoroacetyl chloride	359068	10		1
Fluorouracil	51218	500/10,000		1
Fonofos	944229	500		1

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Formaldehyde	50000	500	U122	100
Formaldehyde cyanohydrin	107164	1000		1
Formetanate hydrochloride	23422539	500/10,000		1
Formothion	2540821	100		1
Formparanate	17702577	100/10,000		1
Formic acid (C,T)	64186		U123	5000
Fosthietan	21548323	500		1
Fuberidazole	3878191	100/10,000		1
Fulminic acid, mercury(2) salt (R,T)	628864		P065	10
Fumaric acid	110178			5000
Furan (I)	110009	500	U124	100, 100
Furan, tetrahydro- (I)	109999		U213	1000
2-Furancarboxaldehyde (I)	98011		U125	5000
2,5-Furandione	108316		U147	5000
Furfural (I)	98011		U125	5000
Furfuran (I)	110009		U124	100
Gallium trichloride	13450903	500/10,000		1
Glucopyranose, 2-deoxy-2-(3-methyl-3-nitrosoureido)-	18883664		U206	1
D-Glucose, 2-deoxy-2-[[(methylnitrosoamino)-carbonyl]amino]-	18883664		U206	1
Glycidylaldehyde	765344		U126	10
Guanidine, N-methyl-N'-nitro-N-nitroso-	70257		U163	10
Guthion	86500			1
Heptachlor	76448		P059	1
Heptachlor epoxide	1024573			1
Hexachlorobenzene	118741		U127	10
Hexachlorobutadiene	87683		U128	1
Hexachlorocyclohexane (gamma isomer)	58899		U129	1
Hexachlorocyclopentadiene	77474	100	U130	10
Hexachloroethane	67721		U131	100
Hexachlorophene	70304		U132	100
Hexachloropropene	1888717		U243	1000
Hexaethyl tetraphosphate	757584		P062	100
Hexamethylenediamine, N,N'-Dibutyl	4835114	500		1
Hydrazine (R,T)	302012	1000	U133	1
Hydrazine, 1,2-diethyl-	1615801		U086	10

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Hydrazine, 1,1-dimethyl-	57147		U098	10
Hydrazine, 1,2-dimethyl-	540738		U099	1
Hydrazine, 1,2-diphenyl-	122667		U109	10
Hydrazine, methyl-	60344		P068	10
Hydrazinecarbothioamide	79196		P116	100
Hydrochloric acid	7647010			5000
Hydrocyanic acid	74908	100	P063	10
Hydrofluoric acid	7664393		U134	100
Hydrogen chloride (gas only)	7647010	500		5000
Hydrogen cyanide	74908		P063	10
Hydrogen fluoride	7664393	100	U134	100
Hydrogen peroxide (Conc > 52%)	7722841	1000		1
Hydrogen selenide	7783075	10		1
Hydrogen sulfide	7783064	500	U135	100
Hydroperoxide, 1-methyl-1-phenylethyl-	80159		U096	10
Hydroquinone	123319	500/10,000		1
2-Imidazoliainethione	96457		U116	10
Indeno(1,2,3-cd)pyrene	193395		U137	100
Iron, Pentacarbonyl-	13463406	100		1
Isobenzan	297789	100/10,000		1
1,3-Isobenzofurandione	85449		U190	5000
Isobutyronitrile	78820	1000		1
Isobutyl alcohol (I,T)	78831		U140	5000
Isocyanic acid, 3,4-Dichlorophenyl ester	102363	500/10,000		1
Isodrin	465736	100/10,000	P060	1
Isofluorphate	55914	100		100
Isophorone	78591			5000
Isophorone Diisocyanbate	4098719	100		1
Isoprene	78795			100
Isopropanolamine dodecylbenzene sulfonate	42504461			1000
Isopropyl chloroformate	108236	1000		1
Isopropyl formate	625558	500		1
Isoproplymethylpryrazolyl dimethylcarbamate	119380	500		1
Isosafrole	120581		U141	100
3(2H)-Isoxazolone, 5-(aminomethyl)-	2763964		P007	1000
Kepone	143500		U142	1

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Lactonitrile	78977	1000		1
Lasiocarpine	303344		U143	10
Lead acetate	301042		U144	#
Lead arsenate	7784409 7645252 10102484			1
Lead, bis(acetato-O)tetrahydroxytri	1335326		U146	100
Lead chloride	7758954			100
Lead fluoborate	13814965			100
Lead iodide	10101630			100
Lead nitrate	10099748			100
Lead phosphate	7446277		U145	#
Lead stearate	7428480 1072351 52652592 56189094			5000#
Lead subacetate	1335326		U146	100
Lead sulfate	15739807 7446142			100
Lead sulfide	1314870			5000#
Lead thiocyanate	592870			100
Leptophos	21609905	500/10,000		1
Lewisite	541253	10		1
Lindane	58899	1000/10,000	U129	1
Lithium chromate	14307358			10
Lithium hydride	7580678	100		1
Malathion	121755			100
Maleic acid	110167			5000
Maleic anhydride	108316		U147	5000
Maleic hydrazide	123331		U148	5000
Malononitrile	109773	500/10,000	U149	1000
Manganese, tricarbonyl methylcyclopentadienyl	12108133	100		1
Mechlorethamine	51752	10		1
Melphalan	148823		U150	1
Mephosfolan	950107	500		1
Mercaptodimethur	2032657			10
Mercuric acetate	1600277	500/10,000		1
Mercuric chloride	747947	500/10,000		1
Mercuric cyanide	592041			1
Mercuric nitrate	10045940			10

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Mercuric oxide	21908532	500/10,000		1
Mercuric sulfate	7783359			10
Mercuric thiocyanate	592858			10
Mercurous nitrate	10415755 7782867			10
Mercury	7439976		U151	1
Mercury (acetate-O)phenyl-	62384		P092	100
Mercury fulminate	628864		P065	10
Methacrolein diacetate	10476956	1000		1
Methacrylic anhydride	760930	500		1
Methacrylonitrile (I,T)	126987	500	U152	1000
Methacryloyl chloride	920467	100		1
Methacryloyloxyethyl isocyanate	30674807	100		1
Methamidophos	10265926	100/10,000		1
Methanamine, N-methyl-	124403		U092	1000
Methanamine, N-methyl-N-nitroso-	62759		P082	10
Methane, bromo-	74839		U029	1000
Methane, chloro- (I,T)	74873		U045	100
Methane, chloromethoxy-	107302		U046	10
Methane, dibromo-	74953		U068	1000
Methane, dichloro-	75092		U080	1000
Methane, dichlorodifluoro-	75718		U075	5000
Methane, iodo-	74884		U138	100
Methane, isocyanato-	624839		P064	##
Methane, oxybis(chloro-	542881		P016	10
Methanesulfenyl chloride, trichloro-	594423		P118	100
Methanesulfonyl fluoride	558258	1000		1
Methanesulfonic acid, ethyl ester	62500		U119	1
Methane, tetrachloro-	56235		U211	10
Methane, tetranitro- (R)	509148		P112	10
Methane, tribromo-	75252		U225	100
Methane, trichloro-	67663		U044	10
Methane, trichlorofluoro-	75694		U121	5000
Methanethiol (I,T)	74931		U153	100
6,9-Methano-2,4,3-benzodioxathi-epin, 6,7,8,9,10,10-hexa-chloro-1,5,5a, 6,9,9a-hexahydro-, 3-oxide	115297		P050	1
1,3,4-Metheno-2H-cyclobutal[cd] pentalen-2-one,1,1a,3,3a,4, 5,5a,5b,6-decachlorocatahydro-	143500		U142	1

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
4,7-Methano-1H-indene, 1,4,5,6,7,8,8 heptachloro-3a, 4,7,7a-tetrahydro-	76448		P059	1
4,7-Methano-1H-indene, 1,2,4,5,6,7,8,8 octachloro-2,3, 3a,4,7,7a-hexahydro-	57749		U036	1
Methanol (I)	67561		U154	5000
Methapyrilene	91805		U155	5000
Methidathion	950378	500/10,000		1
Methiocarb	2032657	500/10,000		10
Methomyl	16752775	500/10,000	P066	100
Methoxychlor	72435		Y247	1
Methoxyethylmercuric acetate	151382	500/10,000		1
Methyl alcohol (I)	67561		U154	5000
Methyl bromide	74839	1000	U029	1000
1-Methylbutadiene (I)	504609		U186	100
Methyl chloride (I,T)	74873		U045	100
Methyl 2-chloroacrylate	80637	500		1
Methyl chlorocarbonate (I,T)	79221		U156	1000
Methyl chloroform	71556		U226	1000
Methyl chloroformate	79221	500	U156	1000
Methyl disulfide	624920	100		1
3-Methylcholanthrene	56495		U157	10
4,4'-Methylenebis(2-chloroaniline)	101144		U158	10
Methylene bromide	74953		U068	1000
Methylene chloride	75092		U080	1000
Methyl ethyl ketone (MEK) (I,T)	78933		U159	5000
Methyl ethyl ketone peroxide (R,T)	1338234		U160	10
Methyl hydrazine	60344	500	P068	10
Methyl iodide	74884		U138	100
Methyl isobutyl ketone	108101		U161	5000
Methyl isocyanate	624839	500	P064	##
Methyl isothiocyante	556616	500		1
2-Methyllactonitrile	75865		P069	10
Methyl mercaptan	74931	500	U153	100
Methyl methacrylate (I,T)	80626		U162	1000
Methyl parathion	298000		P071	100
Methyl phenkapton	3735237	500		1
Methyl phosphoric dichloride	676971	100		1

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
4-Methyl-2-pentanone (I)	108101		U161	5000
Methyl thiocyanate	556649	10,000		1
Methylthiouracil	56042		U164	10
Methyl vinyl ketone	78944	10		1
Methylmercuric dicyanamide	502396	500/10,000		1
Methyltrichlorosilane	75796	500		1
Metolcarb	1129415	100/10,000		1
Mevinphos	7786347	500		10
Mexacarbate	315184	500/10,000		1000
Mitomycin C	50077	500/10,000	U010	10
MNNG	70257		U163	10
Monocrotophos	6923224	10/10,000		1
Monoethylamine	75047			100
Monomethylamine	73895			100
Muscimol	2763964	10,000	P007	1000
Mustard gas	505602	500		1
Naled	300765			10
5,12-Naphthaacenedione, 8-acetyl-10-[3 amino-2,3,6-tri-deoxy-alpha-L-lyxo-hexopyranosyl)-7,8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-, (8S-cis)-	20830813		U059	10
1-Naphthalenamine	134327		U167	100
2-Naphthalenamine	91598		U169	10
Naphthalenamine, N,N'-bis(2-chloroethyl)-	494031		U026	100
Naphthalene, 2-chloro-	91587		U047	5000
1,4-Naphthalenedione	130154		U166	5000
2,7-Naphthalenedisulfonic acid, 3,3' [(3,3'-dimethyl-(1,1'-biphenyl)-4,4'-dryl)-bis(azo)]bis(5-amino-4-hydroxy)-tetrasodium salt	72571		U236	10
Naphthenic acid	1338245			100
1,4-Naphthoquinone	130154		U166	5000
alpha-Naphthylamine	134327		U167	100
beta-Naphthylamine	91598		U168	10
alpha-Naphthylthiourea	86884		P072	100
Nickel++	7440020			100
Nickel ammonium sulfate	15699180			100

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Nickel carbonyl	13463393	1	P073	10
Nickel carbonyl Ni(CO)4, (T-4)-	13463393		P073	10
Nickel chloride	7718549 37211055			100
Nickel cyanide	557197		P074	10
Nickel hydroxide	12054487			10
Nickel nitrate	14216752			100
Nickel sulfate	7786814			100
Nicotine & salts	54115	100	P075	100
Nicotine sulfate	65305	100/10,000		1
Nitric acid	7697372	1000		1000
Nitric acid, thallium(1+) salt	10102451		U217	100
Nitric oxide	10102439	100	P076	10
p-Nitroaniline	100016		P077	5000
Nitrobenzene (I,T)	98953	10,000	U169	1000
Nitrocyclohexane	1122607	500		1
Nitrogen dioxide	10102440 10544726	100	P078	10
Nitrogen oxide	10102439		P076	10
Nitroglycenne	55630		P981	10
Nitrophenol (mixed) m-Nitrophenol o-Nitrophenol (2) p-Nitrophenol (4)	25154556 554847 88755 100027		 U170	100 100 100 100
2-Nitropropane (I,T)	96469		U171	10
N-Nitrosodi-n-butylamine	924163		U172	10
N-Nitrosodiethanolamine	1116547		U173	1
N-Nitrosodiethylamine	55185		U174	1
N-Nitrosodimethylamine	62759	1000	P082	10
N-Nitrosodiphenylamine	86306			100
N-Nitroso-N-ethylurea	759739		U176	1
N-Nitroso-N-methylurea	684935		U177	1
N-Nitroso-N-methylurethane	615532		U178	1
N-Nitrosomethylvinylamine	4549400		P084	10
N-Nitrosopipendine	199754		U179	10
N-Nitrosopyrrolidine	930552		U180	1
Nitrotoluene m-Nitrotoluene o-Nitrotoluene p-Nitrotoluene	1321126 99081 88722 99990			1000
5-Nitro-o-toluidine	99558		U181	100

(continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Norbormide	991424	100/10,000		1
Octamethylpyrophosphoramide	152169		P085	100
Organorhodium complex (PMN-82-147)	0	10/10,000		1
Osmium tetroxide	20816120		P087	1000
Ouabain	630604	100/10,000		1
7-Oxabicyclo[2,2,1]heptane-s,3-dicarboxylic acide	145733		P088	1000
Oxamyl	23135220	100/10,000		1
1,2-Oxathiolane, 2,2-dioxide	1120714		U193	10
2H-1,3,2-Oxazaphosphorin-2-amine, N,N bis(2-chloroethyl)tetrahydro-, 2-oxide	50180		U058	10
Oxetane, 3,3-bis(chloromethyl)-	78717	500		
Oxirane (I,T)	75218		U115	10
Oxiranecarboxyaldehyde	765344		U126	10
Oxirane, (chloromethyl)-	106898		U041	100
Oxydisulfoton	2497076	500		1
Ozone	10028156	100		1
Paraformaldehyde	30525894			1000
Paraldehyde	123637		U182	1000
Paraquat	1910425	10/10,000		1
Paraquat methosulfate	2074502	10/10,000		1
Parathion	56382	100	P089	10
Parathion-methyl	298000	100/10,000		100
Paris green	12002038	500/10,000		100
Pentaborane	19624227	500		1
Pentachlorobenzene	608935		U183	10
Pentachlorethane	76017		U184	10
Pentachlorophenol	87865		U242	10
Pentachloronitrobenzene (PCNB)	82688		U185	100
Pentadecylamine	2570265	100/10,000		1
Peracetic acid	79210	500		1
1,3-Pentadiene (I)	504609		U186	100
Perachloroethylene	127184		U210	100
Perchloromethylmercaptan	594423	500		100
Phenacetin	62442		U187	100
Phenanthrene	85018			5000
Phenol	108952	500/10,000	U188	1000
Phenol, 2-chloro-	95578		U048	100

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Phenol, 4-chloro-3-methyl-	59507		U039	5000
Phenol, 2-cyclohexyl-4,6-dinitro-	131895		P034	100
Phenol, 2,4-dichloro	120832		U081	100
Phenol, 2,6-dichloro-	87650		U082	100
Phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (E)	56531		U089	1
Phenol, 2,4-dimethyl-	105679		U101	100
Phenol, 2,4-dinitro-	51285		P048	10
Phenol, methyl- m-Cresol o-Cresol p-Cresol	1319773 108394 95487 106445		U052	1000
Phenol, 2-methyl-4,6-dinitro-	534521		P047	10
Phenol, 2,2'-methylenebis[3,4,6-trichloro-	70304		U132	100
Phenol, 2,2'-thiobis(4,6-dichloro-	97187	100/10,000		1
Phenol, 2,2'-thiobis(4-chloro-6-methyl)-	4418660	10/10,000		1
Phenol, 2-(1-methylpropyl)-4,6-dinitro	88857		P020	1000
Phenol, 3-(1-methylethyl)-, methylcarbamate	64006	500/10,000		1
Phenol, 4-nitro-	100027		U170	100
Phenol, pentachloro-	87865		U242	10
Phenol, 2,3,4,6-tetrachloro-	58902		U212	10
Phenol, 2,4,5-trichloro-	95954		U230	10
Phenol, 2,4,6-trichloro-	88062		U231	10
Phenol, 2,4,6-trinitro-, ammonium salt	131748		P009	10
Phenoxarsine, 10,10'-oxydi-	58366	500/10,000		1
L-Phenylalanine, 4-[bis(2-chloroethyl) aminol]	148823		U150	1
Phenyl dichloroarsine	696286	500		1
1,10-(1,2-Phenylene)pyrene	193395		U137	100
Phenylhydrazine hydrochloride	59881	1000/10,000		1
Phenylmercury acetate	62384	500/10,000	P092	100
Phenylsilatrane	2097190	100/10,000		1
Phenylthiourea	103855	100/1000	P093	100
Phorate	298022	10	P094	10
Phosacetim	4104147	100/10,000		1
Phosfolan	947024	100/10,000		1

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Phosgene	75445	10	P095	10
Phosmet	732116	10/10,000		1
Phosphamidon	13171216	100		1
Phosphine	7803512	500		100
Phosphonothioic acid, methyl-, o-ethyl o-(4-(methylthio)phenyl) ester	2703131	500		1
Phosphonothioic acid, methyl-, s-(2-(bis(1- methylethyl)amino) ethyl o-ethyl ester	50782699	100		1
Phosphonothioic acid, methyl-, 0-(4-nitrophenyl) o-phenyl ester	2665307	500		1
Phosphoric acid	7664382			5000
Phosphoric acid, diethyl 4-nitrophenyl ester	311455		P041	100
Phosphoric acid, dimethyl 4-(methylthio) phenyl ester	3254635	500		1
Phosphoric acid, lead(2+) salt (2:3)	7446277	500	U145	#
Phosphorodithioic acid, O,O-diethyl S-[2(ethylthio)ethyl]ester	298044		P039	1
Phosphorodithioic acid, O,O-diethyl S(ethylthio), methyl ester	298022		P094	10
Phosphorodithioic acid, O,O-diethyl S-methyl ester	3288582		U087	5000
Phosphorodithoic acid, O,O-dimethyl S-[2(methyl-amino)-2-oxoethyl] ester	60515		P044	10
Phosphorofluondic acid, bis(1-methylethyl)ester	55914		P043	100
Phsphorothioic acid, O,O-diethyl O-(4-nitrophenyl) ester	56382		P089	10
Phosphorothioic acid, O,[4[(dime-thylamino)sulfonyl]phenyl]O,O-dimethyl ester	52857		P097	1000
Phosphorothioic acid, O,O-dimethyl O-(4-nitrophenyl) ester	298000		P071	100
Phosphorus	7723140	100		1
Phosphorus oxycloride	10025873	500		1000
Phosphorous pentachloride	10026138	500		1
Phosphorus pentasulfide (R)	1314803		U189	100
Phosphorus pentoxide	1314563	10		1
Phosphorus trichloride	7719122	1000		1000

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Phthalic anhydride	85449		U190	5000
Physostigmine	57476	100/10,000		1
Phosostigmine, salicylate (1:1)	57647	100/10,000		1
2-Picoline	109068		U191	5000
Picotoxin	124878	500/10,000		1
Piperidine	110894	1000		1
Piperidine, 1-nitroso-	100754		U179	10
Piprotal	5281130	100/10,000		1
Primifos-ethyl	23505411	1000		1
Plumbane, tetraethyl-	78002		P110	10
Polychlorinated biphenyls (PCBs) (See Aroclor)	1336363			1
Potasium arsenate	7784410			1
Potassium arsenite	10124502	500/10,000		1000
Potassium bichromate	7778509			10
Potassium chromate	7789006			10
Potassium cyanide	151508	100	P098	10
Potassium hydroxide	1310583			1000
Potassium permanganate	7722647			100
Potassium silver cyanide	506516	500	P099	1
Promecarb	2631370	500/10,000		1
Pronamide	23950585		U192	5000
Propanal, 2-methyl-2-(methylthio)-, O-[(methylamino)carbonyl] oxime	116063		P070	1
1-Propanamine (I,T)	107108		U194	5000
1-Propanamine, N-propyl-	142847		U110	5000
1-Propanamine, N-nitroso-N-proply-	621647		U111	10
Propane, 1,2-dibromo-2-chloro	96128		U066	1
Propane, 2-intro- (I,T)	79469		U171	10
1,3-Propane sultone	1120714		U193	10
Propane 1,2-dichloro-	78875		U083	1000
Propanedinitrile	109773		U149	100
Propanenitrile	107120		P101	10
Propanenitrile, 2-chloro-	542767		P027	1000
Propanenitrile, 2-hydroxy-2-methyl-	75865		P069	10
Propane, 2,2'-oxybis[2-chloro-	108601		U027	1000
1,2,3-Propanetnol, trinitrate- (R)	55630		P081	10
1-Propanol, 2,3-dibromo-, phosphate (3:1)	126727		U235	10

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
1-Propanol, 2-methyl- (I,T)	78831		U140	5000
2-Propanone (I)	67641		U002	5000
2-Propanone, 1-bromo-	598312		P017	1000
Propargite	2312358			10
Propargyl alcohol	107197		P102	1000
Propargyl bromide	106967	10		1
2-Propenal	107028		P003	1
2-Propenamide	79061		U007	5000
1-Propene, 1,1,2,3,3,3-hexachloro-	1888717		U243	1000
1-Propene, 1,3-dichloro-	542756		U084	100
2-Propenenitrile	107131		U009	100
2-Propenenitrile, 2-methyl- (I,T)	126987		U152	1000
2-Propenoic acid (I)	79107		U008	5000
2-Prepenoic acid, ethyl ester (I)	140885		U113	1000
2-Prepenoic acid, 2-methyl-, ethyl ester	97632		U118	1000
2-Prepenoic acid, 2-methyl-, methyl ester (I,T)	80626		U162	1000
2-Propen-1-o1	107186		P005	100
Propiolactone, beta-	57578	500		1
Propionic acid	79094			5000
Propionic acid, 2-(2,4,5-trichlorophenoxyl)-	93721		U233	100
Propionic anhydride	123626			5000
Propiolactone, beta	57578	500		1
Propionitrile	107120	500		10
Propionitrile, 3-chloro-	542767	1000		1000
Propiophenone, 4-amino	70699	100/10,000		1
n-Propylamine	107108		U194	5000
Propyl chloroformate	109615	500		1
Propylene dichloride	78875		U083	1000
Propylene oxide	75569	10,000		100
1,2-Propylenimine	75558	10,000	P067	1
2-Propyn-1-o1	107197		P102	1000
Prothoate	2275185	100/10,000		1
Pyrene	129000	1000/10,000		5000
Pyrethrins	121299 121211 8003347			1
3,6-Pyridazinedione, 1,3-dihydro-	123331		U148	5000

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
4-Pyridinamine	504245		P008	1000
Pyridine	110861		U196	1000
Pyridine, 2-methyl-	109068		U191	5000
Pyridine, 2-methyl-5-vinyl-	140761	500		1
Pyridine, 4-amino-	504245	500/10,000		1000
Pyridine, 4-nitro-, 1-oxide	1124330	500/10,000		1
Pyridine, 3-(1-methyl-2-pyrrolidinyl)-, (S)	54115		P075	100
2,4-(1H,3H)-Pyrimidinedione, 5-[bis(2-chloroethyl)amino]-	66751		U237	10
4(1H)-Pyrimidinone, 2,3-dihydro-6-methyl-2-thioxo-	56042		U164	10
Pyriminil	53558251	100/10,000		1
Pyrrolidine, 1-nitroso-	930552		U180	1
Quinoline 91225	91225			5000
Reserpine	50555		U200	5000
Resorcinol	106463		U201	5000
Sacchann and salts	81072		U202	100
Salcomine	14167181	500/10,000		1
Sarin	107448	10		1
Satrole	94597		U203	100
Selenious acid	7783008	1000/10,000	U204	10
Selenious acid, dithallium (1+) salt	12039520		P114	1000
Selenium ++	7782492			100
Selenium dioxide	7446084		U204	10
Selenium oxychloride	7791233	500		1
Selenium sulfide (R,T)	7488564		U205	10
Selenourea	630104		P103	1000
Semicarbazide hydrochloride	56417	1000/10,000		1
L-Senne, diazoacetate (ester)	115026		U015	1
Silane, (4-aminobutyl)diethoxymethyl-	3037727	1000		1
Silver++	7440224			1000
Silver cyanide	506649		P104	1
Silver nitrate	7761888			1
Silvex (2,4,5-TP)	93721		U233	100
Sodium	7440235			10
Sodium arsenate	7631892	1000/10,000		1
Sodium arsenite	7784465	500/10,000		1
Sodium azide	26628228	500	P105	1000

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Sodium bichromate	10588019			10
Sodium bifluoride	1333831			100
Sodium bisulfite	7631905			5000
Sodium Cacodylate	124652	100/10,000		1
Sodium chromate	7775113			10
Sodium cyanide	143339		P106	10
Sodium dodecylbenzenesulfonate	25155300			1000
Sodium fluoride	7681494			1000
Sodium fluoroacetate	62748	10/10,000		10
Sodium hydrosulfide	16721805			5000
Sodium hydroxide	1310732			1000
Sodium hypochlorite	7681529 10022705			1000
Sodium methylate	124414			1000
Sodium nitrite	763200			100
Sodium prentachlorophenate	131522	100/10,000		1
Sodium phosphate, dibasic	7558794 10039324 10140655			5000
Sodium phosphate, tribasic	7601549 7758294 7785844 10101890 10124568 10361894			5000
Sodium selenate	13410010	100/10,000		1
Sodium selenite	10102188 7782823	100/1000		100
Sodium tellurite	10102202	500/10,000		1
Stannane, acetoxytriphenyl	900958	500/10,000		1
Streptozotocin	18883664		U206	1
Strontium chromate	7789062			10
Strychnidin-1-one, 2,3-dimethoxy-	357573		P018	100
Strychnine, & salts	572494	100/10,000	P018	10
Strychnine, sulfate	60413	100/10,000		1
Styrene	100425			1000
Sulfotep	3689245	500		100
Sulfoxide, 3-chlorophpropyl octyl	3569571	500		1
Sulfur monochloride	12771083			1000
Sulfur dioxide	7446095	500		1
Sulfur phosphide (R)	1314803		U189	100

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Sulfur tetrafluoride	7783600	100		1
Sulfur trioxide	7446119	100		1
Sulfuric acid	7664939 8014957	1000		1000
Sulfuric acid, dithallium (1^+) salt	7446186 10031591		P115	100
Sulfuric acid, dimethyl ester	77781		U103	100
Tabun	77816	10		1
2,4,5-T acid	93765		U232	1000
2,4,5-T amines	2008460 1319728 3813147 6369966 6369977			5000
Tellurium	13494809	500/10,000		1
Tellurium hexafluoride	7783804	100		1
2,4,5-T esters	93798 1928478 25168154 61792072			1000
2,4,5-T salts	13560991			1000
2,4,5-T	93765		U232	1000
TDE	72548		U060	1
TEPP	10749	100		10
Terbufos	13071799	100		1
1,2,4,5-Tetrachlorobenzene	95943		U207	5000
2,3,7,8-Tetrachlorodibenzo-p-dioxin (TCDD)	1746016			1
1,1,1,2-Tetrachlorethane	630206		U208	100
1,1,2,2-Tetrachloroethane	79345		U209	100
Tetrachloroethene	127184		U210	100
Tetrachloroethylene	127184		U210	100
2,3,4,6-Tetrachlorophenol	58902		U212	10
Tetraethyl lead	78002	100	P110	10
Tetraethyl pyrophosphate	107493		P111	10
Tetraethyldithiopyrophosphate	3589245		P109	100
Tetraethyltin	597648	100		1
Tetramethyllead	75741	100		1
Tetrahydrofuran (I)	109999		U213	100
Tetranitromethane (R)	509148	500	P112	10

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Tetraphosphoric acid, hexaethyl ester	757584		P062	100
Thallic oxide	1314325		P113	100
Thallium ++	7440280			1000
Thallium acetate	563688		U214	100
Thallium carbonate	6533739		U215	100
Thallium chloride	7791120		U216	100
Thallium nitrate	10102451		U217	100
Thallium oxide	1314325		P113	100
Thallium selenite	12039520		P114	1000
Thallium sulfate	7446186 10031591	100/10,000	P115	100
Thallous carbonate	6533739	100/10,000		100
Thallous chloride	7791120	100/10,000		100
Thallous malonate	2757188	100/10,000		1
Thallous sulfate	7446186	100/10,000		100
Thioacetamide	62555		U218	10
Thiocarbazide	2231574	1000/10,000		1
Thiodiphosphoric acid, tetraethyl ester	3689245		P109	100
Thiofanox	39196184	100/10,000	P045	100
Thioimidodicarbonic diamide [(H2N)C(S)] 2NH	541537		P049	100
Thiomethanol (I,T)	74931		U153	100
Thionazin	297972	500		100
Thioperoxydicarbonic diamide [(H2N)C(S)] 2S2, tetra-methyl-	137268		U244	10
Thiophenol	108985	500	P104	100
Thiosemicarbazide	79196	100/10,000	P116	100
Thiourea	62566		U219	10
Thiourea, (2-chlorophenyl)-	5344821	100/10,000	P026	100
Thiourea, (2-methylphenyl)-	614788	500/10,000		1
Thiourea, 1-naphthalenyl-	86884		P072	100
Thiourea, phenyl-	103855		P093	100
Thiram	137268		U244	10
Titanium tetrachloride	7550450	100		1
Toluene	108883		U220	1000
Toluenediamine	95807 496720 823405 25376458		U221	10

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Toluene diisocyanate (R,T)	584849 91087 26471625	500 100	U223	100 100
o-Toluidine	95534		U238	100
p-Toluidine	106490		U353	100
o-Toluidine hydrochloride	636215		U222	100
Toxaphene	8001352		P123	1
2,4,5-TP acid	93721		U233	100
2,4,5-TP esters	32534955			100
1H-1,2,4-Triazol-3-amine	61825		U011	10
Trans-1,4-dichlorobutene	110576	500		1
Triamiphos	1031476	500/10,000		1
Triazofos	24017478	500		1
Trichloroacety chloride	76028	500		1
Trichlorfon	52686			100
1,2,4-Trichlorobenzene	120821			100
1,1,1-Trichloroethane	71556		U226	1000
1,1,2-Trichloroethane	79005		U227	100
Trichloroethene	79016		U228	100
Trichloroethylene	79016		U228	100
Trichloroethylsilane	115219	500		1
Trichloronate	327980	500		1
Trichloromethanesulfenyl chloride	594423		P118	100
Trichloromonofluoromethane	75694		U121	5000
2,3,4-richlorophenol	15950660			
2,3,5-Trichlorophenol	933788			
2,3,6-Trichlorophenol	933755			
2,4,5-Trichlorophenol	95954		U230	10
2,4,6-Trichlorophenol	88062		U231	10
3,4,5-Trichlorophenol	609198			
2,4,5-Trichlorophenol	95954		U230	10
2,4,6-Trichlorophenol	88062		I231	10
Trichlorphenylsilane	98135	500		1
Trichloro(chloromethyl)silane	1558254	100		1
Trichloro(dichlorophenyl)silane	27137855	500		1
Triethanolamine dodecylbenzene-sulfonate	27323417			1000
Triethoxysilane	998301	500		1
Triethylamine	121448			5000
Trimethylamine	75503			100
Trimethylchlorosilane	75774	1000		1

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Trimethylolpropane phosphite	824113	100/10,000		1
Trimethyltin chloride	1066451	500/10,000		1
1,3,5-Trinitrobenzene (R,T)	99354		U234	10
1,3,5-Trioxane, 2,4,6-trimethyl-	123637		U182	1000
Triphenyltin chloride	639587	500/10,000		1
Tris(2-chloroethyl)amine	555771	100		1
Tris(2,3-dibromopropyl) phosphate	126727		U235	10
Trypan blue	72571		U236	10
Unlisted Hazardous Wastes Characteristic of Corrosivity	NA		D002	100
Unlisted Hazardous Wastes Characteristic:	NA			
Arsenic (D004)	NA		D004	1
Barium (D005)	NA		D005	1000
Cadmium (D006)	NA		D006	10
Chromium (D007)	NA		D007	10
2,4-D (D016)	NA		D016	100
Endrin (D9012)	NA		D012	1
Lead (D008)	NA		D008	
Lindane (D013)	NA		D013	1
Mercury (D009)	NA		D009	1
Metoxychlor (D014)	NA		D014	1
Selenium (D010)	NA		D010	10
Silver (D011)	NA		D011	1
Toxaphene (D015)	NA		D015	1
2,4,5-TP (D017)	NA		D017	100
Vinyl chloride (D043)	NA		D043	1
Unlisted Hazardous Wastes Characteristic of Ignitability	NA		D001	00
Unlisted Hazardous Wastes Characteristic Reactivity	NA		D003	00
Uracil mustard	66751		U237	10
Uranyl acetate	541093			100
Uranyl nitrate	10102064 36478769			100
Urea, N-ethyl-N-nitroso	759739		U176	1
Urea, N-methyl-N-nitroso	684935		U177	1
Valinomycin	2001958	1000/10,000		1
Vanadic acid, ammonium salt	7803556		P119	1000
Vanadic oxide V_2O_5	1314621		P120	1000
Vanadic pentoxide	1314621		P120	1000
Vanadium pentoxide	1314621	100/10,000		1000

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Vanadyl sulfate	27774136			1000
Vinyl chloride	75014		U043	1
Vinyl acetate	108054			5000
Vinyl acetate monomer	108054	1000		5000
Vinylamine, N-methyl-N-nitroso-	4549400		P084	10
Vinylidene chloride	75354		U078	100
Warfarin, & salts, when present at concentrations greater than 0.3%	81812	500/10,000	P001	100
Warfarin sodium	129066	100/10,000		1
Xylene (mixed) m-Benzene, dimethyl o-Benzene, dimethyl p-Benzene, dimethyl	1330207 108383 95476 106423		U239	1000
Xylenol	1300716			1000
Xylylene dichloride	28347139	100/10,000		1
Yohimban-16-carboxylic acid, 11,17 dimethosy-18-[(3,4,5-trimethoxy-benzoyl)oxy]-, methyl ester (3-beta, 16-beta,17-alpha, 18-beta,20-alpha)-	50555		U200	5000
Zinc	7440666			1000
Zinc acetate	557346			1000
Zinc ammonium chloride	52628258 14639975 14639986			1000
Zinc borate	1332076			1000
Zinc bromide	7699458			1000
Zinc carbonate	3486359			1000
Zinc chloride	7646857			1000
Zinc cyanide	557211		P121	10
Zinc, dichloro(4,4-dimethyl-5(((((methylamino)carbonyl) oxy)imino)pentaenitrile)-,(t-4)-	58270089	100/1000		1
Zinc fluoride	7783495			1000
Zinc formate	557415			1000
Zinc hydrosulfite	7779864			1000
Zinc nitrate	7779886			1000
Zinc phenosulfonate	127822			5000
Zinc phosphide	1314847	500	P122	100

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
Zinc phosphide Zn_3P_2' when present at concentrations greater than 10%	1314847		P122	100
Zinc silicofluoride	16871719			5000
Zinc sulfate	7733020			1000
Zirconium nitrate	13746899			5000
Zirconium potassium fluoride	16923958			1000
Zirconium sulfate	14644612			5000
Zirconium tetrachloride	10026116			5000
F001			F001	10
The following spent halogenated solvents used in degreasing; all spent solvent mixtures/blends used in degreasing containing, before use, a total of 10 percent or more (by volume) of one or more of the above halogenated solvents or those solvents listed in F002, F004, and F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.				
a. Tetrachlorethylene	127184		U210	100
b. Trichloroethylene	79016		U228	100
c. Methylene chloride	75092		U080	1000
d. 1,1,1-Trichloroethane	71556		U226	1000
e. Carbon tetrachloride	56235		U211	10
f. Chlorinated fluorocarbons	NA			5000
F002			F002	10
The following spent halogenated solvents: all spent solvent mixtures/blends containing, before use, a total of 10 percent or more (by volume) of one or more of the above halogenated solvents or those listed in F001, F004, or F005; and still bottoms from the recovery of these spent solvents and spent solvent mixtures.				
a. Tetrachloroethylene	127184		U210	100
b. Methylene chloride	75092		U080	1000
c. Trichloroethylene	79016		U228	100
d. 1,1,1-Trichloroethane	71556		U226	1000
e. Chlorobenzene	108907		U037	100
f. 1,1,2-Trichloro-1,2,2 trifluoroethane	76131			5000
g. o-Dischlorobenzene				
h. Trichlorofluoromethane	95501		U070	100
i. 1,1,2-Trichloroethane	75694		U121	5000
	79005		U227	100

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
F003			F003	100
The following spent nonhalogenated solvents and the still bottoms from the recovery of these solvents:				
a. Xylene	1330207	1000		
b. Acetone	67641	5000		
c. Ethyl acetate	141786	5000		
d. Ethylbenzene	100414	1000		
e. Ethyl ether	60297	100		
f. Methyl isobutyl ketone	108101	5000		
g. n-Butyl alcohol	71363	5000		
h. Cyclohexanone	108941	5000		
i. Methanol	67561	5000		
F004			F004	1000
The following spent nonhalogenated solvents and the still bottoms from the recovery of these solvents:				
a. Cresols/Cresylic acid	131773		U052	1000
b. Nitrobenzene	98953		U169	1000
F005			F005	100
The following spent nonhalogenated solvents and the still bottoms from the recovery of these solvents:				
a. Toluene	108883		U220	1000
b. Methyl ethyl ketone	78933		U159	5000
c. Carbon disulfide	75150		P022	100
d. Isobutanol	78831		U140	5000
e. Pyndine	110861		U196	1000
F006			F006	10
Wastewater treatment sludges from electroplating operations except from the following: (1) sulfuric acid anodizing aluminum, (2) tin plating on carbon steel, (3) zinc plating (segregated basis) on carbon steel, (4) aluminum or zinc-aluminum plating on carbon steel, (5) cleaning/stripping associated with tin, zinc and aluminum plating on carbon steel, and (6) chemical etching and milling of aluminum.				
F007			F007	10
Spent cyanide plating bath solutions from electroplating operations.				
F008			F008	10
Plating bath residues from the bottom of plating baths from electroplating operations where cyanides are used in the process.				
F009			F009	10
Spent stripping and cleaning bath solutions from electroplating operations where cyanides are used in the process.				
F010			F010	10
Quenching bath residues from oil baths from metal heat operations where cyanides are used in the process.				
F011			F011	10
Spent cyanide solution from salt bath pot cleaning from metal heat treating operations.				

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
F012			F012	10
Quenching wastewater treatment sludges from metal heat treating operations where cyanides are used in the process.				
F019			F019	10
Wastewater treatment sludges from the chemical conversion coating of aluminum except from zirconium phosphating in aluminum can washing when such phosphating is an exclusive coating process.				
F020			F020	1
Waste (except wastewater and spent carbon from hydrogen chloride purification) from the production of manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- or-tetrachlorophenol, or of intermediates used to produce their pesticide derivatives. (This listing does not include wastes from the production of hexachlorophene from highly purified 2,4,5-trichlorophenol.)				
F021			F021	1
Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of pentachlorophenol, or of intermediates used to produce its derivatives.				
F022			F022	1
Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) or tetra-, penta-, or hexachlorobenzenes under alkaline conditions.				
F023			F023	1
Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the production or manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tri- and tetrachlorophenols. (This listing does not include wastes from equipment used only for the production or use of hexa-chlorophene from highly purified, 2,4,5-tri-chlorophenol.)				
F024			F024	1
Wastes, including but not limited to distillation residues, heavy ends, tars, and reactor cleanout wastes, from the production of chlorinated aliphatic hydrocarbons, having carbon content from one to five, utilizing free radical catalyzed processes. (This listing does not include light ends, spent filters and filter aids, spent desicants, wastewater, wastewater treatment sludges, spent catalysts, and wastes listed in Section 261.32.)				
F025			F025	1
Condensed light ends, spent filters and filter aids, and spent desicant wastes from the production of certain chlorinated aliphatic hydrocarbons, by free radical catalyzed processes. These chlorinated aliphatic hydrocarbons are those having carbon chain lengths ranging from one to and including five, with varying amounts and positions of chlorine substitution.				
F026			F026	1
Wastes (except wastewater and spent carbon from hydrogen chloride purification) from the production of materials on equipment previously used for the manufacturing use (as a reactant, chemical intermediate, or component in a formulating process) of tetrapenta-, or hexachlorobenzene under alkaline conditions.				

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
F027			F027	1
Discarded unused formulations containing tri-, tetra-, or pentachlorophenol or discarded unused formulations containing compounds derived from these chlorophenols. (This listing does not include formulations containing hexachlorophene synthesized from prepurified 2,4,5-tri-chlorophenol as the sole component.)				
F028			K028	1
Residues resulting from the incineration or thermal treatment of soil contaminated with USEPA Hazardous Waste Nos. F020, F021, F022, F023, F026, and F027				
K001			K001	1
Bottom sediment sludge from the treatment of wastewaters from wood preserving processes that use creosote and/or pentachlorophenol.				
K002			K002	#
Wastewater treatment sludge from the production of chrome yellow and orange pigments.				
K003			K003	#
Wastewater treatment sludge from the production of molyodate orange pigments.				
K004			K004	10
Wastewater treatment sludge from the production of zinc yellow pigments.				
K005			K005	#
Wastewater treatment sludge from the production of chrome green pigments.				
K006			K006	10
Wastewater treatment sludge from the production of chrome oxide green pigments (anhydrous and hydrated).				
K007			K007	10
Wastewater treatment sludge from the production of iron blue pigments.				
K008			K008	10
Oven residue from the production of chrome oxide green pigments.				
K009			K009	10
Distillation bottoms from the production of acetaldehyde from ethylene.				
K010			K010	10
Distillation side cuts from the production of acetaldehyde from ethylene.				
K011			K011	10
Bottom stream from the wastewater stripper in the production of acrylonitrile.				
K013			K013	10
Bottom stream from the acetonitrile column in the production of acrylonitrile.				
K014			K014	5000
Bottom from the acetonitrile purification column in the production of acrylonitrile.				
K015			K015	10
Still bottoms from the distillation of benzyl chloride.				
K016			K016	1
Heavy ends or distillation residues from the production of carbon tetrachloride.				

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
K017			K017	10
Heavy ends (still bottoms) from the purification column in the production of epi-chlorohydrin.				
K018			K018	1
Heavy ends from the fractionation column in ethyl chloride production.				
K019			K019	1
Heavy ends from the distillation of ethylene dichloride in ethylene chloride production.				
K020			K020	1
Heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production.				
K021			K021	10
Aqueous spent antimony catalyst waste from fluoromethanes production.				
K022			K022	1
Distillation bottom tars from the production of phenol/acetone from cumene.				
K023			K023	5000
Distillation light ends from the production of ophthalic anhydride from naphthalene.				
K024			K024	5000
Distillation bottoms from the production of phthalic anhydride from naphthalene.				
K025			K025	10
Distillation bottoms from the production of nitrobenzene by the nitration of benzene.				
K026			K026	1000
Stripping still tails from the production of methyl ethyl pyndines.				
K027			K027	10
Centrifuge and distillation residues from toluene diisocyanate production.				
K028			K028	1
Spent catalyst from the hydrochlorinator reactor in the production of 1,1,1-trichloroethane.				
K029			K029	1
Waste from the product steam stripper in the production of 1,1,1-trichloroethane.				
K030			K030	1
Column bottoms or heavy ends from the combined production of trichloroethylene and perchloroethylene.				
K031			K031	1
By-product salts generated in the production of MSMA and cacodylic acid.				
K032			K032	10
Wastewater treatment sludge from the production of chlordane.				
K033			K033	10
Wastewater and scrub water from the chlorination of cyclopentadiene in the production of chlordane.				
K034			K034	10
Filter solids from the filtration of hexachlorocyclopentadiene in the production of chlordane.				
K035			K035	1
Wastewater treatment sludges generated in the production of creosote.				

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
K036			K036	1
Still bottoms from toluene reclamation distillation in the production of disulfoton.				
K037			K037	1
Wastewater treatment sludges from the production of disulfoton.				
K038			K038	10
Wastewater from the washing and stripping of phorate production.				
K039			K039	10
Filter cake from the filtration of diethylphosphorodithioic acid in the production of phorate.				
K040			K040	10
Wastewater treatment sludge from the production of phorate.				
K041			K041	1
Wastewater treatment sludge from the production of toxaphene.				
K042			K042	10
Heavy ends or distillation residues from the distillation of tetrachlorobenzene in the production of 2,4,5-T.				
K043			K043	10
2,6-Dichlorophenol waste from the production 2,4-D.				
K044			K044	10
Wastewater treatment sludges from the manufacturing and processing of explosives.				
K045			K045	10
Spent carbon from the treatment of wastewater containing explosives.				
K046			K046	100
Wastewater treatment sludges from the manufacturing, formulation and loading of lead-based initiating compounds.				
K047			K047	10
Pink/red water from TNT operations.				
K048			K048	#
Dissolved air flotation (DAF) float from the petroleum refining industry.				
K049			K049	#
Slop oil emulsion solids from the petroleum refining industry.				
K050			K050	10
Heat exchanger bundle cleaning sludge from the petroleum refining industry.				
K051			K051	#
API separator sludge from the petroleum refining industry.				
K052			K052	10
Tank bottoms (leaded) from the petroleum refining industry.				
K060			K060	1
Ammonia still lime sludge from coking operations.				
K061			K061	#
Emission control dust/sludge from the primary production of steel in electric furnaces.				

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
K062			K062	#
Spent pickle liquor generated by steel finishing operations of facilities within the iron and steel industry (Standard Industrial Classification Codes 331 and 332).				
K064			K064	##
Acid plant blowdown slurry/sludge resulting from thickening of blowdown slurry from primary copper production.				
K065			K065	##
Surface impoundment solids contained in and dredged from surface impoundments at primary lead smelting facilities.				
K066			K066	##
Sludge from treatment of process wastewater and/or acid plant blowdown from primary zinc production.				
K069			K069	#
Emission control dust/sludge from secondary lead smelting.				
K071			K071	1
Brine purification muds from the mercury cell process in chlorine production, where separately prepurified brine is not used.				
K073			K073	10
Chlorinated hydrocarbon waste from the purification step of the diaphragm cell process using graphite anodes in chlorine production.				
K083			K083	100
Distillation bottoms from aniline extraction.				
K084			K084	1
Wastewater treatment sludges generated during the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.				
K085			K085	10
Distillation or fractionation column bottoms from the production of chlorobenzenes.				
K086			K086	#
Solvent washes and sludges, caustic washes and sludges, or water washes and sludges from cleaning tubs and equipment used in the formulation of ink from pigments, driers, soaps, and stabilizers containing chromium and lead.				
K087			K087	100
Decanter tank tar sludge from coking operations.				
K088			K088	
Spent potliners from primary aluminum reduction.				
K090			K090	
Emission control dust or sludge from ferrochromiumsilicon production.				
K091			K091	
Emission control dust or sludge from ferrochromium production.				
K093			K093	5000
Distillation light ends from the production of phthalic anhydride from ortho-xylene.				

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
K094			K094	5000
Distillation bottoms from the production of phthalic anhydride from ortho-xylene.				
K095			K095	100
Distillation bottoms from the production of 1,1,1-trichloroethane.				
K096			K096	100
Heavy ends from the heavy ends column from the production of 1,1,1-trichloroethane.				
K097			K097	1
Vacuum stripper discharge from the chlordane chlorinator in the production of chlordane.				
K098			K098	1
Untreated process wastewater from the production of toxaphene.				
K099			K099	10
Untreated wastewater from the production of 2,4-D.				
K100			K100	#
Waste leaching solution from acid leaching of emission control dust/sludge from secondary lead smelting.				
K101			K101	1
Distillation tar residues from the distillation of aniline-based compounds in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.				
K102			K102	1
Residue from the use of activated carbon for decolorization in the production of veterinary pharmaceuticals from arsenic or organo-arsenic compounds.				
K103			K103	100
Process residues from aniline extraction from the production of aniline.				
K104			K104	10
Combined wastewater streams generated from nitrobenzene/aniline production.				
K105			K105	10
Separated aqueous stream from the reactor product washing step in the production of chlorobenzenes.				
K106			K106	1
Wastewater treatment sludge from the mercury cell process in chlorine production.				
K107			K107	10
Column bottoms from product separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazines.				
K108			K108	10
Condensed column overhead from product separation and condensed reactor vent gases from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.				
K109			K109	10
Spent filter cartridges from product purification from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.				
K110			K110	10
Condensed column overheads from intermediate separation from the production of 1,1-dimethylhydrazine (UDMH) from carboxylic acid hydrazides.				

(continued)

Table 4-1 (continued)

Hazardous Waste/Substances	CAS No.[1]	Threshold Planning Quantity (pounds)	USEPA Waste Number	RQ (pounds)[2]
K111			K111	10
Product washwaters from the production of dinitrotoluene via nitration of toluene.				
K112			K112	10
Reaction by-product water from the drying column in the production of toluenediamine via hydrogenation of dinitrotoluene.				
K113			K113	10
Condensed liquid light ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.				
K114			K114	10
Vicinais from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.				
K115			K115	10
Heavy ends from the purification of toluenediamine in the production of toluenediamine via hydrogenation of dinitrotoluene.				
K116			K116	10
Organic condensate from the solvent recovery column in the production of toluene disocyanate via phosgenation of toluenediamine.				
K117			K117	1
Wastewater from the reaction vent gas scrubber in the production of ethylene bromide via bromination of ethene.				
K118			K118	1
Spent absorbent solids from purification of ethylene dibromide in the production of ethylene dibromide.				
K123			K123	10
Process wastewater (including supermates, filtrates, and washwaters) from the production of ethylenebisdithiocarbamic acid and its salts.				
K124			K124	10
Reactor vent scrubber water from the production of ethylene-bisdithiocarbamic acid and its salts.				
K125			K125	10
Filtration, evaporation, and centrifugation solids from the production of ethylene-bisdithiocarbamic acid and its salts.				
K126			K126	10
Baghouse dust and floor sweepings in milling and packaging operations from the production or formulation of ethylene-bisdithiocarbamic acid and its salts.				
K131			K131	100
Wastewater from the reactor and spent sulfuric acid from the acid dryer in the production of methyl bromide.				
K132			K132	1000
Spent absorbent and wastewater solids from the production of methyl bromide.				
K136			K136	1
Still bottoms from the purification of ethylene dibromide in the production of ethylene dibromide via bromination of ethene.				

(continued)

Table 4-1 (continued)

1. Chemical Abstract Service (CAS) Registry Number.

2. Reportable Quantity (RQ) release that requires notification (see Section 8, *Petroleum, Oil, and Lubricant (POL) Management*).

++ No reporting of releases of this hazardous substance is required if the diameter of the pieces of the solid metal released is equal to or exceeds 100 μm (0.004 in.).

+++ The RQ for asbestos is limited to friable forms only.

1* Indicates that the 1-lb [0.37 kg] RQ is a statutory RQ.

** Indicates that no RQ is being assigned to the generic or broad class.

# Indicates that the RQ is subject to change when the assessment of potential carcinogenicity is completed.

The statutory RQ for this hazardous substance may be adjusted in a future rulemaking; until then, the statutory RQ applies.

Table 4-2

List of Specially Controlled Industrial Wastes

(FGS-Japan Table 6-5)

Types	Sources (Facilities)	Applicability and Maximum Limits
1. Waste oil (ignitable petroleum waste)		Gasoline, kerosene and diesel oil industrial waste
2. Waste acid		pH less than 2.0
3. Waste alkali		pH greater than 12.5
4. Infectious industrial waste	Hospital, clinic, laboratory, health care center for the elderly, facilities dealing with infectious pathogen, midwife centers, governmental, academic and corporation R&D centers related to medicine, dentistry, pharmacy, and veterinary	Infectious waste (waste which contains or is suspected to contain infectious pathogen); also sludge, waste oil, waste acid, waste alkali, waste plastic, rubbers, waste metal, waste glass, or waste
5. Waste PCBs		Waste PCBs and PCB-contaminated waste oil
6. PCB-contaminated substances		(PCB coated) paper trash or PCB stained or impregnated waste plastics or metals
7. Designated sewerage sludge		Alkyl mercury trace Mercury 0.005 mg/L Cadmium 0.3 mg/L Lead 3 mg/L Organic Phosphorous 1 mg/L Chromium (VI) 1.5 mg/L Arsenic 1.5 mg/L Cyanogen 1 mg/L PCB 0.003 mg/L Trichloroethylene 0.3 mg/L Tetrachloroethylene 0.1 mg/L
Substances treated for disposal (waste acid or waste alkali)		Alkyl mercury trace Mercury 0.05 mg/L Cadmium 1 mg/L Lead 10 mg/L Organic Phosphorous 1 mg/L Chromium (VI) 5 mg/L Arsenic 5 mg/L Cyanogen 1 mg/L PCB 0.03 mg/L Trichloroethylene 3 mg/L Tetrachloroethylene 1 mg/L

(continued)

Table 4-2 (continued)

Types	Sources (Facilities)	Applicability and Maximum Limits	
Substances treated for disposal (other than waste acids or waste alkali)		Alkyl mercury Mercury Cadmium Lead Organic Phosphorous Chromium (VI) Arsenic Cyanogen PCB Trichloroethylene Tetrachloroethylene	trace 0.005 mg/L 0.3 mg/L 3 mg/L 1 mg/L 1.5 mg/L 1.5 mg/L 1 mg/L 0.003 mg/L 0.3 mg/L 0.1 mg/L
8. Slag		Alkyl mercury Mercury Cadmium Lead Chromium (VI) Arsenic	trace 0.005 mg/L 0.3 mg/L 3 mg/L 1.5 mg/L 1.5 mg/L
Substances treated for disposal (waste acids or waste alkalis)		Alkyl mercury Mercury Cadmium Lead Chromium (VI) Arsenic	trace 0.05 mg/L 1 mg/L 10 mg/L 5 mg/L 5 mg/L
Substances treated for disposal (waste acids and waste alkalis)		Alkyl mercury Mercury Cadmium Lead Chromium (VI) Arsenic	trace 0.005 mg/L 0.3 mg/L 3 mg/L 1.5 mg/L 1.5 mg/L
9. Waste asbestos (dispersing substances)	Asbestos construction material removal operation	Sprayed asbestos, asbestos insulating material, diatomaceous earth, perlite insulating material, insulating material that might cause asbestos to scatter by vibration, air currents, and contact, asbestos removal equipment	
	Specified particulate matter facility	Substances collected by a dust collection facility at a specified dust facility, equipment used at the specified particulate matter facility	

(continued)

Table 4-2 (continued)

Types	Sources (Facilities)	Applicability and Maximum Limits	
10. Soot and smoke (mercury)	(Air Law Annexed Table 1) 03 Metal refining calciner 05 Metal smelting furnace 10 Inorganic chemical reactive furnace 11 Drying oven	Alkyl mercury Mercury	trace 0.005 mg/L
Substances treated for disposal	(Waste acids and waste alkalis)	Alkyl mercury Mercury	trace 0.05 mg/L
	(other than above)	Alkyl mercury Mercury	trace 0.005 mg/L
11. Soot and smoke (cadmium)	(Air Law Annexed Table 1) 03 Metal refining calciner 05 Metal smelting furnace 09 Charcoal oven 10 Inorganic industrial reaction oven 11 Drying oven 12 Electric iron manufacturing oven 14 Copper calciner 15 Cadmium carbon drying facility 21 Oven reaction facility 23 Oven reaction facility	Cadmium	0.3 mg/L
Ash or soot (cadmium)	Waste plastic incineration facility		
Substances treated for disposal	(waste acids and waste alkalis)	Cadmium	1 mg/L
	(other than above)	Cadmium	0.3 mg/L
12. Soot (lead)	(Air Law Annexed Table 1) 05 Metal smelting oven 09 Charcoal incinerator 10 Inorganic chemical reaction incinerator 11 Drying oven 12 Electric iron manufacturing 14 Copper calciner 24 Lead smelting oven 25 Lead storage battery smelting oven 26 Lead carbon smelting oven	Lead	1 mg/L
Ash or soot (lead)	Waste plastic incineration facility		
Substances treated for disposal	(Waste acids and waste alkalis)	Lead	10 mg/L
	(other than above)	Lead	3 mg/L

(continued)

Table 4-2 (continued)

Types	Sources (Facilities)	Applicability and Maximum Limits
13. Soot (chromium VI)	(Air Law Annexed Table 1) 03 Metal calciner 10 Inorganic chemical reaction incinerator 11 Drying oven 12 Electric iron manufacturing oven	Chromium (VI) 1.5 mg/L
Ash or soot and smoke (chromium VI)	Waste plastic incineration facility Industrial waste incineration facility	
Substances treated for disposal	(Waste acids and waste alkalis)	Chromium (VI) 5 mg/L
	(other than above)	Chromium (VI) 1.5 mg/L
14. Soot and smoke (arsenic)	(Air Law Annexed Table 1) 03 Metal calciner 09 Kiln product 10 Inorganic chemical reaction oven 11 Drying oven 14 Copper calciner 24 Lead smelting oven	Arsenic 1.5 mg/L
Ash or soot (arsenic)	Industrial waste incineration facility	
Substances treated for disposal	(Waste acids and alkalis)	Arsenic 5 mg/L
	(other than above)	Arsenic 1.5 mg/L
15. Waste oil (trichloroethylene)	(Water Law Annexed Table 1) 19-a Drying facility such as cloth 19-b Chemical liquid penetration facility such as a cotton mill 23-2 Developing solution facility such as newspapers 41-c Perfume extracting facility 47-d Medical industry mixing facility 50 Sample manufacturing facility using trichloroethylene 51-a Lubricating oil cleaning facility for the oil industry 66 Electroplating facility 67 Laundry facility 71-2-f Laundry facility for science and technology research centers Trichloroethylene service treatment facility	
Substances treated for disposal	(Waste oil)	Waste solvents (limited to tetrachloroethylene)
	(Waste acids and alkalis)	Tetrachloroethylene 1 mg/L
	(other than above)	Tetrachloroethylene 0.1 mg/L

(continued)

Table 4-2 (continued)

Types	Sources (Facilities)	Applicability and Maximum Limits	
17. Sludge, waste acids, and waste alkalis (mercury)	(Water Pollution Control Law) 25 Mercury electrolysis caustic soda manufacturing 26-a Nonorganic cosmetic manufacturing cleaning facilities 26-b Nonorganic cosmetic filtering facilities 26-c Nonorganic cosmetic waste gas cleaning facility 27-d Nonorganic chemical product filtering facility 27-e Nonorganic chemical product centrifuge facility 27-f Nonorganic chemical product waste gas cleaning facility 27-g Nonorganic chemical wet soot and dust facility 28 Carbide acetylene induction vinyl chloride monomer cleaning facility 46-a Organic chemical production water cleaning facility 46-b Organic chemical production filtering facility 46-c Organic chemical production waste gas cleaning facility 47-d Medical product filtering facility 47-e Medical product separating facility 47-f Medical product mixing facility 47-g Medical product waste gas cleaning facility 63-h Metal product mercury refining facility 63-i Metal product manufacturing mercury refining facility 63-j Metal product waste gas cleaning facility 71-2-a Science technology center research facilities acetylene refining facility	(Sludge) Alkyl mercury Mercury (Waste acids and alkalis) Alkyl mercury Mercury	 trace 0.005 mg/L trace 0.05 mg/L
Substances treated for disposal	(Waste acids and alkalis)	Alkyl mercury Mercury	trace 0.05 mg/L
	(other than above)	Alkyl mercury Mercury	trace 0.005 mg/L

(continued)

Table 4-2 (continued)

Types	Sources (Facilities)	Applicability and Maximum Limits	
18. Sludge, waste acids and alkalis (cadmium)	(Water Law Annexed Table 1) 26-a Nonorganic cosmetic production cleaning facility 26-b Nonorganic cosmetic production filtering facility 26-c Nonorganic cosmetic production (cadmium type) centrifuge machine 26-d Nonorganic cosmetic production waste gas cleaning facility 27-a Nonorganic chemical production filtering facility 27-b Nonorganic chemical product centrifuge machine 27-c Nonorganic chemical production waste gas cleaning facility 27-d Nonorganic chemical production chemical wet-dust collecting facility 37-a Petrochemical acetaldehyde distillation facility 37-b Petrochemical gas cleaning facility 43 Photo sensitizer cleaning facility 46-a Organic chemical products cleaning facility 46-b Organic chemical product filtering facility 46-c Organic chemical product organic gas cleaning facility 50 Cadmium sample manufacturing facility 53 Glass product manufacturing 58 Kiln raw material refining industry 62-a Noniron and metal production waste gas cleaning facility 62-b Noniron and metal production wet-dust collection facility 63-c Metal product manufacturing cadmium electrode facility 63-d Metal product waste gas cleaning facility 65 Acid and alkali surface treatment facility 66 Electroplating facility 68 Photo developing cleaning facility 71-2-a Science and technology research center cleaning facility	(Sludge) Cadmium (Waste acids and waste alkalis) Cadmium	 0.3 mg/L 1 mg/L
Substances treated for disposal	(Waste acids and waste alkalis)	Cadmium	1 mg/L
	(other than above)	Cadmium	0.3 mg/L

(continued)

Table 4-2 (continued)

Types	Sources (Facilities)	Applicability and Maximum Limits
19. Sludge, waste acid, waste alkali (lead)	(Water Law Annexed Table 1) 26-a Nonorganic cosmetic production cleaning facility 26-b Nonorganic cosmetic production filtering facility 26-c Nonorganic cosmetic production (cadmium type) centrifuge machine 26-d Nonorganic cosmetic production waste gas cleaning facility 27-a Nonorganic chemical production filtering facility 27-b Nonorganic chemical production centrifuge machine 27-c Nonorganic chemical production waste gas cleaning facility 27-d Nonorganic chemical production wet-dust collecting facility 46-a Organic chemical product water cleaning facility 46-b Organic chemical product filtering facility 46-c Organic chemical product waste gas cleaning facility 47-c Medical product filtering facility 47-d Medical product separating facility 47-e Medical product mixing facility 47-f Medical product waste gas cleaning facility 49 Agrochemical mixing facility 50 Lead sample manufacturing facility 53 Glass product manufacturing 58 Kiln raw material refining industry 62-a Noniron and metal product electrolysis facility 62-b Noniron and metal waste gas cleaning facility 62-c Noniron and metal dust collecting facility 63-a Metal product cadmium electrode facility 63-b Metal product gas cleaning facility 65 Acid and alkali surface treatment facility 66 Electroplating facility 71-2 Science and technology center cleaning facility Trinitrorescorin lead manufacturing facility	(Sludge) Lead 3 mg/L (Waste acid and alkali) Lead 10 mg/L

(continued)

Table 4-2 (continued)

Types	Sources (Facilities)	Applicability and Maximum Limits	
Substances treated for disposal	(Waste acid and waste alkali)	Lead	10 mg/L
	(other than above)	Lead	3 mg/L
20. Sludge, waste acid, and waste alkali (organic phosphorous compounds)	(Water Law Annexed Table 1) 46-a Organic chemical product water cleaning facility 46-b Organic chemical product filtering facility 46-c Organic chemical product waste gas cleaning facility 49 Agrochemical product mixing facility 50 Organic phosphorous sample manufacturing facility 71-2-a Science and technology research center cleaning facility	(Sludge) Organic phosphorous (Waste and waste alkali) Organic phosphorous	 1 mg/L 1 mg/L
Substances treated for disposal	(Waste acids and waste alkalis)	Organic phosphorous	1 mg/L
	(other than above)	Organic phosphorous	1 mg/L

(continued)

Table 4-2 (continued)

Types	Sources (Facilities)	Applicability and Maximum Limits	
21. Sludge, waste acids, and waste alkalis (chromium (VI) compounds)	(Water Law Annexed Table 1) 19-d Cotton mill drying facility 22-b Timber and drug treatment chemical liquid penetration facility 26-a Nonorganic cosmetic manufacturing cleaning facility 26-b Nonorganic cosmetic manufacturing filtering facility 26-c Nonorganic cosmetic manufacturing waste gas cleaning facility 27-a Nonorganic chemical product filtering facility 27-b Nonorganic chemical product centrifuge machine 27-c Nonorganic chemical product waste gas cleaning facility 27-d Nonorganic chemical product wet-dust collection facility 32 Organic cosmetic manufacturing 46-a Organic chemical product water cleaning facility 46-b Organic chemical product filtering facility 46-c Organic chemical product waste gas cleaning facility 47-a Medical product filtering facility 47-b Medical product separating facility 47-c medical product mixing facility 47-d medical product waste gas cleaning facility 50 6-chrome sample manufacturing facility 63-a Metal product electrolysis cleaning facility 63-b Metal product waste gas cleaning facility 65 Acid and alkali surface treating facility 66 Electroplating facility 71-2 Science and technology research center cleaning facility	(Sludge) Chromium (VI) (Waste acids and waste alkalis) Chromium (VI)	 1.5 mg/L 5 mg/L
Disposal facility treatment substances	(Waste acids and waste alkalis)	Chromium (VI)	5 mg/L
	(other than above)	Chromium (VI)	1.5 mg/L

(continued)

Table 4-2 (continued)

Types	Sources (Facilities)	Applicability and Maximum Limits
22. Sludge, waste acids, and waste alkalis (arsenic)	(Water law Annexed Table 1) 22 Timber and drug treatment chemical liquid penetration facility 24 Chemical fertilizer manufacturing 27-a Nonorganic chemical manufacturing cleaning facility 27-b Nonorganic chemical manufacturing filtering facility 27-c Nonorganic chemical manufacturing waste gas cleaning facility 27-d Nonorganic chemical manufacturing wet-dust collection facility 47-b Medical product filtering facility 47-c Medical product separating facility 47-d Medical product mixing facility 47-e Medical product waste gas cleaning facility 50 arsenic sample manufacturing facility 62-a Noniron and metal reverse facility 62-b Noniron and metal electrolysis facility 62-c Noniron and metal waste gas cleaning facility 62-d Noniron and metal wet-dust collection facility 65 Acid and alkali surface treatment facility 66-2 Hotel bath facility 71-2-a Science and technology research center cleaning facility	(Sludge) Arsenic 1.5 mg/L (Waste acids and waste alkalis) Arsenic 5 mg/L
Substances treated for disposal	(Waste acids and waste alkalis)	Arsenic 5 mg/L
	(other than above)	Arsenic 1.5 mg/L

(continued)

Table 4-2 (continued)

Types	Sources (Facilities)	Applicability and Maximum Limits
23. Sludge, waste acids, and waste alkalis (cyanogens)	(Water Law Annexed Table 1) 26-a Nonorganic cosmetic manufacturing cleaning facility 26-b Nonorganic cosmetic manufacturing filtering facility 26-c Nonorganic cosmetic manufacturing waste gas cleaning facility 27-a Nonorganic chemical product filtering facility 27-b non-organic chemical product centrifuge machine 27-c Nonorganic chemical product (cyanide) reaction facility 27-d Nonorganic chemical product waste gas cleaning facility 28 Carbide wet acetylene gas facility 32-a Organic cosmetic manufacturing filtering facility 32-b Organic cosmetic manufacturing water cleaning facility 32-c organic cosmetic manufacturing centrifuge machine 32-d Organic cosmetic manufacturing waste gas cleaning facility 33-b Synthetic resin manufacturing water cleaning facility 33-c Synthetic resin manufacturing centrifuge machine 33-d Synthetic resin manufacturing waste gas cleaning machine 34-c Synthetic rubber manufacturing water cleaning facility 34-d Synthetic rubber manufacturing concentrated latex facility 34-e Synthetic rubber manufacturing sedimentation facility 37-d Petrochemical rapid cooling facility for acrylic nitrite 37-e Petrochemical reaction facility for methyl methacrylic monomer 46-a Organic chemical product water cleaning facility 46-b Organic chemical product filtering system 46-c Organic chemical product waste gas facility	(Sludge) Cyanogen 1 mg/L (Waste acids and waste alkalis) Cyanogen 1 mg/L

(continued)

Table 4-2 (continued)

Types	Sources (Facilities)	Applicability and Maximum Limits	
	47-b Medical product filtering facility 47-c Medical product separating facility 47-d Medical product mixing facility 47-e Medical product waste gas cleaning facility 50 Cyanogen compound sample manufacturing facility 61-a Steel industry coke and gas/liquid separators 63-a Metal product hardening facility 63-b Metal product electrolysis cleaning facility 64 Gas supply industry 66 Electroplating industry 68 Film developing cleaning facility 71-2 Science and technology research center		
Substances treated for disposal	(Waste acids and waste alkalis)	Cyanogen	1 mg/L
	(other than above)	Cyanogen	1 mg/L
24. Sludge, waste acids, and waste alkalis (PCBs)	(Water Law Annexed Table 1) 23-a Pulp manufacturing raw material bath facility 23-b Pulp manufacturing distillation facility 23-c Pulp manufacturing distillation waste liquid concentrating facility 23-d Pulp manufacturing chip cleaning facility 23-e Pulp manufacturing bleaching facility 23-f Pulp manufacturing paper machine facility 23-g Pulp manufacturing wet fabric press board facility 23-h Pulp manufacturing waste gas cleaning facility 71-2-a Science and technology research center cleaning facility	(Sludge) PCBs (Waste acids and waste alkalis) PCBs	 0.003 mg/L 0.003 mg/L
Substances treated for disposal	(Waste acids and waste alkalis)	PCBs	0.003 mg/L
	(other than above)	PCBs	0.003 mg/L

(continued)

Table 4-2 (continued)

Types	Sources (Facilities)	Applicability and Maximum Limits	
25. Sludge, waste acids, and waste alkalis (trichloroethylene)	(Water Law Annexed Table 1) 19-f Cotton mill drying facility 19-g Cotton mill chemical liquid penetration facility 23-2 Paper companies, etc. 31 Methane induction (freon gas) manufacturing cleaning facility 32 Organic cosmetic manufacturing facility 33-e Synthetic resin (fluorine resin) manufacturing gas 37-a Petrochemical cleaning facility 37-b Petrochemical separation facility 37-c Petrochemical filtration facility 37-d Petrochemical waste gas cleaning facility 41 Perfume extracting facility 46-a Organic chemical product water cleaning facility 46-b Organic chemical product filtration facility 46-c Organic chemical product waste gas cleaning facility 47-d Medical product mixing facility 50 Trichloroethylene sample manufacturing facility 51-e Oil refining manufacture lubricating oil cleaning facility 65 Electroplating facility 67 Laundry facility 71-2-a Science and technology research center cleaning facility Oil product distillation facility Waste oil distillation facility Trichloroethylene surface treatment facility	(Sludge) Trichloroethylene (Waste acids and waste alkalis) Trichloroethylene	 0.3 mg/L 3 mg/L
Substances treated for disposal	(Waste acids and waste alkalis)	Trichloroethylene	3 mg/L
	(other than above)	Trichloroethylene	0.3 mg/L

(continued)

Table 4-2 (continued)

Types	Sources (Facilities)	Applicability and Maximum Limits
26. Sludge, waste acids and waste alkalis (tetrachloroethylene)	(Water Law Annexed Table 1) 19-e Cotton mill drying facility 19-f Cotton mill chemical liquid infiltration system 23-2 Newspaper industry 31-c Methane inducing identification (fluonne gas manufacturing) cleaning facilities 32 Organic cosmetic manufacturing 33-e Synthetic resins (fluorine resins) gas cooling cleaning facility and distillation facility 34-a Synthetic rubber filtration facility 34-b Synthetic rubber dehydration facility 34-c Synthetic rubber water cleaning facility 34-d Synthetic rubber manufacturing latex facility 37-a Petrochemical cleaning facility 37-b Petrochemical separation facility 37-c Petrochemical filtrating system 37-d Petrochemical waste gas cleaning facility 41-b Perfume extracting facility 46-a Organic chemical product water cleaning facility 46-b Organic chemical product filtering facility 46-c Organic chemical product waste gas cleaning facility 47 Medical product mixing facility 50 Tetrachloroethylene sample manufacturing facility 66 Electroplating facility 68 Laundry facility 71-2-a Science and research center cleaning facility Oil product distillation facility Waste oil distillation facility Tetrachloroethylene surface treatment facility	(Sludge) Tetrachloroethylene 0.1 mg/L (Waste acids and waste alkalis) Tetrachloroethylene 1 mg/L
Substances treated for disposal	(Waste acids and waste alkalis)	Tetrachloroethylene 1 mg/L
	(other than above)	Tetrachloroethylene 0.1 mg/L

Table 4-3

Commercial Chemical Products or Manufacturing Chemical Intermediates Identified as Toxic Wastes

(40 CFR 261.33, 8 May 1990)

(NOTE: Primary hazardous properties of these materials are indicated by the letter (t) (toxicity), (r) (reactivity), (i) (ignitability), and (c) (corrosivity); absence of a letter indicates that the compound is listed only for acute toxicity.)

USEPA Hazardous Waste No.	Substance
U001	acetaldehyde (i)
U034	acetaldehyde, trichloro-
U187	acetamide, N-(4-ethoxyphenyl)-
U005	acetamide, N-9H-fluoren-2-y1-
U240	acetic acid, (2,4-dichlorophenoxy)-, salts and esters
U112	acetic acid, ethyl ester (i)
U144	acetic acid, lead(2+) salt
U214	acetic acid, thallium(1+) salt
see F027	acetic acid, (2,4,5-trichlorophenoxy)-
U002	acetone (i)
U003	acetonitrile (i,t)
U004	acetophenone
U005	2-acetylaminoflourene
U006	acetyl chloride (c, r, t)
U007	acrylamide
U008	acrylic acid (i)
U009	acrylonitrile
U011	amitrole
U012	aniline (i, t)
U136	arsenic acid, dimethyl-
U014	auramine
U015	azaserine

(continued)

Table 4-3 (continued)

USEPA Hazardous Waste No.	Substance
U010	azirino(2,3,3,4(pyrrolo(1,2-a)indole -4,7-dione, 6-amino-8-[((aminocarbonyl) oxy)methyl]-1,1a,2,8,8a,8b- hexahydro-8a-methoxy-5-methyl-,
U157	benz[j]aceanthrylene, 1,2-dihydro-3- methyl-
U016	benza[c]ridine
U017	benzal chloride
U192	benzamide, 3,5-dichloro-n- (1,1-diethyl-2-propynyl-
U018	benz[a]anthracene
U094	1,2-benzanthracene, 7,12-dimethyl-
U012	benzenamine (i,t)
U014	benzenamine, 4,4-carbonimidoylbis(N,N- dimethyl-
U049	benzenamine, 4-chloro-2-methyl-, hydrochloride
U093	benzenamine, N,N-dimethyl-4- (phenylazo)-
U328	benzenamine, 2-methyl-
U353	benzenamine, 4-methyl-
U158	benzenamine, 4,4-methylenebis(2-chloro-
U222	benzenamine, 2-methyl-, hydrochloride
U181	benzenamine, 2,-methyl-5-nitro
U019	benzene (i, t)
U038	benzeneacetic acid, 4-chloro-alpha- (4-chlorophenyl)-alpha-hydroxy, ethyl ester
U030	benzene, 1-bromo-4-phenoxy-
U035	benzenebutanoic acid, 4-[bis (2-chloroethyl)amino]-
U037	benzene, chloro-
U221	benzenediamine, ar-methyl-
U028	1,2-benzendicarboxylic acid, [bis(2-ethyl-hexyl)]ester

(continued)

Table 4-3 (continued)

USEPA Hazardous Waste No.	Substance
U069	1,2-benzenedicarboxylic acid, dibutyl ester
U088	1,2-benzenedicarboxylic acid, diethyl ester
U102	1,2-benzendicarboxylic acid, dimethyl ester
U107	1,2-benzenedicarboxylic acid, dioctyl ester
U070	benzene, 1,2-dichloro-
U071	benzene, 1,3-dichloro-
U072	benzene, 1,4-dichloro-
U060	benzene, 1,1'-(2,2-dichloroethylidene) bis[4-chloro-
U017	benzene, (dichloromethyl)-
U223	benzene, 1,3-diisocyanatomethyl-(r,t)
U239	benzene, dimethyl-(i,t)
U201	1,3-benzenediol
U127	benzene, hexachloro-
U056	benzene, hexahydro- (i)
U220	benzene, methyl-
U105	benzene, 1-methyl-2,4-dinitro-
U106	benzene, 2-methyl-1,3-dinitro-
U055	benzene, (1-methylethyl)-(i)
U169	benzene, nitro- (i,t)
U183	benzene, pentachloro-
U185	benzene, pentachloronitro-
U020	benzenesulfonic acid chloride (c,r)
U020	benzenesulfonyl chloride (c,r)
U207	benzene, 1,2,4,5-tetrachloro-
U061	benzene, 1,1'-(2,2,2-trichloroethylidene) bis[4-chloro
U247	benzene, 1,1'(2,2,2-trichloroethylidene)[4-methoxy-

(continued)

Table 4-3 (continued)

USEPA Hazardous Waste No.	Substance
U023	benzene, (trichloromethyl)-
U234	benzene, 1,3,5-trinitro-
U021	benzidine
U202	1,2-benzisothiazolin-3-one, 1,1-dioxide and salts
U203	1,3-benzodioxole, 5-(2-propenyl)-
U141	1,3-benzodioxole, 5-(1-propenyl)-
U090	1,3-benzodioxole, 5-propyl-
U064	benzo[rst]pentaphene
U248	2-H-1-benzopyran-2-on2, 4-hydroxy-3-(3-oxo-1-phenylbutyl)-, and salts, when present at concentrations of 0.3% or less
U022	benzo[a]pyrene
U197	p-benzoquinone
U023	benzotrichloride (c,r,t)
U085	2,2-bioxirane (i,t)
U021	(1,1-biphenyl)-4,4-diamine
U073	(1,1-biphenyl)-4,4-diamine, 3,3-dichloro
U091	(1,1-biphenyl)-4,4-diamine, 3,3-dimethoxy-
U095	(1,1-biphenyl)4,4-diamine, 3,3-dimethyl-
U225	bromoform
U030	4-bromophenyl phenyl ether
U128	1,3-butadiene, 1,1,2,3,4,4-hexachloro
U172	1-butanamine, N-butyl-N-nitroso-
U031	1-butanol (i)
U159	2-butanone (i,t)
U160	2-butanone peroxide (r,t)
U053	2-butenal

(continued)

Table 4-3 (continued)

USEPA Hazardous Waste No.	Substance
U074	2-butene, 1,4-dichloro- (i,t)
U143	2-butenoic acid, 2-methyl-, 7-[(2,3-dihydroxy-2-(1-methoxyethyl) -3-methyl-1-oxobutoxy)methyl] -2,3,5,7s-yrytshyfto-1-pyrrolizin-1-yl ester, [1S-[alpha(Z),7(2S,3R), 7aalpha]]-
U031	n-Butyl alcohol (i)
U136	cacodylic acid
U032	calcium chromate
U238	carbamic acid, ethyl ester
U178	carbamic acid, methylnitroso-ethyl ester
U097	carbamic chloride, dimethyl-
U114	carbamodithioic acid, 1,2-ethanediylbis-, salts and esters
U062	carbamothioic acid, bis(1-methylethyl)-S-(2,3-dichloro-2-propenyl) ester
U215	carbonic acid, dithallium(1+)salt
U033	carbonic difluoride
U156	carbonochlorodic acid, methyl ester (i,t)
U033	carbon oxyfluoride (r,t)
U211	carbon tetrachloride
U034	chloral
U035	chlorambucil
U036	chlordane, alpha and gamma isomers
U026	chlomaphazine
U037	chlorobenzene
U039	p-chloro-m-cresol
U041	1-chloro-2,3-epoxypropane

(continued)

Table 4-3 (continued)

USEPA Hazardous Waste No.	Substance
U042	2-chloroethyl vinyl ether
U044	chloroform
U046	chloromethyl methyl ether
U047	beta-chloronaphthalene
U048	o-chlorophenol
U049	4-chloro-o-toluidine, hydrochloride
U032	chromic acid H2CrO4, calcium salt
U050	chrysene
U051	creosote
U052	cresols (cresylic acid)
U053	crotonaldehyde
U055	cumene (i)
U246	cyanogen bromide
U197	2,5-cyclohexadiene-1, 4-dione
U056	cyclohexane (i)
U129	cyclohexane 1,2,3,4,5,6-hexachloro-, (1alpha, 2alpha, 3beta, 4alpha, 6beta)-
U057	cyclohexanone (i)
U130	1,3-cyclopentadiene, 1,2,3,4,5,5-hexachloro-
U058	cyclophosphamide
U240	2,4-d, salts and esters
U059	daunomycin
U060	ddd
U061	ddt
U062	diallate
U063	dibenz[a,h]anthracene
U064	dibenzo[a,i]pyrene
U066	1,2-dibromo-3-chloropropane
U069	dibutyl phthalate
U070	o-Dichlorobenzene
U071	m-Dichlorobenzene

(continued)

Table 4-3 (continued)

USEPA Hazardous Waste No.	Substance
U072	p-Dichlorobenzene
U073	3,3'-dichlorobenzidine
U074	1,4-dichloro-2-butene (i,t)
U075	dichlorodifluoromethane
U078	1,1-dichloroethylene
U079	1,2-dichloroethylene
U025	dichloroethyl ether
U027	dichloroisopropyl ether
U024	dichloromethoxy ethane
U081	2,4-dichlorophenol
U082	2,6-dichlorophenol
U084	1,3-dichlorpropene
U085	1,2:3,4-diepoxybutane (i, t)
U108	1,4-diethyleneoxide
U028	diethylhexyl phthalate
U086	N,N-diethylhydrazine
U087	O,O-diethyl-s-methyl dithiophosphate
U088	diethyl phthalate
U089	diethylstilbestrol
U090	dihydrosafrole
U091	3,3'-dimethoxybenzidine
U092	dimethylamine (i)
U093	dimethylaminoazobenzene
U094	7,12-dimethylbenz[a]anthracene
U095	3,3-dimethylbenzidine
U096	alpha,alpha-dimethylbenzylhydroperox-ide (r)
U097	dimethylcarbamoyl chloride
U098	1,1-dimethylhydrazine
U099	1,2-dimethylhydrazine
U101	2,4-dimethylphenol
U102	dimethyl phthalate
U103	dimethyl sulfate

(continued)

Table 4-3 (continued)

USEPA Hazardous Waste No.	Substance
U105	2,4-dinitrotoluene
U106	2,6-dinitrotoluene
U107	di-n-octyl phthalate
U108	1,4-dioxane
U109	1,2-diphenylhydrazine
U110	dipropylamine (i)
U111	di-n-propylnitrosamine
U041	epichlorhydrin
U001	ethanal (i)
U174	ethanamine, N-ethyl-N-nitroso-
U155	1,2-ethanediamine, n,n-dimethyl-n'-2-pyridinyl-n'-(2-thienylmethyl)-
U067	ethane, 1,2-dibromo-
U076	ethane, 1,1-dichloro-
U077	ethane, 1,2-dichloro-
U131	ethane, hexachloro-
U024	ethane, 1,1-[methylenebis(oxy)] bis[2-chloro-
U117	ethane, 1,1-oxybis- (i)
U025	ethane 1,1-oxybis[2-chloro-
U184	ethane, pentachloro-
U208	ethane, 1,1,1,2-tetrachloro-
U209	ethane, 1,1,2,2-tetrachloro-
U218	ethanethioamide
U359	ethane, 1,1,2-trichloro-
U173	ethanol 2,2'-(nitrosoimino)bis- 2,2'-(nitrosoimino)bis-
U004	ethanone, 1-phenyl-
U043	ethene, chloro-
U042	ethene, (2-chloroethoxy-)
U078	ethene, 1,1-dichloro-
U079	ethene, 1,2-dichloro- (e)
U210	ethene, tetrachloro-

(continued)

Table 4-3 (continued)

USEPA Hazardous Waste No.	Substance
U228	ethene, trichloro
U112	ethyl acetate (i)
U113	ethyl acrylate (i)
U238	ethyl carbamate (urethane)
U117	ethyl ether (i)
U114	ethylenebisdithiocarbamic acid, salts and esters
U067	ethylene dibromide
U077	ethylene dichloride
U359	ethylene glycol monoethyl ether
U115	ethylene oxide (i,t)
U116	ethylenethiourea
U076	ethylidene dichloride
U118	ethyl methacrylate
U119	ethyl methanesulfonate
U120	fluoranthene
U122	formaldehyde
U123	formic acid (c,t)
U124	furan (i)
U125	2-furancarboxaldehyde (i)
U147	2,5-furandione
U213	furan, tetrahydro- (i)
U125	furfural (i)
U124	furfuran (i)
U206	glucopyranose, 2-deoxy-2 (3-methyl-3-nitrosoureido)-
U126	glycidylaldehyde
U163	guanidine, N-methyl-N'-nitro- N-nitroso-
U127	hexachlorobenzene
U128	hexachlorobutadiene
U130	hexachlorocyclopentadiene
U131	hexachloroethane

(continued)

Table 4-3 (continued)

USEPA Hazardous Waste No.	Substance
U132	hexachlorophene
U243	hexachloropropene
U133	hydrazine (r,t)
U086	hydrazine, 1,2-diethyl-
U098	hydrazine, 1,1-dimethyl-
U099	hydrazine, 1,2-dimethyl-
U109	hydrazine, 1,2-diphenyl-
U134	hydrofluoric acid (c,t)
U134	hydrogen fluoride (c,t)
U135	hydrogen sulfide
U096	hydroperoxide, 1-methyl-1-phenylethyl- (r)
U116	2-imidazolidinethione
U137	indeno(1,2,3-cd)pyrene
U190	1,3-isobenzofurandione
U140	isobutyl alcohol (i,t)
U141	isosafrole
U142	kepone
U143	lasiocarpine
U144	lead acetate
U146	lead, bis(acetato-O) tetrahydroxytri-
U145	lead phosphate
U146	lead subacetate
U129	lindane
U163	mnng
U147	maleic anhydride
U148	maleic hydrazide
U149	malononitrile
U150	melphalan
U151	mercury
U152	methacrylonitrile (i,t)
U092	methanamine (N-methyl- (i)

(continued)

Table 4-3 (continued)

USEPA Hazardous Waste No.	Substance
U029	methane, bromo-
U045	methane, chloro- (i,t)
U046	methane, chloromethoxy-
U068	methane, dibromo-
U080	methane, dichloro-
U075	methane, dichlorodifluoro-
U138	methane, iodo-
U119	methanesulfonic acid, ethyl ester
U211	methane, tetrachloro-
U153	methanethiol (i,t)
U225	methane, tribromo-
U044	methane, trichloro-
U121	methane, trichlorofluoro-
U154	methanol (i)
U155	methapyrilene
U142	1,3,4-metheno-2H-cyclobuta[cd]pentalen-2-one-1,1a,3,3a,4,5,5,5a,5b,6-decachlorooctahydro-
U247	methoxychlor
U154	methyl alcohol (i)
U029	methyl bromide
U186	1-methylbutadiene (i)
U045	methyl chloride (i,t)
U156	methyl chlorocarbonate (i,t)
U226	methyl chloroform
U157	3-methylcholanthrene
U158	4,4-methylenebis-(2-chloroaniline)
U068	methylene bromide
U080	methylene chloride
U159	methyl ethyl ketone (mek) (i,t)
U160	methyl ethyl ketone peroxide (r,t)
U138	methyl iodide
U161	methyl isobutyl ketone (i)

(continued)

Table 4-3 (continued)

USEPA Hazardous Waste No.	Substance
U162	methyl methacrylate (i,t)
U161	4-methyl-2-pentanone (i)
U164	methylthiouracil
U010	mitomycin C
U059	5,12-Naphthacenedione, (Bs(cis)8-acetyl-10-[(3-amino-2,3,6-trideoxy-alpha-L-lyxo-hexopyranosyl)oxyl]-7-8,9,10-tetrahydro-6,8,11-trihydroxy-1-methoxy-
U167	1-naphthalenamine
U168	2-naphthalenamine
U026	naphthalenamine, N,N'-bis (2-chloroethyl)-
U165	naphthalene
U047	naphthalene, 2-chloro-
U166	1,4-naphthalenedione
U236	2,7-naphthalenedisulfonic acid, 3,3'-[(3,3'-dimethyl-(1,1'-biphenyl)-bis(azo)bis(5-amino-4-hydroxy)-, tetrasodium salt
U166	1,4-Naphthoquinone
U167	alpha-naphthylamine
U168	beta-naphthylamine
U217	nitric acid, thallium(1+) salt (2-chloromethyl)-
U169	nitrobenzene (i,t)
U170	p-nitrophenol
U171	2-nitropropane (i)
U172	n-nitrosodi-n-butylamine
U173	n-nitrosodiethanolamine
U174	n-nitrosodiethylamine
U176	n-nitroso-n-ethylurea
U177	n-nitroso-n-methylurea
U178	n-nitroso-n-methylurethane
U179	n-nitrosopiperidine

(continued)

Table 4-3 (continued)

USEPA Hazardous Waste No.	Substance
U180	n-nitrosopyrrolidine
U181	5-nitro-o-toluidine
U193	1,2-oxathiolane, 2,2-dioxide
U058	2H-1,3,2-Oxazaphosphorine,2[bis(2-chloroethyl)amino]tetrahydro-, 2-oxide.
U115	oxirane (i,t)
U126	oxiranecarboxyaldehyde
U041	oxirane, 2-(chloromethyl)-
U182	paraldehyde
U183	pentachlorobenzene
U184	pentachloroethane
U185	pentachloronitrobenzene
see F027	pentachlorophenol
U161	pentanol, 4-methyl-
U186	1,3-pentadiene (i)
U187	phenacetin
U188	phenol
U048	phenol, 2-chloro-
U039	phenol, 4-chloro-3-methyl-
U081	phenol, 2,4-dichloro-
U082	phenol, 2,6-dichloro-
U089	phenol, 4,4'-(1,2-diethyl-1,2-ethenediyl)bis-, (e)
U101	phenol, 2,4-dimethyl-
U052	phenol, methyl
U132	phenol, 2,2'-methylenebis [3,4,6-trichloro-
U170	phenol, 4-nitro-
see F027	phenol, pentachloro-
see F027	phenol, 2,3,4,6-tetrachloro-
see F027	phenol, 2,4,5-trichloro-
see F027	phenol, 2,4,6-trichloro-

(continued)

Table 4-3 (continued)

USEPA Hazardous Waste No.	Substance
U150	l-phenylalanine, 4-[bis(2-chloroethyl)amino]-
U145	phosphoric acid, lead salt
U087	phosphorodithioic acid, 0,0-diethyl S-methyl ester
U189	phosphorus sulfide (r)
U190	phthalic anhydride
U191	2-picoline
U179	piperidine, 1-nitroso-
U192	pronamide
U194	1-propanamine (i,t)
U111	1-propanamine, n-nitroso-n-propyl-
U110	1-propanamine, n-propyl- (i)
U066	propane, 1,2-dibromo-3-chloro-
U083	propane, 1,2-dichloro-
U149	propanedinitrile
U171	propane, 2-nitro- (i,t)
U027	propane, 2,2-oxybis[2-chloro-
U193	1,3-propane sultone
see F027	propanoic acid, 2-(2,4,5-trichlorophenoxy)-
U235	1-propanol, 2,3-dibromo-, phosphate (3:1)
U140	1-propanol, 2-methyl- (i,t)
U002	2-propanone (i)
U007	2-propenamide
U084	1-propene, 1,3-dichloro-
U243	1-propene, 1,1,2,3,3,3-hexachloro-
U009	2-propenenitrile
U152	2-propanenitrile, 2-methyl- (i,t)
U008	2-propenoic acid (i)
U113	2-propenic acid, ethyl ester (i)
U118	2-propenoic acid, 2-methyl-, ethyl ester

(continued)

Table 4-3 (continued)

USEPA Hazardous Waste No.	Substance
U162	2-propenoic acid, 2-methyl-, methyl ester (i,t)
U194	n-propylamine (i,t)
U083	propylene dichloride
U148	3,6-pyridazinedione, 1,2-dihydro-
U196	pyridine
U191	pyridine, 2-methyl-
U237	2,4(1H,3H)-pyrimidinedione, 5-[bis(2-chloroethyl)amino]-
U164	4(1H)-pyrimidinone, 2,3-dihydro-6-methyl 2-thioxo-
U180	pyrrolidine, 1-nitroso--
U200	reserpine
U201	resorcinol
U202	saccharin and salts
U203	safrole
U204	selenious acid
U204	selenium dioxide
U205	selenium sulfide
U205	selenium sulfide SeS2 (r,t)
U015	l-serine, diazoacetate (ester)
see F027	silvex (2,4,5-tp)
U206	streptozotocin
U103	sulfuric acid, dimethyl ester
U189	sulfur phosphide (r)
U232	2,4,5-T
U207	1,2,4,5-tetrachlorobenzene
U208	1,1,1,2-tetrachloroethane
U209	1,1,2,2-tetrachloroethane
U210	tetrachloroethylene
see F027	2,3,4,6-tetrachlorophenol
U213	tetrahydrofuran (i)

(continued)

Table 4-3 (continued)

USEPA Hazardous Waste No.	Substance
U214	thallium (i) acetate
U215	thallium (i) carbonate
U216	thallium chloride
U216	thallium chloride Tlcl
U217	thallium (i) nitrate
U218	thioacetamide
U153	thiomethanol (i,t)
U244	thioperoxydicarbonic diamide, tetramethyl-
U219	thiourea
U244	thiuram
U220	toluene
U221	toluenediamine
U223	toluene diisocyanate (r,t)
U328	o-toluidine
U353	p-toluidine
U222	o-toluidine hydrochloride
U011	1H-1,2,4-triazol-3-amine
U227	1,1,2-trichloroethane
U228	trichloroethylene
U121	trichloromonofluoromethane
U230	2,4,5-trichlorophenol
U231	2,4,6-trichlorophenol
U234	1,3,5-trinitrobenzene (r,t)
U182	1,3,5-trioxane, 2,4,6-trimethyl-
U235	tris(2,3-dibromopropyl)phosphate
U236	trypan blue
U237	uracil mustard
U176	urea, n-ethyl-n-nitroso-
U177	urea, n-methyl-n-nitroso-
U043	vinyl chloride
U248	warfarin, when present at concentrations of 0.3% or less

(continued)

Table 4-3 (continued)

USEPA Hazardous Waste No.	Substance
U239	xylene (i)
U200	yohimban-16-carboxylic acid, 11,17-dimethoxy-18-[(3,4,5-trimethoxy-benzoyl)oxy], methyl ester
U249	zinc phosphide, when present at concentrations of 10% or less.

Table 4-4

Toxicity Characteristics Constituents and Regulatory Levels

(40 CFR 261.24)

USEPA HW No.	Constituent	CAS No.	Chronic toxicity reference level	Regulatory Level(mg/L)
D004	Arsenic	7440-38-2	0.05	5.0
D005	Barium	7440-39-3	1.0	100.0
D018	Benzene	71-43-2	0.005	0.5
D006	Cadmium	7440-43-9	0.01	1.0
D019	Carbon tetrachloride	56-23-5	0.005	0.5
D020	Chlordane	57-74-9	0.0003	0.03
D021	Chlorobenzene	108-90-7	1	100.0
D022	Chloroform	67-66-3	0.06	6.0
D007	Chromium	7440-47-3	0.05	5.0
D023	o-Cresol	95-48-7	2	200.0 [1]
D024	m-Cresol	108-39-4	2	200.0 [1]
D025	p-Cresol	106-44-5	2	200.0 [1]
D026	Cresol		2	200.0 [1]
D016	2,4-D	94-75-7	0.1	10.0
D027	1,4-Dichlorobenzene	106-46-7	0.075	7.5
D028	1,2-Dichloroethane	107-06-2	0.005	0.5
D029	1,1-Dichloroethylene	75-35-4	0.007	0.7
D030	2,4-Dinitrotoluene	121-14-2	0.0005	0.13 [2]
D012	Endrin	72-20-8	0.0002	0.02
D031	Heptachlor (and its hydroxide)	76-44-8	0.00008	0.008
D032	Hexachlorobenzene	118-74-1	0.0002	0.13 [2]
D033	Hexachloro-1,3-butadiene	87-68	3	0.005
D034	Hexachloroethane	67-72-1	0.03	3.0
D008	Lead	7439-92-1	0.05	5.0
D013	Lindane	58-89-9	0.004	0.4
D009	Mercury	7439-97-6	0.002	0.2
D014	Methoxychlor	72-43-5	0.1	10.0
D035	Methyl ethyl ketone	78-93-3	2	200.0
D036	Nitrobenzene	98-95-3	0.02	2.0
D037	Pentachlorophenol	87-86-5	1	100.0
D038	Pyridine	110-86-1	0.04	5.0 [2]

(continued)

Table 4-4 (continued)

USEPA HW No.	Constituent	CAS No.	Chronic toxicity reference level	Regulatory Level(mg/L)
D010	Selenium	7782-49-2	0.01	1.0
D011	Silver	7440-22-4	0.05	5.0
D039	Tetrachloroethylene	127-18-4	0.007	0.7
D015	Toxaphene	8001-35-2	0.005	0.5
D040	Trichloroethylene	79-01-6	0.005	0.5
D041	2,4,5-Trichlorophenol	95-95-4	4	400.0
D042	2,4,6-Trichlorophenol	88-06-2	0.02	2.0
D017	2,4,5-TP (Silvex)	93-72-1	0.01	1.0
D043	Vinyl chloride	75-01-4	0.002	0.2

1 If o-, m-, and p-cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used.

2 Quantitation limit is greater than the calculated regulatory level. Therefore, the quantitation limit becomes the regulatory level. (Source: Federal Register 55:61, page 11804.)

Table 4-5

Maximum Concentration of Contaminants for the Toxicity Characteristic

(FGS-Japan Table 6-1)

USEPA HW[1]	Constituent	CAS[2]	Regulatory Level (mg/L)
D004	Arsenic	7440-38-2	5.0 for used acid or used alkali 1.5 for all other wastes
D005	Barium	7440-39-3	100.0
D006	Cadmium	7440-43-9	1.0 for used acid or used alkali 1.5 for all other wastes
D007	Chromium	7440-47-3	5.0 for used acid or used alkali 0.3 for all other wastes
D016	2,4-D	94-75-7	10.0
D012	Endrin	72-20-8	0.02
D008	Lead	7439-92-1	10.0 for used acid or used alkali 1.0 for all other wastes
D013	Lindane	58-89-9	0.4
D009	Mercury	7439-97-6	0.5 for used acid or used alkali 0.005 for all other wastes The standard for organic (alkyl) mercury is not detected.
D014	Methoxychlor	72-43-5	10.0
D010	Selenium	7782-49-2	1.0
D011	Silver	7440-22-4	5.0
D015	Toxaphene	8001-35-2	0.5
D017	2,4,5-TP (Silvex)	93-72-1	1.0
J001	Organophosphorus Compounds		1.0
J002	Cyanide		1.0

[1] USEPA Hazardous Waste Number.
[2] Chemical Abstracts Service Number.

Table 4-6

Maximum Concentration of Contaminants for Non-Wastewater

(FGS-Japan Table 6-2)

USEPA HW[1]	Constituent	CAS[2]	Regulatory Level (mg/L)
D018	Benzene	71-43-2	0.005
D019	Carbon tetrachloride	56-23-5	0.005
D020	Chlordane	57-74-9	0.0003
D021	Chlorobenzene	108-90-7	1
D022	Chloroform	67-66-3	0.06
D023	o-Cresol	95-48-7	2
D024	m-Cresol	108-39-4	2
D025	p-Cresol	106-44-5	2
D026	Cresol		2
D027	1,4-Dichlorobenzene	106-46-7	0.075
D028	1,2-Dichloroethane	107-06-2	0.005
D029	1,1-Dichloroethylene	75-35-4	0.007
D030	2,4-Dinitrotoluene	121-14-2	0.0005
D031	Heptachlor (and its epoxide)	76-44-8	0.00008
D032	Hexachlorobenzene	118-74-1	0.0002
D033	Hexachlorobutadiene	87-68-3	3
D034	Hexachloroethane	67-72-1	0.03
D035	Methyl ethyl ketone	78-93-3	2
D036	Nitrobenzene	98-95-3	0.02
D037	Pentachlorophenol	87-86-5	1
D038	Pyridine	110-86-1	0.04
D039	Tetrachloroethylene	127-18-4	0.007
D040	Trichloroethylene	79-01-6	0.005
D041	2,4,5-Trichlorophenol	95-95-4	4
D042	2,4,6-Trichlorophenol	88-06-2	0.02
D043	Vinyl chloride	75-01-4	0.002

[1] USEPA Hazardous Waste Number.
[2] Chemical Abstracts Service Number.

Table 4-7

Potentially Incompatible Hazardous Wastes
(40 CFR 264, Appendix V)

This table contains examples of potentially incompatible wastes, waste components, and materials, along with the harmful consequences that result from mixing materials in one group with materials in another group. The list is intended as a guide to indicate the need for special precautions when managing these potentially incompatible waste materials or components. It is not intended to be exhaustive. Operators must, as the regulations require, adequately analyze their wastes so as to avoid creating uncontrolled substances or reactions of the type listed below, whether listed below or not.

The mixing of a *Group A* material with a *Group B* material may have the potential consequences as noted.

Group 1-A	Group 1-B
Acetylene sludge	Acid sludge
Alkaline caustic liquids	Acid and water
Alkaline cleaner	Battery acid
Alkaline corrosive liquids	Chemical cleaners
Alkaline corrosive battery acid	Electrolyte, acid
Caustic wastewater	Etching acid liquid or solvent
Lime sludge and other corrosive alkalies	Pickling liquor and other corrosive acids
Lime wastewater	Spent acid
Lime and water	Spent mixed acid
Spent caustic	Spent sulfuric acid

Potential Consequences: heat generation, violent reaction.

Group 2-A	Group 2-B
Aluminum	Any waste in Group 1-A or 1-B
Beryllium	
Calcium	
Lithium	
Magnesium	
Potassium	
Sodium	
Zinc powder	
Other reactive metals and metal hydrides	

Potential Consequences: fire or explosion, generation of flammable hydrogen gas.

(continued)

Group 3-A	Group 3-B
Alcohols Water	Any concentrated waste in Groups 1-A or 1-B Calcium Lithium Metal hydrides Potassium SO_2Cl_2, $SOCl_2$, PCl_3, CH_3SiCl_3 Other water-reactive waste

Potential Consequences: fire, explosion, heat generation, generation of flammable or toxic gases.

Group 4-A	Group 4-B
Alcohols Aldehydes Halogenated hydrocarbons Nitrated hydrocarbons Unsaturated hydrocarbons Other reactive organic compounds and solvents	Concentrated Group 1-A, or Group 1-B wastes Group 2-A wastes

Potential Consequences: fire or explosion, violent reaction.

Group 5-A	Group 5-B
Spent cyanide and sulfide solutions	Group 1-B wastes

Potential Consequences: generation of toxic hydrogen cyanide or hydrogen sulfide gas.

Group 6-A	Group 6-B
Chlorates Chlorine Chlorites Chromic acid Hypochlorites Nitrates Nitric acid, fuming Perchlorates Permanganates Peroxides Other strong oxidizers	Acetic acid and other organic acids Concentrated mineral acids Group 2-A wastes Group 4-A wastes Other flammable and combustible wastes

Potential Consequences: fire, explosion, violent reaction.

Table 4-8

Regulatory Level of Hazardous Substances in Hazardous Wastes

(FGS-Japan Table 6-3)

Category	Landfill	Dumping		Ocean Dumping			Offshore Incineration
Material	Sludges (mg/L)	Bottom Soils (mg/L)	Waste Acid and Waste Alkali (mg/L)	Soluble Sludges (mg/kg)	Waste Acid and Waste Alkali (mg/L)	Insoluble Sludges (mg/L)	Oils and Sludges
Organic (alkyl) mercury	ND	ND	ND	ND	ND	ND	ND
Mercury (Hg)	0.005	0.005	0.005	2	0.05	0.005	2
Cadmium (Cd)	0.3	0.1	0.1	5	1	0.1	5
Lead (Pb)	3	1	1	50	10	1	50
Organophosphorous compounds	1	1	1	5	1	1	---
Hexavalent Chromium (Cr(VI))	1.5	0.5	0.5	25	5	0.5	25
Arsenic (As)	1.5	0.5	0.5	25	5	0.5	25
Cyanide	1	1	1	5	1	1	5
Polychlorinated Biphenyl (PCB)	0.003	0.003	0.003	0.15	0.03	0.003	0.15
Organochlorine compounds	---	---	---	40	8	40	40
Copper (Cu)	---	3	---	70	15	3	70
Zinc (Zn)	---	5	---	450	90	5	450
Fluoride	---	15	---	1000	200	15	40
Trichloroethylene (TCE)	0.3	---	0.3	15	3	0.3	15
Tetrachloroethylene (PCE)	0.1	---	0.1	5	1	0.1	5
Testing Method	Leachate	Leachate	Content	Content	Content	Leachate	Content

ND: Not detected

INSTALLATION:	COMPLIANCE CATEGORY: HAZARDOUS WASTE MANAGEMENT Japan ECAMP	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 5

NATURAL RESOURCES MANAGEMENT

Japan ECAMP

SECTION 5

NATURAL RESOURCES MANAGEMENT

A. Applicability of this Section

This chapter applies to any Air Force (AF) installation with improved, semi-improved, and unimproved grounds. Included are required plans and programs needed to ensure proper protection and management of natural resources such as soil, water, plants, and wildlife.

The regulatory requirements in this section are based on DOD regulations and Air Force Instructions (AFIs) that apply at overseas installations. Management Practices (MPs) are derived from DOD regulations and other documents that are not mandatory overseas but are important to follow to preserve the health and safety of AF employees and protect the environment.

B. DOD Directives/Instructions

- *United States Forces-Japan (USFJ) Final Governing Standards* (FGS-Japan), January 1995, Chapter 13 addresses required plans and programs for the protection, enhancement, and management of natural resources and endangered or threatened species.

C. U.S. Air Force Documents

- AFI 91-202, *The U.S. Air Force Mishap Prevention Program*, 1 October 1995, contains provisions for a bird/aircraft strike hazard (BASH) plan.

D. Responsibility for Compliance

- Base Civil Engineering (BCE) is responsible for funding, supervising, controlling, and managing installation natural resources.

- The Natural Resources Manager is responsible for preparing management plans, cooperative agreements, budgets, and the annual natural resources report. The natural resources manager also implements and controls all activities that promote natural resources management. On installations without a full-time Natural Resources Manager, these duties would normally be assigned to the environmental coordinator or community planner.

E. Definitions

- *Action* - all activities or programs of any kind authorized, funded, or carried out, in whole or in part, on DOD-controlled installations (FGS-Japan 13-2).

- *Adverse Effect* - changes that diminish the quality or significant value of natural resources. For biological resources, adverse effects include overall population fitness (FGS-Japan 13-2).

- *Agent* - an office or individual, such as the natural resources manager, formally designated in writing to represent the command in natural resource matters (FGS-Japan 13-2).

- *Conservation* - wise management and use of natural resources to provide the best public benefits for present and future generations (FGS-Japan 13-2).

- *Consultation* - a process in which the agent coordinates with an affected GOJ office to seek ways to reduce or avoid adverse effects on natural resources. Certain interested persons may participate as consulting parties (FGS-Japan 13-2).

- *Controlled Burning* - a system of periodic man-made fires used to benefit a comprehensive land management plan. Such fires reduce the amount of undergrowth/non-woody vegetation and dead-wood build-up and promote wildlife habitat improvements (FGS-Japan 13-2).

- *Ecosystem Management* - an approach to natural resources management that recognizes the interrelationships of ecological processes linking soils, plants, animals, minerals, climate, water, and topography as a living system and action taken to protect, manipulate, alter, or manage environmental, human, and biological resources in harmony with each other (FGS-Japan 13-2).

- *Endangered Species* - any species of flora or fauna listed in Table 5-1 or designated by the host nation whose continued existence is, or is likely to be, threatened and is therefore subject to special protection from destruction or adverse modification of associated habitat (FGS-Japan 13-2).

- *Inadvertent Discovery* - natural properties/resources that are exposed through construction/maintenance and repair work, erosion, or other natural and cultural processes. Also known as 'surprise discovery' (FGS-Japan 13-2).

- *Inventory* - a complete list of natural resources that may have world, national, or local significance and that is arranged systematically with descriptive details (See Table 5-2) (FGS-Japan 13-2).

- *Legacy Program* - the short title for the Legacy Resource Management Program, which refers to the special DOD program that funds exclusively cultural and natural resource projects (FGS-Japan 13-2).

- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *Multiple Use* - the use of natural resources for the best combination of purposes to meet the needs of DOD and the public (FGS-Japan 13-2).

- *Natural Resource* - all living and inanimate materials supplied by nature (air, land, water, and biological) that are of aesthetic, ecological, educational, historical, recreational, scientific, or other value (FGS-Japan 13-2).

- *Natural Resource with Cultural Significance* - natural scenery or views including mountain valleys and seashores with cultural value; gardens with historic value; natural objects such as praying rocks, trees, caves, and springs, and any other natural entity of cultural importance. Since these resources have both natural and cultural significance, their inclusion in the Cultural Resource Management Plan is relevant (See Table 2-1, Chapter 2, *Cultural Resources Management*). Specially designated flora/fauna, such as rare, threatened, or endangered species and historic environmental conservations areas, although considered to have cultural significance, nonetheless fall under the requirements of Chapter 13 of FGS-Japan (FGS-Japan 13-2).

- *Noxious Weed* - plant species identified by the agent or GOJ as requiring control or eradication (FGS-Japan 13-2).

- *Public* - accessible to or shared by all members of the community. The term does not necessarily include the civilian population at large. DOD personnel and their families are considered a public constituency in restricted-access locations (FGS-Japan 13-2).

- *Stewardship* - the management of a resource base with the goal of maintaining or increasing the value of the resource indefinitely into the future (FGS-Japan 13-2).

- *Urban Forest* - planted or remnant native tree species existing within urbanized areas such as parks, tree-lined streets, scattered tracts of undisturbed woodlands, and installation areas (FGS-Japan 13-2).

- *Watchable Wildlife Areas* - areas identified under the watchable wildlife program as suitable for passive recreational uses such as bird watching, nature study, and other non-consumptive uses of wildlife resources (FGS-Japan 13-2).

- *Wetlands* - areas inundated or saturated by surface or groundwater at a frequency and a duration to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (FGS-Japan 13-2).

NATURAL RESOURCES MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS: (a)
All Installations	JA.5-1 through JA.5-4	(1)(2)
Natural Resources Management		
General	JA.5-5 through JA.5-19	(1)
Training	JA.5-20	(1)
Special Topics	JA.5-21 through JA.5-27	(1)(3)(4)
Endangered or Threatened Species	JA.5-28 and JA.5-29	(1)
Grounds Management	JA.5-30 through JA.5-37	(1)
Fish and Wildlife	JA.5-38 and JA.5-39	(1)
Outdoor Recreation	JA.5-40 through JA.5-43	(1)

(a) CONTACT/LOCATION CODE:

(1) Natural Resources Manager (or Environmental Coordinator)
(2) Base Staff Judge Advocate
(3) Range Operating Agency
(4) Safety Office

NATURAL RESOURCES MANAGEMENT

Records To Review

- Documentation of finding of no adverse effect (for construction activities)
- Environmental Impact Statement (EIS)
- Land Use Plan
- Fish and Wildlife Plan
- Outdoor Recreation Plan
- Cropland and Grazing Plan
- Forest Management Plan
- BASH Reduction Program

Physical Features To Inspect

- Construction sites
- Site or landmark of historic or archaeological interest
- Facilities constructed in the past 2 yr
- Wildlife containment areas
- Wildlife habitat and land and water resources
- Equipment that could damage wildlife, its habitat, or land and water resources

People To Interview

- Natural Resources Manager (or Environmental Coordinator)
- Base Staff Judge Advocate
- Range Operating Agency
- Safety Office

COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
JA.5-1. Determine actions or changes since previous review (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (1)
JA.5-2. Copies of all relevant DOD directives/ instructions, USAF directives, and guidance documents should be maintained at the installation (MP).	Verify that copies of the following regulations are maintained and kept current at the installation: (1)(2) - *USFJ Final Governing Standards* (FGS-Japan), January 1995 - AFI 91-202, *The U.S. Air Force Mishap Prevention Program.* Verify that the Base SJA reviews the documents annually for currency and completeness and submits the findings of the review to the Base Environmental Protection Committee.
JA.5-3. Installations must meet regulatory requirements issued since the finalization of the manual (a finding under this checklist item will have the citation of the new regulation as a basis of finding).	Determine whether any new regulations concerning natural resources have been issued since the finalization of the manual. (1) Verify that the installation is in compliance with newly issued regulations.
JA.5-4. The Installation Natural Resource Manager should be included in the coordination process for all actions that may affect the installation's natural resources (MP).	Verify that the Natural Resources Manager is included in the coordination process for all actions that may affect the installation's natural resources. (1)

(1) Natural Resources Manager (or Environmental Coordinator) (2) Base Staff Judge Advocate (3) Range Operating Agency (4) Safety Office

COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
NATURAL RESOURCES MANAGEMENT **General**	
JA.5-5. Installations must manage natural resources using a sound stewardship approach (FGS-Japan 13-4.1).	Verify that the installation manages its natural resources using a sound stewardship approach (see definition) to maximize mission effectiveness while protecting the long-term diversity and sustainability of the resource base through ecosystem management. (1)
JA.5-6. Installations must develop a directive governing natural resources (FGS-Japan 13-4.2).	Verify that the installation has developed a directive governing natural resources. (1) Verify that, at a minimum, the directive includes the following: - identification of the agent (see definitions) - production of an Integrated Natural Resource Management Plan - establishment of Natural Resources Site Review procedures - production of Inadvertent Discovery Instructions.

JA.5-7. Installations must meet specific criteria with regard to the contents of the Integrated Natural Resource Management Plan (FGS-Japan 13-4.2(a)).	Verify that the plan is composed of the following: (1)
	
	- an inventory of natural resource assets
	- conservation/management plans for:
	  - land (soil and water)
	  - forest
	  - fish and wildlife
	  - outdoor recreation
	  - any other land management activities such as training and ranges, as necessary depending on the installation's resource base.
	
	Verify that the plan meets the requirements of Table 5-2.
	
	Verify that the plan is continually monitored and revised as necessary by the agent.
	
	(NOTE: Natural resources with cultural significance are to be included in the Cultural Resource Inventory and Protection Plan.)

(1) Natural Resources Manager (or Environmental Coordinator) (2) Base Staff Judge Advocate (3) Range Operating Agency (4) Safety Office

COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.5-8. Installations must develop a Natural Resource Conservation/ Management Plan that meets specific requirements (FGS-Japan 13-4.2(c)).	Verify that the installation has developed a Natural Resource Conservation/Management Plan. (1) Verify that the plan is consistent with modern conservation and land use principles. Verify that Japanese conservation practices were taken into account in the course of developing the plan.
JA.5-9. The installation's land management plan should address certain topics (MP).	Verify that the land management plan reflects a comprehensive effort to educate installation personnel. (1) Verify that the plan includes programs and policies and reduces nonpoint sources of water pollution, including: - fertilizer application - pesticide use - stormwater runoff - waste oil recovery - grounds maintenance - car washing - erosion/sedimentation control.
JA.5-10. Installations must inventory and document natural resources found in all areas under DOD control (FGS-Japan 13-4.2(c)).	Verify that the installation has inventoried and documented natural resources found in all areas under DOD control. (1)
JA.5-11. Installations must consult with Japanese authorities under certain circumstances (FGS-Japan 13-4.7).	Verify that the installation consults with Japanese authorities at the inventory and conservation stages. (1) Verify that the installation consults with Japanese authorities prior to taking any action that might affect either a threatened or endangered species or its habitat.

(1) Natural Resources Manager (or Environmental Coordinator) (2) Base Staff Judge Advocate (3) Range Operating Agency (4) Safety Office

COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.5-12. Installations must establish detailed instructions that outline procedures for inadvertent discovery of sensitive, rare, threatened, or endangered plants or animals, and natural resources (FGS-Japan 13-4.3).	Verify that the installation has established detailed instructions that outline procedures for inadvertent discovery of sensitive, rare, threatened, or endangered plants or animals, and natural resources. (1) (NOTE: Sensitive resources include natural resources with cultural significance or unique geological formations such as springs, caves, and fossils.)
JA.5-13. Installations must conduct a Natural Resources Site Review before beginning any construction or repair work (FGS-Japan 13-4.9, 13-4.9(b), and 13-4.9(c)).	Verify that, before beginning any construction or repair work, the installation conducts an analysis of the proposed site to determine the presence or absence of natural resources. (1) (NOTE: This requirement applies without regard to the source of the funding for the construction or repair work.) Verify that major MILCON and JFIP projects also have a natural resources review during the project planning/criteria development phase. (NOTE: Emergency repair work does not require pre-approval, but DOD staff/contractors should proceed with caution in order to minimize adverse effects upon a site.)
JA.5-14. Installations must meet specific minimum requirements with respect to Natural Resources Site Reviews (FGS-Japan 13-4.9(a)).	Verify that the site analysis clearly identifies the impact (or potential impact) of the proposed project on natural resources and the resolutions for those impacts. (1) (NOTE: Site approval may specify site limitations, restrictions, or provisos, which remain in effect for the life of the project, regardless of project funding.) (NOTE: A site plan illustrating the limit of construction and/or work may be required.) (NOTE: Modifications to the project boundaries may invalidate the site approval and must be reevaluated by the agent prior to work commencement.) Verify that the agent maintains records of processed actions.
JA.5-15. Installations that carry out emergency repair work must comply with specific criteria (FGS-Japan 13-4.9(c)).	Verify that the work site is restored or is left in healthy natural resource condition. (1) Verify that the agent is informed of any adverse or potentially adverse effects on natural resources that result from repair work.

(1) Natural Resources Manager (or Environmental Coordinator) (2) Base Staff Judge Advocate (3) Range Operating Agency (4) Safety Office

COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.5-16. The agent must be informed of and provided with reports on certain events (FGS-Japan 13-4.5).	Verify that the agent is informed of and provided with reports on the following events: (1) - fires - hazardous material spills - crashes - other emergency actions that affect natural resources.
JA.5-17. The collecting of plants or animals without the written permission of the agent is prohibited (FGS-Japan 13-4.6).	Verify that no one collects plants or animals without the written permission of the agent. (1)
JA.5-18. Installations must meet specific responsibilities in the course of military operations and in training areas (FGS-Japan 13-4.4).	Verify that the installation ensures that all provisions pertaining to protection of natural resources throughout training areas are adhered to. (1) Verify that the installation ensures that units/activities do not use off limits areas. Verify that all unit/activity commanders ensure that their particular activities are conducted in accordance with the guidance in FGS-Japan so as to minimize adverse effects to natural resources. Verify that, if a natural resources suffers loss or damage, units/activities notify the agent in a timely manner.
JA.5-19. Installations must meet specific requirements with regard to public relations and education (FGS-Japan 13-4.8).	Verify that the installation develops programs to inform the public about its plans and activities for natural resources protection, conservation, and management. (1) Verify that the installation takes part in Earth Day and Green Week activities or other DOD/community natural resources programs. Verify that the installation develops environmental educational programs with the help of educational institutions for military service members and the public.
Training	
JA.5-20. Designated agents must meet training criteria (FGS-Japan 13-3).	Verify that the designated agent has the requisite experience in natural resource conservation, management, and protection. (1) Verify that the designated agent also has knowledge of or access to local history/customs.

(1) Natural Resources Manager (or Environmental Coordinator) (2) Base Staff Judge Advocate (3) Range Operating Agency (4) Safety Office

COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.5-20. (continued)	Verify that the agent remains current with DOD, service component, and associated U.S./GOJ Federal agency activities that affect the natural resource mission. (NOTE: This includes, but is not limited to, attendance at annual workshops, conferences, or symposiums.)
Special Topics	
JA.5-21. Installations must meet specific requirements with regard to site character and earthwork (FGS-Japan 13-5.1(a)).	Verify that the installation assesses the compatibility of a site concept with the existing natural terrain, vegetation, and views. (1) Verify that construction is adapted to fit the site. Verify that a reasonable balance of cut and fill is provided. Verify that the installation preserves, enhances, and uses advantageously such natural site assets as mature trees and vegetation, terrain, and topographic features, scenic views, and vistas.
JA.5-22. Installations must meet specific criteria with regard to roads, driveways, and bikeways (FGS-Japan 13-5.1(b)).	Verify that the installation assesses the compatibility of travelways in order that the design relates to the natural land contours. (1) Verify that grading and disruption of the natural environment is minimized. (NOTE: Excessive or redundant paving is an undesirable disruption.) (NOTE: Planting, screening, and setbacks can be used to integrate travelways visually into the surrounding land use areas.)
JA.5-23. Installations must meet erosion control standards (FGS-Japan 13-5.1(c)).	Verify that the installation uses a protective vegetative cover or other standard soil erosion/sediment control measures to control dust and stabilize all sites. (1) (NOTE: Optimal slopes should not exceed 3:1 due to maintenance requirements.) Verify that the installation avoids unretained slopes greater than 2:1. Verify that the installation avoids the use of sprayed pavements such as gunite to stabilize slopes.
JA.5-24. Installations must coordinate with the agent prior to the closure of any borrow pit (FGS-Japan 13-5(d)).	Verify that the installation coordinates with the agent prior to the closure of any borrow pit in order that a Natural Resource Site Review is assessed. (1)(3) Verify that a formal designation of the permissible fill materials, site size, and other requirements is on file with the agent.

(1) Natural Resources Manager (or Environmental Coordinator) (2) Base Staff Judge Advocate (3) Range Operating Agency (4) Safety Office

COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.5-25. Installations must provide buffers between traffic-emitted pollutants and sensitive natural resource areas (FGS-Japan 13-5.1(e)).	Verify that the installation provides buffers between traffic-emitted pollutants and sensitive natural resource areas. (1) Verify that noise abatement techniques are used to reduce noise levels generated by traffic adjacent to sensitive land use areas. (NOTE: Berms, sound walls, and plant materials are examples of noise abatement techniques that might be employed.) (NOTE: Optimally, disruptive overhead noise in sensitive natural resource areas would be rerouted.)
JA.5-26. Installations must meet specific requirements with regard to wetlands, flood plains, and drainage ways (FGS-Japan 13-5.2).	Verify that the installation avoids development in natural drainage ways and flood plains. (1) Verify that land uses for flood plain areas are limited to open space preserves and outdoor recreation facilities. Verify that non-point pollution control measures are fully considered. Verify that the installation provides for the following in all work operations: - erosion control - water management - run-off containment - vegetation ground cover types - special soil problems. Verify that there is no overall net loss of wetlands. Verify that all facilities and operational actions avoid the degradation or destruction of wetlands to the maximum extent possible. Verify that any facility's requirement that cannot be sited to avoid wetlands is designed to minimize wetlands degradation and includes mitigation measures in all phases of project planning, programming, and budgeting. Verify that all wetlands, flood plains, and drainage ways are identified and mapped. (NOTE: Identifying land suitable for the establishment or reestablishment of high quality wetlands is encouraged.)

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COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.5-27. Each base with a flying mission must establish a BASH reduction program that meets specific requirements (FGS-Japan 13-5.4(b) and AFI 91-202, paras 7.11.1.2, 7.11.2, and 7.11.2.2).	Determine whether the base has a flying mission. (1)(4) Verify that the installation has assessed the nature and extent of BASH. Verify that the base has a written BASH reduction program. Verify that the program includes complete documentation of local bird problems, effects on missions, and possible solutions. Verify that the flight safety office, with the assistance of other base agencies, has coordinated an operations plan. Verify that the program includes effective bird control techniques based on local ecological factors and species' requirements. (NOTE: Environmental controls, bird dispersal techniques, and operational changes may be required to reduce bird hazards.) (NOTE: BASH reduction programs at overseas locations may depend on host nation support and regulations.) Verify that the installation has forwarded its BASH reduction program to the MAJCOM for approval. (NOTE: The MAJCOM is responsible for ensuring that the spirit of AFI 91-202 is complied with to the maximum extent possible.)
Endangered or Threatened Species **JA.5-28.** Installations must initiate surveys for endangered species identification and/or support surveys initiated by the GOJ (FGS-Japan 13-5.3(a) and 13-5.4(a)).	Verify that the installation initiates surveys for endangered species identification and/or support surveys initiated by the GOJ. (1) (NOTE: This requirement applies to both plant and animal species.)

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COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.5-29. Installations must take reasonable steps to protect and enhance know threatened, rare, or endangered species and their habitats (FGS-Japan 13-5.3(a) and 13-4.(a)).	Verify that the installation takes reasonable steps to protect and enhance known endangered species and their habitat. (1) (NOTE: This requirement applies to both plant and animal species.) (NOTE: Consult Table 5-1 for a list of known threatened/endangered species in Japan.) Verify that host nation officials are notified when a new endangered species is identified on the installation.
Grounds Management	
JA.5-30. The installation should have a mitigation and monitoring plan (MP).	Verify that there is a mitigation and monitoring plan for environmental compliance. (1) Verify that the installation has developed plans to preserve, protect, and acquire the water supplies necessary to support all natural resources projects and programs.
JA.5-31. Technical instruction should be provided for personnel engaged in the care of the installation (MP).	Verify that the installation provides periodic and comprehensive technical instruction concerning land preparation, soil management, fertilization, pruning, spraying, and other horticulture skills to personnel engaged in the care of the installation. (1)
JA.5-32. Installations must meet specific requirements with regard to the use of plants in building and facility planning (FGS-Japan 13-5.3(b) and 13-5.3(d)).	Verify that plant material is low maintenance, easily transplanted, hardy, long-lived, and disease-resistant. (1) Verify that native plants are used to the greatest extent practicable. Verify that the planting of street and shade trees is preferred over the planting of shrubs. Verify that plantings are clustered around building entrances. (NOTE: Ends or corners of buildings may be accented.) Verify that planting near the foundations of buildings is minimized. Verify that no planting occurs under canopies or overhangs or in locations (such as under windows) that require excessive pruning. Verify that opaque screens of sufficient size are used to block views of loading dock dumpsters, and other utilitarian areas. (NOTE: Screens may be constructed of plant materials, earthen berms, and/or walls.)

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COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.5-32. (continued)	(NOTE: The use of mulch in planting beds is highly encouraged. Suggested materials include chipped or shredded tree bark, compost, or grass cuttings.) Verify that the south and southwest sides of buildings and facilities are shaded for purposes of energy conservation.
JA.5-33. Installations must meet specific requirements with respect to grounds maintenance and mowing (FGS-Japan 13-5.3(e)).	Verify that the installation's grounds are maintained to meet designated mission use and assure harmony with the natural landscape. (1) Verify that the installation replaces or relocates maintenance-intensive plants in such a way that the guidelines for area planting are met. (NOTE: See checklist item JA.5-34.) Verify that the installation periodically evaluates mowed areas and significantly reduces cutting frequency in areas of low public visibility and in areas that favor native habitat conditions such as wildlife management/viewing areas and naturalized sites.
JA.5-34. Installations must meet specific requirements with regard to area planting and urban forestry (FGS-Japan 13-5.3(c)).	Verify that the installation improves natural beauty by developing landscapes and street-tree plans. (1) Verify that, for visual continuity, lines or groupings of similar trees are placed along roads, parade fields, parks, and open green spaces. Verify that, in general, no more than three types of trees are used on a street. Verify that the arrangement of these types of trees is logical and based on design aesthetics. Verify that existing native trees are retained in good condition to the greatest extent practicable.
JA.5-35. Installations must meet specific requirements with regard to noxious weeds (FGS-Japan 13-5.3(f)).	Verify that the installation consults with local GOJ officials or agricultural universities to identify any noxious weeds that require control/eradication. (1) (NOTE: Information on wildflowers may be obtained from the same sources. The use of native flowers and bulbs on steep slopes and in wildlife areas and naturalized sites is highly encouraged.)

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COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.5-36. Installations must assess garden plot and farming areas for impacts on natural resources (FGS-Japan 13-5.3(h)).	Verify that the installation assesses garden plot and farming areas for impacts on natural resources, including adverse effects from the application of fertilizer, pesticides, and/or herbicides. (1)
JA.5-37. Installations must manage woodlands in accordance with specific criteria (FGS-Japan 13-5.3(i) and 13-5.3(j)).	Verify that commercial forest products are not given away, carelessly destroyed, or used to offset contract costs. (1) Verify that woodland management operations provide for careful consideration of all multiple-use potentials, with particular consideration given to a desirable balance of military, natural resource, and public recreation uses. (NOTE: COMUSJAPAN can provide information on commercial forestry programs.) Verify that, if the installation has large or heavily wooded forest areas, it institutes necessary measures to preclude forest fires during dry seasons. Verify that controlled burning operations are evaluated and monitored for adverse effects on soil quality, sensitive plants and animals, and watersheds. (NOTE: Roads and areas planted with fire-retarding plants can be used as firebreaks.) Verify that the installation avoids the use of conifers and tall grasses in firebreaks. Verify that burning activities are coordinated with the installation fire department and other appropriate agencies as required.
Fish and Wildlife	
JA.5-38. Installations must maintain and protect habitat favorable to the local fish and wildlife (FGS-Japan 13-5.4(a) and 13-5.4(b)).	Verify that the installation maintains and protects habitat favorable to the reproduction and survival of native fish and wildlife. (1) (NOTE: This requirement applies to the extent that such activity is consistent with treaty obligations.) (NOTE: Designating natural resource sanctuaries and refuges and 'off limits' areas is an acceptable management practice, provided that effects on other land uses in the same area have been analyzed.)

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COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.5-39. Installations must promote the conservation of migratory birds and their habitats (FGS-Japan 13-5.4(c)).	Verify that the installation promotes the conservation of migratory birds and their habitats to the fullest extent possible consistent with the constraints of mission and operational safety requirements. (1)
Outdoor Recreation	(NOTE: An outdoor recreation program can be developed at individual sites and at groupings of sites linked by routes or trails. Non-consumptive land and water uses such as hiking on nature trails, ocean fishing, etc., is encouraged.) (NOTE: Natural resources with cultural significance, historic, and cultural sites could make excellent outdoor recreation locations, provided that proper resource protection is incorporated into the overall recreation plan.)
JA.5-40. Installations must prohibit the taking or collecting of plants, animals, or historic and cultural artifacts by the public (FGS-Japan 13-5.5).	Verify that the installation prohibits the taking or collecting of plants, animals, or historic and cultural artifacts by the public in the course of recreational activities. (1)
JA.5-41. Installations must meet specific requirements with regard to public access to land and water areas (FGS-Japan 13-5.5(a)).	Verify that public access is within manageable quotas based on resource capabilities, mission requirements, and management plans. (1) (NOTE: Access on a first-come-first-served basis is encouraged.) Determine whether the IC withholds or limits public access because the overriding military mission specifically requires a temporary or permanent suspension of such use. Verify that the IC or the agent substantiates a statement in the Outdoor Recreation Plan.
JA.5-42. Installations should provide Watchable Wildlife Areas (MP).	Verify that the installation provides opportunities to: - enjoy and experience wildlife - promote learning about wildlife and its habitat needs - build active public support for wildlife conservation and management - establish active partnerships with natural resources conservation organizations. Verify that, if the installation establishes a Watchable Wildlife Area, it complies with the requirements of Table 5-3. (NOTE: FGS-Japan 13-5.5(c) is the source of this MP.)

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COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.5-43. Installations must review their land holdings for potential hunting and fishing opportunities (FGS-Japan 13-5.5(d) and 13-5.5(e)).	Verify that the installation has reviewed its land holdings for potential hunting and fishing opportunities. (1) Verify that the Outdoor Recreation Plan includes criteria and procedures for issuing hunting, fishing, and trapping permits and fees, if applicable. Verify that the installation has identified waters suitable for game fish management. (NOTE: Introducing foreign or exotic species is not encouraged.) Verify that the installation has approval from COMUSJAPAN prior to introducing foreign or exotic species into Japanese waters. Verify that the installation documents the following: - the justification for its plans to introduce foreign or exotic species into Japanese waters - anticipated environmental impacts of such an action - plans to protect native species.

(1) Natural Resources Manager (or Environmental Coordinator) (2) Base Staff Judge Advocate (3) Range Operating Agency (4) Safety Office

Table 5-1

List of Endangered and Protected Species in Japan

(FGS-Japan, Appendix C)

Definition of Classification

Extinct (X): Species are considered extinct in Japan.

1. Species whose extinction is confirmed according to reliable research or record
2. Species whose habitat cannot be found with any reliable research

Endangered (E): Species are considered endangered if facing the danger of extinction in Japan.

1. Total population decreased to a level of border-line extinction
2. Sharp decrease or loss of habitat
3. Species captured and/or killed rate exceeds their reproductive capacity in the wild
4. Purity of the habitat is decreased due to the mixing or cross breeding of two or more species

Vulnerable (V): Species are considered vulnerable if facing increasing danger of extinction in Japan.

1. Total population is sharply decreasing.
2. Living environment is progressively disappearing.

Rare (R): Species exists in extremely limited numbers and is usually found in isolated locations or special environments.

Local Population (L): Species that exist in a local population and exhibit regional characteristics should be protected.

Summary

Vertebrates

Group	Extinct (X)	Endangered (E)	Vulnerable (V)	Rare (R)	Local Population (L)	TOTAL
Mammal (M)	5	3	11	36	13	68
Birds (B)	13	27	27	65	0	132
Reptiles (R)	0	1	2	1	0	16

(continued)

Table 5-1 (Continued)

Group	Extinct (X)	Endangered (E)	Vulnerable (V)	Rare (R)	Local Population (L)	TOTAL
Amphibia (A)	0	2	4	8	5	19
Brackish and Fresh Water Fish (F)	2	16	6	17	7	48
SUBTOTAL	20	49	50	139	25	283

Invertebrates

Group	Extinct (X)	Endangered (E)	Vulnerable (V)	Rare (R)	Local Population (L)	TOTAL
Insects (I)	2	23	15	166	1	207
Lake and Fresh Water Shellfish (S)	0	34	39	54	5	132
Brackish & Fresh Water 10 legged Crustacea (C)	0	0	7	45	1	53
Other Non-spinal Creature (O)	0	4	3	11	0	18
SUBTOTAL	2	61	64	276	7	410

Reference: Wild Creatures Facing Extinction in Japan, 1991. (Vertebrates and Invertebrates). Compiled by EPA, Published by the Foundation of Natural Environment Study Center.

(continued)

Table 5-1 (Continued)

LIST OF THE SPECIES

Vertebrates

Group	Class	Japanese	Scientific	English	Location
M	X	Nihonnohkami	Canis Lupus Hodophilax	Japanese Wolf	
M	X	Ezoohkami	Canis Lupus Hattai	Ezo Wolf	
M	X	Nihonnashika	Zalophus Californiaus Japonicus	Japanese Sea Lion	
M	X	Okinawaookoumori	Pteropus Loochoensis	Okinawa Flying Fox	
M	X	Ogasawaraaburakohmori	Pipistrellus Sturdeei	Bonin Pipistrelle	
M	E	Nihonkawauso	Lutra Nippon	Japanese River Otter	(Kohchi)
M	E	Tsushimayamaneko	Felis Euptilura	Tsushima Cat	Tsushima (Nagasaki)
M	E	Iriomoteyamaneko	Mayailurus Iriomotensis	Iriomote Cat	Nishiomote Island (Okinawa)
M	V	Tokyotogarinezumi	Sorex Minutissimus Hawkeri	Hawker's Least Shrew	Eastern Hokkaido
M	V	Chousenkojinezumi	Crocidura Suaveolens Shantungensis	Korean Shrew	Tsushima Island (Nagasaki)
M	V	Watasejinezumi	Crocidura Horsfieldi Watasei	Watase's Shrew	(Kagoshima Okinawa)
M	V	Ogasawaraookoumori	Pteropus Pselaphon	Bonin Flying Fox	Ogasawara Islands (Tokyo)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
M	V	Amaminokurousagi	Pentalagus Furnessi	Amami Hare	Amami Rabbit Amami Island Tokunoshima (Kagoshima)
M	V	Amiamitogenezumi	Tokudaia Osimensis Osimensis	Amami Spinous Country-Rat	Amami Island Tokynoshima Okinawa
M	V	Okinawatogenezumi	Tokudaia Osimsnsis Muenniniki	Okinawa Spinous Country-Rat	Amami Island Tokunoshima Okinawa
M	V	Kenaganezumi	Diplothrix Legatus	Ryukyu Long-Tailed Giant Rat	(Kagoshima Okinawa)
M	V	Tsushimatenn	Martes Melampus Tsuensis	Tsushima Marten	Tsushima (Nagasaki)
M	V	Zenigataazarashi	Phoca Vitulina	Common (Kuril) Seal	Hokkaido
M	V	Keramajika	Cervus Nippon Keramae	Black Sika Deer	Okinawa Area
M	R	Azumitogarinezumi	Sorex Hosonoi Hosonoi	Azumi Shrew	Mountain Site of Middle Honshu
M	R	Shiroumatogarinezumi	Sorex Hosonoi Shiroumanus	Shirouma Shrew	North-Alpus
M	R	Sadotogarinezumi	Sorex Sadonis	Sado Shrew	Sado
M	R	Oriijinezumi	Crocidura Orii	Orii's Shrew	Amami Island
M	R	Fujimizuramogura	Euroscaptor Mizura Mizura	Fuji Mountain Mole	Hiroshima Mt. Fuji Nikko Kiipen, Akaishi Mountains Yatsugatake

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
M	R	Shinanomizuramogura	Euroscaptor Mizra Ohtai	Shinano Mountain Mole	Hida Shiga Kougen Gunima Pref. Ose Aomori Pref.
M	R	Sadomogura	Mogera Tokudae	Sado Mole	(Niigata)
M	R	Erabuookoumori	Pteropus Dasymallus Dasymallus	Erabu Flying Fox	Erabu Island (Kagoshima)
M	R	Oriiookoumori	Pteropus Dasymallus Inopinatus	Orii Flying Fox	(Okinawa)
M	R	Daitohookoumori	Pteropus Dasymallus Daitoensis	Daito Flying Fox	Daito Islands
M	R	Moyakokokikugashirakoumori	Rhinolophus Cornutus Miyakonis	Miyako Little Horseshoe Bat	Mitako Islands
M	R	Kagurakoumori	Hipposideros Turpis	Bang's Leaf-Nosed Bat	Ishigaki Island Nishiomote Island Yonakuni Island
M	R	Shinanohoohigekoumori	Myotis Hosonoi	Shinano Whiskered Bat	(Nagano)
M	R	Ozehoohigekoumori	Myotis Ozensis	Oze Whiskered Bat	(Yamanashi)
M	R	Himehoohigekoumori	Myotis Ikonnikovi	Ikonnikov's Whiskered Bat	(Hokkaido)
M	R	Kaguyakoumori	Myotis Farater Kaguyae	Kaguya Whiskered Bat	(Hokkaido Aomori)
M	R	Tsushimakuroakakoumori	Myotis Formosus Tsuensis	Tsushima Orange Whiskered Bat	Tsushima Island
M	R	Kurohoohigekoumori	Myotis Pruinosus	Black Whiskered Bat	(Iwate Akita Ehime)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
M	R	Moriaburakoumori	Pipistrellus Endoi	Endo's Pipistrelle	Tohoku Kanto Area
M	R	Kuroooaburakoumori	Pipistrellus Savii Velox	Black Savi's Pipistrelle	(Hokkaido Aomori)
M	R	Chichibukoumori	Barbastella Leucomelas Darjilingensis	Eastern Barbastelle	Hokkaido Honshu Area
M	R	Kuchibatengukoumori	Murina Tenebrosa	Japanese Medium Tub-Nosed Bat	Tsushima Island Yakushima Island
M	R	Ohikikoumori	Tadarida Insignis	Asiatic Free-Tailed Bat	(Hokkaido Kanagawasaitama Mie Hiroshima Ehime Kumamoto)
M	R	Yokushimazaru	Macaca Fuscata Yakui	Japanese Macaque	Yakushima Island
M	R	Hondomomonga	Pteromys Momonga	Small Japanese Flying Squirrel	Honshu Kyushu Area
M	R	Yamane	Glirulus Japonicus	Japanese Dormouse	Forrest of Honshu Shikoku and Kyushu Area
M	R	Rishirimukugenezumi	Clethrionomys Rex	Rishiri Red-Backed Vole	Rishiri Rebun
M	R	Miyamamukugenezumi	Clethrionomys Montanus	Mountain Red-Backed Vole	Middle Hokkaido Hidaka Mountains
M	R	Wakayamayachinazumi	Eothenomys Imaizumii	Wakayama Red-Backed Vole	Mountain of Kiipen
M	R	Miyakeakanezumi	Apodemus Miyakensis	Miyake Field Mouse	Miyake Island

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
M	R	Karafutoakanezumi	Apodemus Peninsulae Giliacus	Sakhalin Field Mouse	(Hokkaido)
M	R	Ezookojo	Mustela Erminea Orientalis	Ezo Stoat	(Hokkaido)
M	R	Hondookojo	Mustela Erminea Nippon	Hondo Stoat	Alpine Region of Honshu
M	R	Rakko	Enhyra Lutris	Sea Otter	Chishima Islands
M	R	Tsushimajika	Cervus Pulchellus	Japanese Shika Deer	Tsushima Island
M	L	Nihonzaru	Macaca Fuscata Fuscata	Japanese Macaque	Shimokita Pen. (Aomori)
M	L	Nihonzaru	Macaca Fuscata Fuscata	Japanese Macaque	Tohhoku Area
M	L	Nihonristu	Sciurus Lis	Japanese Squirrel	Western Part of Lake Biwa
M	L	Ezohiguma	Ursus Arctos Yesoensis	Ezo Brown Bear	Western Ishikari (Hokkaido)
M	L	Tsukinowaguma	Selenarctos Thibetanus Japonicus	Asian Black Bear	Kiipen. (Mie & Nara)
M	L	Tsukinowaguma	Selenarctos Thibetanus Japonicus	Asian Black Bear	Eastern Chuugogu Mountains
M	L	Tsukinowaguma	Selenarctos Thibetanus Japonicus	Asian Black Bear	Western Chugoku Area (Shimanehiroshimayamaguchi)
M	L	Tsukinowaguma	Selenarctos Thibetanus Japonicus	Asian Black Bear	Shikoku Mountains (Tokushimaakouchi)
M	L	Tsukinowaguma	Selenarctos Thibetanus Japonicus	Asian Black Bear	Kyushu (Oitamiyazaki)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
M	L	Nihonizuna	Mustela Nivalis Namiyei	Japanese Lessen Weasel	(Aomori)
M	L	Ryukyuinoshishi	Sus Riukiuanus	Riukiu Wild Pig	Tokunoshima Island
M	L	Nihonkamoshika	Capricornis Crispus Crispus	Japanese Serow	Shikoku Area (Tokushimaa-kohchi)
M	L	Nihonkamoshika	Capricornis Crispus Crispus	Japanese Serow	Kyushu Area (Oitakumamot-omiyazaki)
B	X	Hashibutogoi	Nycticorax Caledonicus Crassirostris	Rufous Night Heron	
B	X	Kanmurit Sukushigamo	Tadorna Cristata	Crested Shelduck	
B	X	Mamijirokuna	Poliolimnas Cinereus Brevipes	White-Browed Crake	
B	X	Ryukyukarasbato	Columbia Jouyi	Ryukyu Wood Pigeon	
B	X	Ogasawarakarasubato	Columbia Versicolor	Bonin Wood Pigeon	
B	X	Miyakosyoubin	Halcyon Miyakoensis	Miyako Kongfisher	
B	X	Kitataki	Dryocopus Javensis Rechardsi	White-Bellied Black Woodpecker	
B	X	Daitoumisosazai	Troglodytes Troglodytes Orii	Wren	
B	X	Ogasawaragabicyou	Turdus Terrestris	Bonin Island Thrush	
B	X	Daitouhashinagauguisu	Cettia Diphone Restrictus	Barodino Bush Warbler	

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
B	X	Daitouyamagara	Parus Varius Orii	Varied Tit	
B	X	Mukojimameguro	Apalopteron Familiare Familiare	Bonin Islands Hone-yeater	
B	X	Ogasawaramashiko	Chaunporoctus Ferreoros-tris	Bonin Islands Grosbeak	
B	E	Ahoudori	Diomedea Albatrus	Short-Tailed Albatross	Izu Islandskenkaku Islands
B	E	Chishimaugarasu	Phalacrocorax Urile	Red-Faced Cormorant	Chishima Islandswestern Hokkaido
B	E	Kounotori	Ciconia Ciconia Boyciana	White Stork	*No Wild Habitat In Japan
B	E	Toki	Nippoia Nippon	Japanese Crested Ibis	*No Wild Habitat
B	E	Ojirowashi	Haliaeetus Albicilla	White-Tailed Sea-Eagle	Western & Northern Hok-kaido
B	E	Ogasawaranosuri	Buteo Buteo Toyoshimai	Buzzard	Ogasawara Islands
B	E	Daitounosuri	Buteo Buteo Oshiroi	Buzzard	Daito Islands
B	E	Kumataka	Spizaetus Nipalensis Orien-talis	Hodgson's Hawk Eagle	
B	E	Inuwashi	Aquila Chrysaetos Japonica	Golden Eagle	
B	E	Kanmuriwashi	Spilornis Cheela Perplexus	Crested Serpent Eagle	Nishiomotejima Islandishi-gakijima Island
B	E	Raicho	Lagopus Mutus Japonicus	Ptarmigan	South Alpus

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
B	E	Tancho	Grus Japonensis	Japanese Crane	(Hokkaido)
B	E	Yanbarukuina	Rallus Okinawae	Okinawa Rail	Northern Okinawa Area
B	E	Amamiyamashigi	Socolopax Mira	Amami Woodcock	Nansei Islands
B	E	Umigarasu	Uria Aalge Inornata	Guillemot	Common Murreteuri Island
B	E	Etopirika	Lunda Cirrhata	Tufted Puffin	Western Hokkaido
B	E	Yonakunikarasubato	Columba Janthina Stajnegeri	Japanese Wood Pigeon	Ishigakijimanoshiomotejimayonakunitou Island
B	E	Akagashirakarasubato	Columba Janthina Nitens	Japanese Wood Pigeon	Ogasawara Islands
B	E	Kinnbato	Chalcophaps Indica Yamashinai	Emerald Dove	(Okinawa)
B	E	Shimafukurou	Ketupa Blakistoni Blakistoni	Blakiston's Fish Owl	(Hokkaido)
B	E	Noguchigera	Sapheopipo Noguchii	Pryer's Woodpecker	(Okinawa)
B	E	Ohsutonooakagera	Dendrocopos Leucotos Owstoni	White-backed Woodpecker	Amamioshima Island (Kagoshima)
B	E	Miyubigera	Picoides Tridactylus Inouyei	Three-Toed Woodpecker	(Hokkaido)
B	E	Yairocyou	Pitta Brachyura Nympha	Fairy Pitta	(Kohchinagasakimiyazakinagano Etc.)
B	E	Ootoratsugumi	Turdus Dauma Amami	White's Ground Thrush	Amamioshima Island (Kagoshima)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
B	E	Hahajimameguro	Apalopteron Familiare Hahashima	Bonin Islands Hone-yeater	Ogasawara Islands
B	E	Ogasawarakawarahiwa	Carduelis Sinica Kittlitzi	Oriental Greenfinch	Ogasawara Islands
B	V	Kanmurikaitsuburi	Podiceps Cristatus Cristatus	Great Crested Grebe	*Inhabit as Migrant Birds Throughout Japan
B	V	Kurowamitsubame	Oceanodroma Matsudairae	Matsudaira's Fork-Tailed Petrel	Kitaioutou Islandminami-ioutou Island (Tokyo)
B	V	Shijyukaragan	Branta Canadensis Leuco-paraia	Canada Goose	Hokkaidonorthern Honshu
B	V	Sakatsuragan	Anser Cygnoides	Swan Goose	A Few Come to Throughout Japan as Migrants
B	V	Tsukushigamo	Tadorna Tadorna	Common Shelduck	Kyushu Area
B	V	Misago	Pandion Haliaetus Haliae-tus	Osprey	Throughout Japan
B	V	Oowashi	Haliaeetus Pelagicus Pelagicus	Steller's Sea Eagle	Hokkaidowastern & Central Honshu
B	V	Ootaka	Accipiter Gentilis Fujiyamae	Goshawk	South of Honshu
B	V	Cyuuhi	Circus Aeruginosus Spi-lonotus	Marsh Harrier	(Hokkaidoishikawaaichi Etc.)
B	V	Hayabusa	Falco Peregrinus Japonen-sis	Pergrine Falcon	Throughout Japan

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
B	V	Shimahayabusa	Falco Peregrinus Fruitii	Pergrine Falcon	Kitaioutou Island
B	V	Nabetsuru	Grus Monacha	Hooded Crane	(Kagoshimayamaguchi)
B	V	Manazuru	Grus Vipio	White-Naped Crane	Kyushu Area
B	V	Ookuina	Rallina Eurizonoides Sepiaria	Banded Crake	Okinawa Islands
B	V	Herashigi	Burynorhynchus Pygmeus	Spoon-Billed Sandpiper	North West of Japan
B	V	Shiberiaoohashishigi	Limnodromus Semipalmatus	Asiatic Dowitcher	*Throughout Japan as Migrant Birds
B	V	Karafutoaoashishigi	Tringa Guttifer	Nordmann's Greenshank	*Throughout Japan as Migrants
B	V	Koshakushigi	Numenius Minutus	Little Whimbrel	*Throughout Japan as Migrants
B	V	Kanmuriumisuzume	Bynthliboramphus Wumizusume	Japanese Murrelet	Islands & Islets
B	V	Karasubato	Columba Janthina Janthina	Japanese Wood Pigeon	(Tokyoyamaguchiohitakagoshimaokinawa)
B	V	Kumagera	Dryocopus Martius	Black Woodpecker	(Hokkaidoiwateakitaaomori)
B	V	Akahige	Erithacus Komadori Komadori	Ryukyu Robin	(Kagoshima)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
B	V	Hontouakahige	Erithacus Komadori Namiyei	Ryukyu Robin	(Okinawa)
B	V	Usuakahige	Erithacus Komadori Subrufus	Ryukyu Robin	(Okinawa)
B	V	Akakokko	Turdus Celaenops	Seven Islands Thrush	Izu Islands (Tokyo) Satsunann Islands (Kagoshima)
B	V	Oosekka	Megalurus Pryeri Pryeri	Japanese Marsh Warbler	(Aomoriakit Aibaragi Etc.)
B	V	Rurikakesu	Garrulus Lidthi	Lidth's Jay	Amamioshima Islands
B	R	Koahoudori	Diomedea Immutabilis	Laysan Albatross	Ogasawara Islands
B	R	Seguromizunagidori	Puffinus Lhermineri Bannermani		Ogasawara Islands
B	R	Himekuroumitsubame	Oceanodroma Monorhis	Swinhoe's Fork-Tailed Petrel	(Iwateaomoriishikawakyotoshimanefukuokatokyo)
B	R	Kurokoshijiroumitsubame	Oceanodroma Castro	Madeiran Fork-Tailed Petrel	(Iwate)
B	R	Aotsurakatsuodori	Sula Dactylatra Personata		(Okinawa)
B	R	Akaashikatsuodori	Sula Sula Rubripes		Ogasawara Islandskazan Islandsryukyu Islands
B	R	Sankanogoi	Botaurus Stellaris Stellaris	Bitten	(Hokkaidoshigachibakbaragi)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
B	R	Ooyoshigoi	Ixobrychus Eurhythmius	Schrenck's Little Brittern	North of Central Honshusa-dohokkaido Area
B	R	Mizogoi	Gorsachius Goisagi	Japanese Night Heron	South of Kanto
B	R	Zuguromizogoi	Gorsachius Melanolophus Melanolophus		Yaezan Islands
B	R	Cyuusagi	Egretta Intermedia Intermedia	Intermediate Egret	South of Honshu
B	R	Karashirasagi	Egretta Eulophotes	Chinese Egret	
B	R	Nabekou	Ciconia Nigra	Black Stock	Kyushuokinawa Area
B	R	Herasagi	Platalea Leucorodia Leucorodia	Spoonbill	(Kagoshima)
B	R	Kurotsuraherasagi	Platalea Minor	Blackfaced Spoonbill	Western Japan
B	R	Kurotoki	Threskiornis Melanocephalus	Oriental(White)Ibis	South of Central Honshu
B	R	Kokugan	Branta Bernicla Orientalis		South of Kanto Area
B	R	Magan	Anser Albifrons Frontalis		(Miyazakishikawashimane)
B	R	Hishikui	Anser Fabalis Serrerostris		(Miyaginigataishikawashiga)
B	R	Kohakuchou	Cygnus Columbianus Jankowskii		(Aomoriyamagatafuikushi-mashigatottorishimane)
B	R	Akatsukushigamo	Tadorna Ferruginea	Ruddy Shelduck	(Shimane Etc.)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
B	R	Oshidori	Aix Galericulata	Mandarin Duck	(Hokkaido)
B	R	Tomoegamo	Anas Formosa	Baikal Tdal	West of Central Honshu
B	R	Akahajiro	Aythya Baeri	Bear's Pochard	West of Kanto
B	R	Shinorigamo	Histrionicus Histrionicus	Harlequin Duck	North of Kanto
B	R	Kouraiaisa	Mergus Squamatus		(Niigatashizuokaaichi Etc.)
B	R	Hachikuma	Pernis Apivorus Japonicus		North of Honshu
B	R	Ryukyutsumi	Accipiter Gularis Iwasakii		(Okinawa)
B	R	Haitaka	Accipiter Nisus Nisosimilis		North of Honshu
B	R	Oohayabusa	Falco Peregrinus Pealei		Chishima Islands
B	R	Shiberiahayabusa	Falco Peregrinus Harterti		
B	R	Koshijiroyamadori	Phasianus Saemmerringii Ijimae		South Kyushu
B	R	Kurozuru	Grus Grus Lilfordi		(Kagoshima)
B	R	Kanadazuru	Grus Canadensis Canaden-sis	Sandhill Crane	(Kagoshima Etc.)
B	R	Sodegurozuru	Grus Leucogeranius	Sibelian White Crane	*A Few Come as a Migrant Bird
B	R	Anehazuru	Anthoropoides Virgo	Demoiselle Crane	*A Few Come as a Migrant
B	R	Shimakuina	Porzana Exquisita	Swinhoe's Yellow Rail	*A Few Come as a Migrant

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
B	R	Nogan	Otis Tarda Dybowskii		*A Few Come as a Migrant
B	R	Thishimashigi	Calidris Ptilocnemis		*A Few Come as a Migrant
B	R	Akaashishigi	Tringa Totanus Eurhinus		Eastern Hokkaido
B	R	Hourokushigi	Numenius Madagascarien-sis	Australian Curlew	*Migrant
B	R	Shiroharachuushakushigi	Numenius Tenuirostris	Slender-Billed Curlew	
B	R	Oojishigi	Gallinago Hardwickii	Latham's Snipe	North of Central Honshu
B	R	Seitakashigi	Himantopus Himantopus Himantopus	Black-Winged Stilt	(Aichichiba Etc.)
B	R	Tsubamechidori	Glareola Maldivarum	Indian Pratincole	(Miyazakiaichisaitama Etc.)
B	R	Ooazarashi	Sterna Bergii Cristata		Ogasawara Islandsnansei Islands
B	R	Beniazarashi	Sterna Dougallii Bangsi		Nansei Islandsokinawa Mainland
B	R	Eriguroazarashi	Sterna Sumatrana Sumatrana	Black-Naped Tern	Nansei Islands
B	R	Koajisashi	Sterna Albifrons Sinensis		South of Honshu
B	R	Madaraumisuzume	Brachyramphus Marmora-tus Perdix		Hokkaido
B	R	Umisuzume	Synthlibaramphus Antiquus		(Hokkaido Etc.)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
B	R	Shirakobato	Streptopelia Decaocto Decaocto	Collared Turtle Dove	Kanto Area
B	R	Ryukyuookonohazuku	Otus Bakkamoena Pryeri		Izu Islandsnishiomote Island-okinawa Main Island
B	R	Kinimefukurou	Aegolius Funereus Pallens		(Hokkaido Etc.)
B	R	Buppousou	Eurystomus Orientalis Cal-onyx		Honshusadoshikokukyushu Area
B	R	Shirogashira	Pycnonotus Sinensis Orii		Yaezan Islands
B	R	Mosukemisosazai	Troglodytes Troglodytes Mosukei		Okinawa Islands
B	R	Tanekomadori	Erithacus Akahige Tanen-shis		Izu Islandssatsunann Islands
B	R	Uchiyamashimasennyuu	Locustella Ochotensis Pleskei		(Tokyofuku-okawakayamamie)
B	R	Iijimaimushikui	Phylloscopus Limae	Iijima's Willow Warber	Izu Islandsokinawa Mainis-landmiyako Islandyonakuni Island
B	R	Oriiyamagara	Parus Vaius Olivaceus		Nishiomote Island
B	R	Namieyamagara	Parus Varius Namiyei		Izu Islands
B	R	Ohsutonyamagara	Parus Varius Owstoni		Izu Islands

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
B	R	Kojurin	Emberiza Yessoensis Yessoensis	Japanese Reed Bunting	Northern Tohhokuwestern Kantokyushu
B	R	Kasasagi	Pica Pica Sericea		Northern Kyushu
R	E	Kikuzatosawahebi	Opisthotropis Kikuzatoi	Kikuzato's Brook-Snake	Kumejima Island (Okinawa)
R	V	Semaruhakogame	Cuora Flavomarginata Flavomarginata	Yellow-Marginated Box Turtle	Ishigakijimanishiomotejima Island
R	V	Ryukyuyamagame	Geoemyda Spengleri Japonica	Yanbarugame	(Okinawa)
R	R	Aoumigame	Chelonia Mydas	Common Green Turtle	Ogasawara Islandsnansei Islands
R	R	Taimai	Eretmochelys Imbricata	Hawksbill Turtle	Nansei Islands
R	R	Akaumigame	Caretta Caretta	Loggerhead Turtle	
R	R	Kurokwatokagemodoki	Eublepharis Kuroiwae	Kuroiwa's Ground Gecko	(Okinawa)
R	R	Kishinouetokage	Eumeces Kishinouyei	Kishinoue's Giant Skink	Miyako Islandsyaezan Islands
R	R	Iwasakisedakahebi	Pareas Iwasakii	Iwasaki's Snail-Eater	Ishigaki Islandsnishiomote Islands
B	B	Amamitakachihohebi	Achalinus Werneri	Amami Takachiho Snake	Amamioshima Islandokinawa Islands

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
B	B	Sakishimaaohebi	Opheodrys Herminae	Sakishima Green Snake	Miyako Islandsyaezan Islands
B	B	Sakishimabaikada	Dinodon Septentrionalis Multifasicatus	Sakishima King Snake	Ishigakijimanishiomotejima Island
B	B	Himehebi	Calamaria Pfefferi	Pfeffer's Reed Snake	Okinawamiyakojima Island
B	B	Iwasakiwamonbenhebi	Calliophis Macclellandii Iwasakii	Iwasakis Coral Snake	Ishigakinishiomotejima
B	B	Hyan	Calliophis Japonicus	Japanese Coral Snake	Okinawa Area
B	B	Yaeyamatakachihohebi	Achalinus Formosanus Chigirai	Yaeyama Takachiho Snake	Yaeyama Islandsnishiomotejima Island
A	E	Hokurikusanshouuo	Hynobius Takedai	Hokuriku Salamander	(Ishikawatoyama)
A	E	Abesanshouuo	Hynobius Abai	Abe's Salamander	Hango Pen. (Kyoto)
A	V	Hakubasanshouuo	Hynobius Hidamontanus	Hakuba Salamander	(Nananoniigatatoyama)
A	V	Ishikawagaeru	Rana Ishikawae	Ishikawa's Frog	Amamiohshima Islandokinawa Main Island
A	V	Ottongaeru	Babina Subaspera	Otton Frog	Amamiohshimakakeromatou Island
A	V	Horusutogaeru	Babina Holsti	Holst's Frog	Okinawa Area
A	R	Ooitasanshouuo	Hynobius Dunni	Oita Salamander	North Kyushukouchi Pref.
A	R	Okisanshouuo	Hynobius Okiensis	Oki Salamander	Okishima Island

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
A	R	Bekkousanshouuo	Hynobius Stejnegeri	Amber-Colored Salamander	(Kumamotomiyazakikagoshima)
A	R	Kitasanshouuo	Salamandrella Keyserlingii	Siberian Salamander	Kushiro Swamp (Hokkaido)
A	R	Oosanshouuo	Megalobatrachus Japonicus	Japanese Giant Salamander	Honshu (West of Gifu) Shikokufukuokaohita
A	R	Iboimori	Tylototriton Andersoni	Anderson's Alligator Newt	Okinawa Area
A	R	Darumagaeru	Rana Porosa Brevipoda	Daruma Pond Frog	Kagawa Pref. Sanyohkinkichukyotokai Region
A	R	Namiegaeru	Rana Namiyei	Namiye's Frog	Northern Okinawa Main Land
A	L	Kasumisanshouuo	Hynobius Nebulosus Nebulosus	Clouded Salamander	(Kyotoosaka)
A	L	Toukyousanshouuo	Hynobius Nebulosus Tokyoensis	Tokyo Salamander	Western Tokyo
A	L	Tokyosanshouuo	Hynobius Nebulosus Tokyoensis	Tokyo Salamander	(Aichi)
A	L	Ooitasanshouuo	Hynobius Dunni	Oita Salamander	Southern Kyushu Area
A	L	Oodaigaharasanshouuo	Gynobius Boulengeri	Odaigahara Salamander	(Miewakayamanaraoit Amiyazaki)
F	X	Kunimasu	Oncorhynchus Kawamurae		Lale Tazawa (Akita)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
F	X	Minamitomiyo	Pungitius Kaibarae		(Kyotohyogo)
F	E	Kirikuchi	Salvelinus Japonicus		(Narawakayama)
F	E	Satsukimasu	Oncorhynchus Ishikawai		River Nagaraise Bay
F	E	Iwame	Oncorhynchus Iwame		(Ibaragikanagawanaga-nomieihimeohita)
F	E	Ryukyuayu	Plecoglossus Altivelis Ryukyuensis		Amamiohshima Islandoki-nawa Main Island
F	E	Ariakeshirauo	Salanx Ariakensis		North Kyushu
F	E	Ariakehimeshirauo	Neosalanx Regani		North Kyushu
F	E	Hinamoroko	Aphyocypris Chinensis		(Fukuokasaga)
F	E	Ushimotsugo	Pseudorasbora Pumila		(Aichigifu)
F	E	Itasenpara	Acheilognathus Logipinnis		Yodo Riverkiso River
F	E	Nipponbaratanago	Rhodeus Ocellatus Smithii		East of Lake Biwa
F	E	Suigenzenitanago	Rhodeus Atremius Suigen-sis		(Hyogookayamahiroshima)
F	E	Miyakotanago	Tanakia Tanago		Kanto Area (Tochigigunima-saitamachibatokyokana-gawa)
F	E	Ayumodoki (Umidojou)	Leptobotia Curta		(Shigakyotoosaka-naraokayama)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
F	E	Nekogigi	Coreobagrus Ichikawai		(Gijuaichimie)
F	E	Kyushugibachi	Pseudobagrus		Kyushu Area
F	E	Musashitoyo	Pungitius		(Saitama)
F	V	Itou	Hucho Perryi		Hokkaidosouth Chishima
F	V	Gogi	Salvelinus Imbrius		(Shimaneokayamahiroshi-mayamaguchi)
F	V	Ukekuchiugui	Tribolodon		(Yamagatafukushimaniigata)
F	V	Hariyo	Gasterosteus Aculeatus Microcephalus		(Gifushiga)
F	V	Mutsugorou	Boleophthalmus Pectiniros-tris		Ariakekaiyashirokai (North Kyushu)
F	V	Yamanokami	Trachidermus Fasciatus		(Fukuokasaganagasaki)
F	R	Yuufutsuyatsume	Lampetra Tridentata		(Hokkaidotochigi-naraibaragi)
F	R	Shiveriayatsume	Lampetra Kessleri		(Hokkaido)
F	R	Etsu	Coilia Nasus		Ariakekai
F	R	Miyabeiwana	Salvelinus Miyabei		Lake Shibetsu
F	R	Oshorokoma	Salvelinus Malma		(Hokkaido)
F	R	Biwamasu	Oncorhynchus Rhodurus		Lake Biwa

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
F	R	Shinaimotsugo	Pseudorasbora Pumila Pumila		(Akita)
F	R	Zenitanago	Acheilognathus Typus		Honshu (North of Kanto-Niigata)
F	R	Ezotomiyo	Pungitius Tymensis		(Hokkaido)
F	R	Taiwankingyo	Macropodus Opercularis		Okinawa Main Island
F	R	Oyanirami	Coreoperca Kawamebari		Honshu (West of Kinki) Shikoku and Kyushu Area
F	R	Akame	Lates Japonicus		Ohyodo River (Kyushu) Shimanto River (Kohchi)
F	R	Tanagomodoki	Hypseloetris Cyprinoides		Ryukyu Islands
F	R	Shinjikohaze	Chaenogobius		Lake Shishido (Shimane)
F	R	Idomimizuhaze	Luciogobius Pallidus		(Miewakayamakohchiehime-kumamotoyamaguchi)
F	R	Doukutsumimizuhaze	Luciogobius Albus		Gotou Islands
F	R	Tsubasahaze	Rhyacichthys Aspro		Ishigaki Islandnishiomote Island
F	L	Etsu	Coilia Nasus		Rokkaku Riverchikugo River (Saga)
F	L	Kawabatamoroko	Hemigrammocypris Rasborella		(Shizuoka)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
F	L	Akaza	Liobagrus Reini		Kyushu Area
F	L	Medaka	Oryzias Latipes		Ryukyu Islands
F	L	Taunagi	Monopterus Albus		Okinawa Main Islandamami-ohshima Island
F	L	Itoyo	Gasterosteus Aculeatus		(Fukushima)
F	L	Itoyo	Gasterosteus Aculeatus		(Fukui)

Invertebrates

Group	Class	Japanese	Scientific	English	Location
I	X	Kadotamekurachibigomi-mushi	Ishikawatrechus Interme-dius		
I	X	Kozonomekurachibigo-mimushi	Rakantrechus Elegans		
I	E	Ishiimushi	Galloisiana Notabilis		(Nagasaki)
I	E	Hinumaito Tombo	Mortonagrion Hirosei		(Miyagifukushimaibaragi-saitamachibatokyomiekana-gawaosaka)
I	E	Bekkotombo	Libellula Angelina		(Shizuoka)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
I	E	Eguritamanzumushi	Heterotrephes Admorsus		Amamioshima Islandtokun-oshima Island
I	E	Shioamenbo	Asclepios Shiranui		Saseboariake Shasetonaikai
I	E	Ishigaki Niinii	Platypleura Albivannata		Ishigaki Island
I	E	Ogasawara Hanmyou	Cicindela Bonina		Chichi Islandhaha Island
I	E	Kebanemekura Chibigo-mimushi	Chaetotrechiama Procerus		(Kochi)
I	E	Tsuzurasemekura Chibig-omimushi	Rakantrechus Lallum		(Kumamoto)
I	E	Usukemekura Chibigo-mimushi	Rakantrechus Mirabilis		(Oita)
I	E	Ryunomekura Chibigo-mimushi	Awatrechus Hygrobius		(Tokushima)
I	E	Kiiro Hosogomimushi	Drypta Fulveola		(Tokyochiba)
I	E	Yasya Gengoro	Acilius Kishii		(Fukui)
I	E	Sharp Gengoromodoki	Dytiscus Sharpi		Kanto Area
I	E	Ryunoiwatatsuyamune-hanekakushi	Quedius Kiuchii		Western Shikoku
I	E	Yokomizodoromushi	Leptelmis Gracilimus		Honshushikoku Kyushu
I	E	Yanbaru Tenagakogane	Cheirotonus Jambar		Okinawa Main Island

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
I	E	Kiiro Nekuihamushi	Macroplea Mutica Japana		Kinki & Kanto Area
I	E	Isomematoi	Hydrotaea Glabricula		(Ishikawa)
I	E	Goishhit Subame Shijimi	Shijimia Moorei		(Kumamotomiyazaki)
I	E	Ohura Ginhyoumon	Fabriciana Nerippe		(Kumamotoditasagafukuo-kaehimeyamaguchishimane-hyogokyoto & Gunima)
I	E	Mitsumonkenmon	Cymatophoropsis Trimaculata		Central Honshu
I	E	Noshimekoyaga	Sinocharis Korbae		Tohoku Area
I	E	Miyajima Tombo	Orthetrum Poecilops Miyajimaensis		Miyajima (Hiroshima)
I	V	Kuroiwazemi	Baeturia Kuroiwae		Okinawa Main Island & Kume Island
I	V	Kawamura Nabeburamushi	Aphelocheirus Kawamurae		Lake Biwa
I	V	Tagame	Lethocerus Deyrollei		
I	V	Ikarimonhanmyo	Cicindela Anchoralis		(Kagoshimaishikawa)
I	V	Yodoshiro Herihanmyo	Cicindela(Callytron)Inspecularе		Bay of Setouchi & Kyushu
I	V	Mark Osamushi	Apotomopterus Maacki Aouatilis		Tohoku Area

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
I	V	Honshuooichimonjish-ima Gengoro	Hydaticus Conspersus		Kanto & Tohoku Area
I	V	Madarashimagengoro	Hydaticus Thermonectoides		
I	V	Goheinikubae	Sarcophila Japonica		Dunes Facing the Sea of Japan
I	V	Itohabachi	Neocolochel Yna Itoi		(Oitatokushima)
I	V	Gifucyo	Luehdorfia Japonica		South of Honshu
I	V	Loomisushijimi	Panchala Ganesa Loomisi		(Chibawakayamashi-maneyamaguchi)
I	V	Hyomonmodoki	Melitaea Scotosia		(Hiroshimaokayama)
I	V	Takanehikage	Oeneis Norna Asamana		Hida Mountains
I	V	Takanehikage	Oeneis Norna Sugitanii		Yatsugatake Mountains
I	R	Karafuto Itotombo	Agrion Hylas		North Western Hokkaido
I	R	Akame Itotombo	Erythromma Najas Baicalensis		Kushirohokkaido
I	R	Karakanetombo	Nehalennia Speciosa		Tohoku & Hokkaido Area
I	R	Ogasawara Itotombo	Boninagrion Ezoin		Ogasawara Islands
I	R	Ryukyu Rurimontombo	Coeliccia Ryukyuensis Ryukyuensis		Okinawa Main Island

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
I	R	Amami Rurimontombo	Coeliccia Ryukyuensis Amamii		Amamiohshima Island & Tokunoshima Island
I	R	Masaki Rurimontombo	Coeliccia Flavicauda Masakii		Yaeyama Islands
I	R	Ryukyu Togeotombo	Rhipidolestes Okinawana		Okinawa Main Island & Amamiohshima Island
I	R	Ogasawara Aoitotombo	Indolestes Boninensis		Ogasawara Islands
I	R	Hanadakatombo	Rhinocypha Ogasawarensis		Ogasawara Islands
I	R	Yaeyama Han-adakatombo	Rhinocypha Uenoi		Nishiomote Island
I	R	Chibikawatombo	Bayadera Brevicauda Ishi-gakiana		Yaeyama Islands
I	R	Ryukyu Hagrotombo	Matrona Basilaris Japonica		Okinawa Main Island & Amamiohshima Island
I	R	Okinawa Sanae	Asiagomphus Amamiensis Okinawanus		North Okinawa
I	R	Amami Sanae	Asiagomphus Amamiensis Amamiensis		Amamiohshima Island
I	R	Yaeyama Sanae	Asiagomphus Yaeyamaen-sis		Yaeyama Islands
I	R	Okinawa Ojirosanae	Stylogomphus Ryukyuanus Asatoi		North Okinawa

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
I	R	Watanabe Ojirosanae	Stylogomphus Shirozui Watanabei		Yaeyama Islands
I	R	Himehososanae	Leptogomphus Yayeyamaensis		Yaeyama Islands
I	R	Okinawa Sarasayamma	Oligoaeschna Kunigamien-sis		North Okinawa
I	R	Amami Yamma	Planaesehna Ishigakiana Nagaminei		Amamiohshima Island
I	R	Ishigaki Yamma	Planaeschna Ishigakiana Ishigakiana		Ishigaki Islandnishiomote-jima Island
I	R	Sakishimayamma	Planaeschna Risi Sakishi-mana		
I	R	Iijimaruriboshiyamma	Aeschna Subarctica		Kushirohokkaido
I	R	Karasuyamma	Chlorogomphus Brunneus Brunneus		Yambaruokinawa
I	R	Asato Karasuyamma	Chlorogomphus Brunneus Keramensis		Kerama Islandsokinawa
I	R	Okinawa Minamiyamma	Chlorogomphus Brevis-tigma Okinawaensis		Yambaru District Okinawa
I	R	Iriomote Minamiyamma	Chlorogomphus Iriomoten-sis		Nishiomotejima Island
I	R	Okinawa Koyamatombo	Macromia Kubokaiya		Yambaruokinawa

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
I	R	Hinayamatombo	Macromia Urania		Yaeyama Islands
I	R	Taiwan Koyamatombo	Macromia Clio		Nishiomotejima Island
I	R	Sakishima Yamatombo	Macromidia Ishidai		Ishigaki Islandnishiomote Island
I	R	Ogasawara Tombo	Hemicordulia Ogasawarensis		Ogasawara Island
I	R	Minamitombo	Hemicordulia Mindana Nipponica		Ryukyu Islands & (Miyagi)
I	R	Ryukyu Tombo	Hemicordulia Okinawaensis		Okinawa Main Islandamamiohshima Island
I	R	Shimaakane	Boninthemis Insularis		Ogasawara Islands
I	R	Kiiro Harabirotombo	Lyriothemis Tricolor		Nishiomotejima Island
I	R	Ezo Kaojirotombo	Leucorrhinia Intermedia Ijimai		North Western Hokkaido
I	R	Okinawa Kirigiris	Gampsocleis Ryukyuensis		Okinawa Main Island & Miyako Island
I	R	Tsushima Futogis	Paratlanticus Tsushimaensis		Tsushima
I	R	Benitsuchikamemushi	Parastrachia Japonensis		Okinawakyushu
I	R	Esaki Amanbo	Limnoporus Esakii		Honshukyushu
I	R	Babaamenbo	Gerris Babai		Hokkaidohonshu

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
I	R	Okinawa Matsumomushi	Notonecta Montandoni		Okinawa Main Island
I	R	Mizumushi	Hesperocorixa Distanti		North & Western Japan
I	R	Ohmizumushi	Hesperocorixa Kolthoffi		Western Japan
I	R	Nagamizumushi	Hesperocorixa Mandshu-rica		Western Japan
I	R	Cyohsen Kenaganiinii	Suisha Coreana		Tsushima
I	R	Daitoh Himeharuzemi	Euterpnosia Chibensis Dai-toensis		Daitoh Islands
I	R	Tsushima Kamakirimo-doki	Cercomantispa Shirozui		Tsushima
I	R	Ruisuhanmyo	Cicindela Lewisi		Setonaikai Seakyushu
I	R	Harabirohanmyo	Cicindela Sumatrensis Niponensis		Tanegashimayakushima South Eastern Kyushu-wakayama Etc.
I	R	Kuroobihigebutoosam-ushi	Ceratoderus Venustus		Shikoku
I	R	Watarase Hanmyomo-doki	Elaphrus Sugai		Kanto Area
I	R	Dohkyoosamushi	Carabus Uenoi		
I	R	Umihoso Chibigomi-mushi	Perileptus Morimotoi		Western Honshushikoku & Kyushu

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
I	R	Ookibanagamizugiwa Gomimushi	Armatocillenus Sumaoi		North Honshueastern Hok-kaido
I	R	Kuchiki Gomimushi	Morion Japonicum		Honshukyushu & Yakush-ima Island
I	R	Amami Sujiao Gomi-mushi	Haplochlaenius Insularis		Amamioshima Island
I	R	Mukashigengoro	Phreatodytes Relictus		Kinki Area
I	R	Mekuragengoro	Morimotoa Phreatica		Kinki Area
I	R	Todasesujigengoro	Copelatus Hasegawai		Tokyo
I	R	Kogatanogengoro	Cybister Tripunctatus Ori-entalis		
I	R	Kitagengorohmodoki	Dytiscus Delictus		(Aomori)
I	R	Chubu Hosogomimushi	Hydrochus Chubu		Osaka Cityyokkaichi City
I	R	Sesujigamushi	Helophorus Auriculatus		
I	R	Sesujimarudoromushi	Georissus Granulosus		(Mie)
I	R	Akatsuyadoromushi	Zaitzevia Rufa		(Niigata)
I	R	Ohzuumihanekakushi	Liparocephalus Tokunagai		(Kanagawawakayamaehime)
I	R	Marudaikokukogane	Gopris Brachypterus		Amamiohshima Island
I	R	Ohcyairohanamuguri	Osmoderma Opicum		

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
I	R	Mikuramiyama Kuwa-gata	Lucanus Gamunus		Izu Islands
I	R	Kinonikuwagata	Prismognathus Dauricus		Tshushima
I	R	Yakyshima Onikuwagata	Prismognathus Tokui		Takyshima Island
I	R	Miyako Madobotaru	Lychnuris Miyako		Miyako Island
I	R	Katsuranekuihamushi	Donacia Katsurai		Western Honshukyushu
I	R	Akaganekuihamushi	Donacia Hitihumeralis		(Tochigi)
I	R	Akimizukusahamushi	Plateunaris Adiensis		(Hiroshima)
I	R	Murasakiaokamikiri	Schwarzerium Viridicya-neum		Kyushuyakushima Island
I	R	Akanekusujitorakamikiri	Cyrtoclytus Monticallisus		(Tottorihyogo)
I	R	Fusahigerurikamikiri	Agapanthia Japonica		Hikkaidoiwate Pref. & Chubuchugoku Area
I	R	Kemadarakamikiri	Agapanthia Daurica		(Hokkaido)
I	R	Michinoku Kemadaraka-mikiri	Agapanthia Sakaii		Tohoku Area
I	R	Himebroudokamikiri	Acalolepta Degener		Western Japan
I	R	Asakamikiri	Thyestilla Gebleri		Western Japan
I	R	Yostumonmitsugirizou-mushi	Baryrhynchus Tokarensis		Tokara Island

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
I	R	Cyabanehosomitsugiri-zoumushi	Dyphagogus Iwatensis		(Iwate)
I	R	Daito Sujihimekatazou-mushi	Ogasawarazo Daitoensis		Kitadaito Island
I	R	Nihon Amikamodoki	Deuterophlebia Nipponica		(Kyoto)
I	R	Kaerukinbae	Lucilia Chini		
I	R	Ohnaginatahabachi	Megaxyela Gigantea		(Hiroshimaishikawa)
I	R	Akamarunaginatahabachi	Pleroneura Hikosana		(Fukuoka)
I	R	Cyaironaginatahabachi	Xyelecia Japonica		(Wakayama)
I	R	Hidakuchinagahabachi	Nipponorhynchus Bimacu-latus		(Gifumie)
I	R	Kuchinagahabachi	Nipponorhynchus Mirabilis		(Kyotofukuoka)
I	R	Shiroarimodokiyadoriba-chi	Caenosclerogibba Japonica		(Kagoshima)
I	R	Aburasakaharanagat-suchibachi	Campsomeris Aburasakana		(Fukui)
I	R	Nagasekurotsuchibachi	Liacos Melanogaster		(Kagoshima)
I	R	Keshinokogirihariari	Amblyopone Fulvida		Okinawa Main Islandhiraza Island
I	R	Yakushimahariari	Ponera Yakushimensis		Yakushima Island

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
I	R	Hosohananagaari	Probolomyrmex Longino-dus		Ishigakijima Island
I	R	Hananagaari	Probolomyrmex Oki-nawaensis		Okinawa Main Island
I	R	Nagaoozuari	Pheidole Ryukyuensis		Okinawa Main Islandshigak-ijima Islandnishiomotejima Island
I	R	Ibariari	Strongylognathus Koorea-nus		(Hiroshimayamanashi)
I	R	Miyamaameirokeari	Lasius Hikosanus		Kyushu & Gifu Pref.
I	R	Yamatomukashiari	Leptanilla Japonica		(Kanagawamie)
I	R	Tosa Mukashiari	Leptanilla Kubotai		(Kohchi)
I	R	Hikosan Mukashiari	Leptanilla Morimotoi		Kyushu
I	R	Ogasawara Mukashiari	Leptanilla Oceanica		Ogasawara
I	R	Yakushima Mukashiari	Leptanilla Tanakai		Yakushima Island
I	R	Amami Dorobachi	Pararrhynchium Tsunekii		Amamioshima Island
I	R	Ogasawara Chibidoroba-chi	Stenodynerus Ogasawaraensis		Ogasawara
I	R	Ogasawara Anabachi	Isodontia Boninensis		Chichi Islandhaha Island
I	R	Fukui Anabachi	Sphex Inusitatus Fukuiensis		(Fukui)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
I	R	Kodama Jigabachimo-doki	Trypoxylon Kodamanum		(Saitama)
I	R	Ogasawara Ginguchiba-chi	Lestica Rufigaster		Hahajima Island
I	R	Tengutsuchisugari	Cerceris Teranishii		(Iwate)
I	R	Akaashisejirokumabachi	Xylocopa Albinotus		Ishigakijima Islandnishio-motejimaislandyo-nakunijima Island
I	R	Amami Kumabachi	Xylocopa Amamensis		Okinawa Islands
I	R	Okinawa Kumabachi	Xylocopa Flavifrons		Okinoerabu Islandokinawa Main Islandkume Islandmiy-ako Island
I	R	Ogasawara Kumabachi	Mesotrichia Ogasawarensis		Chichi Islandhaha Island
I	R	Ishigaki Shiriage	Neopanorpa Subreticulata		Ishigaki Island
I	R	Amami Shiriage	Neopanorpa Amamiensis		Amamioshima Island
I	R	Katatsumuritobikera	Helicopsyche Yamadai		Honshu & Shikoku
I	R	Chamadaraseseri	Pyrgus Maculatus		Hokkaidotohokukantochubu & Shikoku Area
I	R	Himechamadaraseseri	Pyrgus Malvae		(Hokkaido)
I	R	Kadanekimadaraseseri	Carterocephalus Palaemon Satakei		Chubu Area

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
I	R	Ogasawara Seseri	Parnara Ogasawarensis		Chichi Islandhaha Island
I	R	Asahinakimadaraseseri	Ochlodes Asahinai		Ishigaki & Nishiomote Islands
I	R	Usubakicho (Kiirousub-aageha)	Parnassius Eversmanni Daisetsuzanus		(Hokkaido)
I	R	Himegifucho	Luehdorfia Puziloi Inex-pecta		Hokkaidohubu Area
I	R	Mikadoageha	Graphium Doson Albidum		Kii Penn Chugokush-ikokukyushu Area & Oki-nawa Islands
I	R	Kumomatsumakicho	Anthocharis Cardamines Isshikii		(Niigatanaganoyamanashish-izuokatoyama & Gifu)
I	R	Miyamashirocho	Aporia Hippia Japonica		(Naganogunmayamanashi & Shizuoka)
I	R	Miyamamonkicho	Colias Palaeno Aias		Mt. Asama
I	R	Miyamamonkicho	Colias Palaeno Sugitanii		North Alpus
I	R	Chosen Akashijimi	Coreana Raphaelis Yama-motoi		(Iwateyamanashiniigata)
I	R	Benimonkarasushijimi	Strymonidia Iyonis		(Naganoshizuokamienaraoka yamahiroshimatokushima & Kochi)
I	R	Iwakawashijimi	Deudorix Eryx Okinawana		Nansei Islands

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
I	R	Kimadararuritsubame	Spindasis Takanonis		Honshu
I	R	Kuroshijimi	Niphanda Fusca		Honshushikoku & Kyushu
I	R	Ogasawara Shijimi	Celastrina Ogasawaraensis		Ogasawara Islands
I	R	Ryukyu Uraboshijimi	Pithecops Corvus Ryukyuensis		Okinawa Main Island & Yaeyama Islands
I	R	Tsushima Uraboshijimi	Pithecops Fulgens Tsushi-maus		Tsushima
I	R	Kurotsubameshijimi	Tongeia Fuscheri		Honshushikokukyushu
I	R	Taiwan Tsubameshijimi	Everes Lacturnus Kawaii		(Wakayamakochie-hime)Kyushunansei Islands
I	R	Ohrurishijimi	Shijimiaeoides Divina Bar-ine		Kyushu & Chubu Area
I	R	Gomashijimi	Maculinea Teleius Kaza-moto		Hokkaidohonshukyushu
I	R	Karaguto Rurishijimi	Vacciniina Optilete Daiset-suzana		(Hokkaido)
I	R	Asahihyomon	Clossiana Freija Asa-hidakeana		(Hokkaido)
I	R	Ohichimonji	Limenitis Populi Jezoensis		Hokkaido & Chubu Area

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
I	R	Konohacho	Kallima Inachus Eucerca		Okinawa Main Island-yaeyama Islandsishigaki Islandnishiomote Island
I	R	Ohmurasaki	Sasakia Charonda		
I	R	Akahoshigomadara	Hestina Assimilis Shirakii		Amamioshima & Tokun-oshima Island
I	R	Futaocho	Polyura Eudamippus Weis-manni		Okinawa Main Island
I	R	Daisetsu Dakanehikage	Oeneis Melissa Daisetsu-zana		(Hokkaido)
I	R	Kumomabinihikage	Erebia Ligea Takanonis		Chubu Area
I	R	Kumomabenihikage	Erebia Ligea Rishirizana		(Hokkaido)
I	R	Ryukyu Uranamijanome	Ypthima Riukiuana		Okinawa Islands
I	R	Masaki Uranamijanome	Ypthima Masakii		Ishigaki & Nishiomote Islands
I	R	Kyrohikage Mikura Is. Speices	Lethe Diana Mikuraensis		Mikura Island
I	R	Himehikage	Coenonympha Oedippus Annulifer		Chugoku & Chubu Area
I	R	Kurojukabashaku	Archearis Notha		(Iwate)
I	R	Yanagunisan	Attacus Atlas		South of Yaeyama Islands

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
I	R	Hagurumayamamayu	Luepa Katinka		Amamioshima Island & Okinawa Main Island
I	R	Fujishiromyakuyotoh	Heliophobus Texturatus		Mt. Fuji
I	R	Azumikishitaba	Catocala Koreana		(Naganofukushima)
I	L	Tsugurozemi	Nipponosemia Terminalis		Miyako Island
S	E	Hageyoshiwarayamakisago	Ogasawarana Metamorpha		Hahajima Island
S	E	Yoshiwarayamakisago	Ogasawarana Yoshiwarana		Hahajima Island
S	E	Hiraseyamakisago	Ogasawarana Hirasei		Hohojima Island
S	E	Chichijima Yamakisago	Ogasawarana Chichijimana		Chichijima Island
S	E	Ogasawara Yamakisago	Ogasawarana Ogasawarana		Hahajima Island
S	E	Anijima Yamakisago	Ogasawarana Discrepans		Ogasawara Islands
S	E	Hahajima Yamakisago	Ogasawarana Capsula		Hahajima Island
S	E	Akabishiyamakisago	Ogasawarana Rex		Chichijima Island
S	E	Subesubeyamakisago	Ogasawarana Nitida		Hahajima Island
S	E	Sorobandamayamakisago	Ogasawarana Habei		Hahajima Island
S	E	Makisujiyamakisago	Ogasawarana Arata		Hahajima Island
S	E	Nippon Nobuegai	Nobuea Kurodai		(Ehime)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
S	E	Kawanejigai	Camptoceras Terebra Hirasei		(Tokyoishikawashigakyo-toosakatokushima Etc.)
S	E	Hidarimakimonoaragai	Colmenella Rezmoji Proshadi		(Aomoritokyofukuishika-washizuokaosaka Etc.
S	E	Hachijoh Kiserugaimo-doki	Mirus Hachijoensis		Hachijoh Island
S	E	Kazaanagiseru	Neophaedusa Spelaeonis		(Kumamoto)
S	E	Enzagai	Hirasea Sinuosa		Hahajima Island
S	E	Koshitakaenzagai	Hirasea Eutheca		Hahajima Island
S	E	Kuchihidaenzagai	Hirasea Insignis		Ogasawara Islands
S	E	Tsuyaenzagai	Hirasea Hypolia		Chichijima & Hahajima Island
S	E	Nakakuboenzagai	Hirasea Biconcava		Hahajima Island
S	E	Marukuboenzagai	Hirasea Diplomphalus		Chichijima &Hahajima Island
S	E	Sokokadoenzagai	Hirasea Goniobasis		Chichijima Island
S	E	Chichijimaenzagai	Hirasea Chichijimana		Chichijimaanijima & Hahajima Islands
S	E	Nakataenzagai	Hirasea Nesiotica		Hahajima Island
S	E	Ohenzagai	Hirasea Major		Chichijima Island

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
S	E	Kadoenzagai	Hirasea Acutissima		Ogasawara Islands
S	E	Hirahetaenzagai	Hirasea (Fametesta) Operculina		Chichijimaanijima & Hahajima Island
S	E	Kodamaenzagai	Hirasea Profundispira		Chichijima Island
S	E	Enzagaimodoki	Hirasiella Clara		Chichijima Island
S	E	Nachi Maimai	Euhadra Nachicola		(Wakayama)
S	E	Sado Maimai	Euhadra Sadoensis		Sadogashima Island
S	E	Murayama Maimai	Euhadra Murayamai		(Niigata)
S	E	Mikawa Maimai	Euhadra Scaevola Mikawa		(Aichishizuoka)
S	V	Miyazaki Mushioigai	Chamalycaeus Miyazakii		(Fukuoka)
S	V	Onagaramushioigai	Chamalycaeus Takahashii		(Oita)
S	V	Kybireitoumushioigai	Chamalycaeus (Sigmacharax) Itonis Makashimai		(Shimane)
S	V	Yanomushioigai	Chamalycaeus Yanoshigehumii		(Kagawa)
S	V	Kubinagamushioigai	Cipangocharax Placeonovitas		(Kochi)
S	V	Kibaokachigusa	Conacmella Vagans		Hahajima Island
S	V	Tensuji Okamonoaragai	Boninosuccinea Punctulispira		Ogasawara Islands

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
S	V	Ogasawara Oka-monoaragai	Boninosuccinea Ogasawarae		Hahajima Island
S	V	Hahajima Kiserugaimo-doki	Boninena Callistoderma		Ogasawara Islands
S	V	Ogasawara Kiserugaimo-doki	Boninena Ogasawarana		Ogasawara Islands
S	V	Hirase Kiserumodoki	Boninena Hiraseana		Ogasawara Islands
S	V	Ishikawa Giseru	Neophaedusa Ishikawai		(Kumamoto)
S	V	Keshou Giseru	Neophaedusa Albela		(Kumamotomiyazaki)
S	V	Iijima Giseru	Vastina (Mesophaedusa) Iji-mae		(Kochi)
S	V	Houraiji Giseru	Vastina (Mesophaedusa) Ikenoi		(Aichishizouka)
S	V	Nemiyadamashi Giseru	Phaedusa Neniopsis Neni-opsis		Amamiohshima Island
S	V	Tokuneniyadamashi Giseru	Phaedusa Neniopsis Cauda-tus		Tokunoshima Island
S	V	Kasugako Giseru	Pictophaedusa Hungerford-iana		(Narakyotoosakatokushi-maokayamaoita)
S	V	Marukuchiko Giseru	Pictophaedusa Holotrema		(Wakayamanarakumamoto-miyazaki)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
S	V	Nakadako Giseru	Proreinia Nakadai		Hachijojima Island
S	V	Nishikiko Giseru	Proreinia Elegans		Nishiomotejima Island
S	V	Uraki Yamatakamaimai	Satsuma (Luchuhadra) Hemihelvus		Miyako Island & Irabu Island
S	V	Urajiro Yamatakamaimai	Satsuma (Luchuhadra) Sorocula		Kikai Island & Amami-oshima Island
S	V	Amano Yamatakamaimai	Satsuma (Luchuhadra) Amanoi		Okinawa Main Island
S	V	Himeyuri Yamatakamai-mai	Satsuma (Luchuhadra) Sooi		Okinoerabu Island
S	V	Sakishima Hishimaimai	Camaena (Miyakoia) Sak-ishimana		Miyako & Irabu Island
S	V	Sadamimaimai	Satsuma (Satsuma) Sadamii		(Miyazaki)
S	V	Hirakobesomaimai	Satsuma Wiegmanniana		(Kochi)
S	V	Tokunoshima Birohoo-maimai	Nipponochloritis Obscurus		Tokunoshima Island
S	V	Mini Birohdomaimai	Nipponochloritis Takedai		(Shizuoka)
S	V	Katamaimai	Mandarina Mandarina		Ogasawara Islands
S	V	Nunomekatamaimai	Mandarina Ponderosa		Hahajima Island
S	V	Himekatamaimai	Mandarina Hahajimana		Hahajima Island

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
S	V	Anakatamaimai	Mandarina Hirasei		Chichijima Island
S	V	Hishikatamaimai	Mandarina Exoptata		Hahajima Island
S	V	Kinoborikatamaimai	Mandarina Suenoae		Chichijima Island
S	V	Morisaki Ohbesomaimai	Aegista (Aegista) Intonsa		(Tokushima)
S	R	Omoigakenamaimai	Aegista (Plectoropis) Inexpectana		(Saitamatokyoaichishizuoka)
S	R	Apoimaimai	Paraegista Apoiensis		(Hokkaido)
S	R	Itomaki Yamatogai	Japonia Striatula		Danjo Islands & Uji Islands
S	R	Kebuka Yamatogai	Japonia Hispida		Uji Islands
S	R	Mojamoja Yamatogai	Japonia Shigetai		Tokara Islands
S	R	Itomakimijinyamatanishi	Cyathopoma Nishinoi		(Kumamoto)
S	R	Kuchibiraki Mushioigai	Chamalycaeus Expanstoma		Uji Islands
S	R	Itou Mushioigai	Chamalycaeus (Sigmacharax) Itonis Itonis		(Okayamahiroshima)
S	R	Ysagataitoh Mushioigai	Chamalycaeus (Sigmacharax) Itonis Shiotai		(Yamaguchihiroshimashimane)
S	R	Okamura Mushioigai	Cipangocharax Okamurai		(Tottorihiroshima)
S	R	Tadaatsubuta Mushioigai	Awalycaeus Akiratadai		(Ehime)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
S	R	Wakishime Gomagai	Diplommatina (Sinica) Lateralis		Miyako Island
S	R	Marukuchi Gomagai	Diplommatina (Sinica) Circumstomata		(Tokushimakochiehime)
S	R	Mizushitadami	Valvata Cristata Hokkaidoensis		(Hokkaidoaomori)
S	R	Nihon Mizushitadami	Cincinna Piscinalis Japonica		Lake Hakone (Kanagawa)
S	R	Biwako Mizushitadami	Biwakovalvata Biwaensis		Lake Biwa (Shiga)
S	R	Kisakiko Mizushitadami	Cincinna Kisakikoensis		Lake Kisakilake Nakaami (Nagano)
S	R	Akiyoshi Mijintsubo	Akiyoshia Uenoi		(Yamaguchi)
S	R	Kobayashi Mijintsubo	Akiyoshia Kobayashii		(Shiga)
S	R	Sagano Mijintsubo	Akiyoshia Kishiiana		Saga (Kyoto)
S	R	Nanatsugama Mijintsubo	Akiyoshia Nanatsugamaensis		Nanatsugama Stalactite Cave (Nagano)
S	R	Kochi Mijintsubo	Akiyoshia Morimotoi		(Kochi)
S	R	Akka Mijintsubo	Akiyoshia Akka		(Iwate)
S	R	Nagayama Yamatsubo	Allepithema Nagayamai		Haruma Islandyoron Island
S	R	Hamadamonoaragai	Radix (Biwakoia) Hamadai		(Oita)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
S	R	Yaeyama Kuchimizogai	Enteroplax Yaeyamensis		Ishigaki & Nishiomote Island
S	R	Soujima Mijinmaimai	Vallonia Excentrica		(Wakayama)
S	R	Yasekiserugaimodoki	Nipponomirus Gracilispirus		(Okayama)
S	R	Takara Nomigiseru	Hemizaptyx Takarai		Senikaku Islands
S	R	Itohikitsugata Nomigiseru	Pulchratyx Longiplicata		Kerama Islands
S	R	Kubinaga Giseru	Pinguiphaedusa Kubinaga		(Aichi)
S	R	Ryukyu Giseru	Luchuphaedusa Inclyta		Okinawa Main Island
S	R	Deeru Giseru	Decolliphaedusa Dalli		(Tokushima)
S	R	Mikado Giseru	Tyrannophaedusa (Tyrannophaedusa) Mikado		(Shiga)
S	R	Shiriboso Giseru	Tyrannophaedusa (Tyrannophaedusa) Iotaptyx		(Shiga)
S	R	Ubu Giseru	Tyrannophaedusa Sugimotonis Puellaris		(Oita)
S	R	Nakamura Giseru	Tosaphaedusa Cincticollis		(Kochi)
S	R	Shirohada Giseru	Neophaedusa Akiratadai		(Ehime)
S	R	Oita Shiro Giseru	Neophaedusa Masatokandai Masatokandai		(Oita)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
S	R	Kurozu Giseru	Mundiphaedusa Kurozuen-sis		(Wakayama)
S	R	Yagura Giseru	Mundiphaedusa Yagurai		(Tokyosaitama)
S	R	Kodamako Giseru	Proreinia Echo		Tokara Islands
S	R	Taishaku Giseru	Stereophaedusa (Ste-reophaedusa) Costifera		(Hiroshima)
S	R	Minobu Maimai	Satsuma (Satsuma) Moel-lendorffiana Thaanumi		(Yamanashishizuoka)
S	R	Yakobi Maimai	Satsuma (Satsuma) Jacobii		(Shiga)
S	R	Nakayama Maimai	Satsuma (Satsuma) Japon-ica Nakayamai		(Fukuoka)
S	R	Kuchijiro Birohdomaimai	Yakuchloritis Albolabris		Yakushima Island
S	R	Hoshiyama Birohdomai-mai	Yakuchloritis Hoshiyamai		Tokara Islands
S	R	Hajimete Birohidomai-mai	Meochloritis Tomiyamai		Uji Islands
S	R	Kehadashiwakuchi Mai-mai	Moellendorffia (Trichelix) Eucharistus Eucharistus		Amamiohshima Island
S	R	Kokehadashiwakuchi Maimai	Moellendorffia (Trichelix) Eucharistus Diminuta		Amamiohshima Island

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
S	R	Tokunoshima Kehadashi-wakuchi Maimai	Moellendorffia (Trichelix) Eucharistus Tokunoensis		Tokunoshima Island
S	R	Keshou Maimai	Trishoplita Optima		(Tokushima)
S	R	Hesoakiatsu Maimai	Nesiohelix Omphalina		Minamidaitou & Kitadaitou Island
S	R	Atsu Maimai	Nesiohelix Solida		Senikaku Island
S	R	Erabu Maimai	Nesiohelix Irrediviva		Okinoerabu Island
S	L	Hakodateyamakisago	Hemipoma Hakodadiense		Shimokita Peninsula
S	L	Hakodateyamakisago	Hemipoma Hakodadiense		(Akita)
S	L	Hakodateyamakisago	Hemipoma Hakodadiense		Sadogashima Island
S	L	Kawashinjugai	Margaritifera Laevis		(Hiroshima)
S	L	Kawashinjugai	Margaritifera Laevis		(Yamaguchi)
C	V	Doukutsu Teppouebi	Metabetaeus Lohena		Minamidaitou Island
C	V	Ogasawara Kotenagaebi	Palaemon Ogasawaraensis		Chichijima Island
C	V	Doukutsunumaebi	Antecaridina Lauensis		Minamidaitou Islandkuro Island
C	V	Aramoto Sawagani	Geothelphusa Aramotoi		Okinawa Islands
C	V	Oh Sawagani	Geothelphusa Levicervix		Okinawa Islands
C	V	Himeyuri Sawagani	Geothelphusa Tenuimana		Okinawa Main Island

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
C	V	Kume Jimaminami Sawa-gani	Candidiopotamon Kume Jimense		Kumejime Island
C	R	Mangrove Teppouebi	Alpheus Euthrosyne Rich-ardsoni		(Okinawa)
C	R	Tsubu Tenagaebi	Macrobrachium Graciliros-tre		(Okinawa)
C	R	Nettai Tenagaebi	Macrobrachium Placidulum		(Okinawa)
C	R	Hiraashi Tenagaebi	Macrobrachium Latidacty-lus		(Okinawa)
C	R	Shokita Tenagaebi	Macrobrachium Chokitai		Nishiomotejima Island
C	R	Minamioni Numaebi	Atya Pilipes		Okinawa Islands
C	R	Hiratsuno Numaebi	Caridina Acuminata		Ogasawara Islands & Oki-nawa Islands
C	R	Hosoashi Numaebi	Caridina Nilotica Gracilipes		Yaeyama Islands
C	R	Nagatsuno Numaebi	Caridina Gracilirostris		Kumejima Island
C	R	Mangrove Numaebi	Caridina		Nishiomotejima Island
C	R	Ashinaga Numaebi	Caridina Rubella		Okinawa Islands
C	R	Sakishima Numaebi	Caridina Sakishimensis		Okinawa Islands
C	R	Chika Numaebi	Halocaridina Trigonoph-thalma		(Okinawa)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
C	R	Kotsuno Numaebi	Neocaridina Brevirostris		Ishigaki Island & Nishiomote Island
C	R	Ishigaki Numaebi	Neocaridina Ishigakiensis		Ishigaki Island
C	R	Sakishima Okayadokari	Coenobita Perlatus		Yaeyama Islands
C	R	Komurasaki Okayadokari	Coenobita Violascens		Yaeyama Islands & Miyako Islands
C	R	Ohnaki Okayadokari	Coenobita Brevimanus		Yaeyama Islands & Miyako Islands
C	R	Iriomotemame Kobushi-gani	Philyra Iriomotensis		Nishiomotejima Island
C	R	Kaneko Kobushigani	Philyra Kanekoi		Sagami Baybay at Kiipen. Nagasaki Pref.
C	R	Amamimame Kobushi-gani	Philyra Taekoae		Amamioshima Islandnishio-mote Island
C	R	Ariake Yawaragani	Elamenopsis Ariakensis		Shimabara Pen.
C	R	Ryukyu Yawaragani	Elamenopsis Filholi		Ishigaki Island
C	R	Shiomaneki	Uca Arcuata		Ariake Sea
C	R	Hakusen Shiomaneki	Uca Lactea		Ariake Sea
C	R	Kawa Sunagani	Deiratonotus Japonicus		Hayama (Kanagawa) Shi-moda (Shizuoka) (Kagoshima)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
C	R	Tondakawa Sunagani	Deiratonotus Tondensis		Tonda River (Wakayama)
C	R	Haragukurechikogani	Ilyoplax Deschampsi		Chikugo River
C	R	Hachijo Hiraisomodoki	Ptychognathus Hachijyoen-sis		Hachijo Island
C	R	Yotsuha Hiraisomodok	Ptychognathus Takahashii		Hachijo Island & Enoshima (Kanagawa)
C	R	Hiramokuzugani	Utica Borneensis		Nishiomote Island
C	R	Taiwan Ohhiraisogani	Varuna Yui		Sagami River (Kanagawa)
C	R	Okinawa Hiraisogani	Gaetice Ungulatus		Okinawa Main Island
C	R	Kebukabenkeigani	Parasesarma Vestitum		Amamiohshima Island
C	R	Taiwan Sawagani	Geothelphusa Candidiensis		Nishiomotejima & Ishigaki Island
C	R	Ryukyu Sawagani	Geothelphusa Obtusipes		Amamiohshima Island & Tokunoshima Island
C	R	Sakamoto Sawagani	Geothelphusa Sakamotoana		Amamiohshimatokunoshima & Okinawa Main Island
C	R	Amami Minamisawagani	Candidiopotamon Ama-mense		Amamiohshima & Tokun-oshima Island
C	R	Okinawa Minamisawa-gani	Candidiopotamon Oki-nawaense		Okinawa Main Island

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
C	R	Okinawa Yamagani	Nanhaipotamon Globosum		Okinawa Main Island
C	R	Yaeyama Yamagani	Nanhaipotamon Yaeya-mense		Ishigaki & Nishiomote Island
C	R	Heritori Okagani	Cardisoma Rotundum		Ishigaki Island & Daitou Islands
C	R	Murasaki Okagani	Gecarcoidea Lalandii		Ishigaki Island
C	R	Hime Okagani	Epigrapsus Notatus		Hachijo Island
C	L	Zarigani	Cambaroides Japonicus		(Akita)
O	E	Tokiwamoudani	Compressalges Nipponiae		(Tokyo)
O	E	Ryuobiyasude	Epanerchodus Acuticlivus		(Tokushima)
O	E	Hoshiobiyasude	Epanerchodus Aster		(Tokushima)
O	E	Ayumikokemushi	Cristatella Mucedo		(Sendaiaomori & Gunma)
O	V	Fuji Horahimegumo	Mesticus Uenoi		Mt. Fuji
O	V	Narita Yokoebi	Jesogammarus (Annanoga-mmarus) Naritai		Lake Biwa
O	V	Suwa Yokoebi	Jesogammarus (Annanoga-mmarus) Suwaensis		(Shiganagano & Shizuoka)
O	R	Kabutogani Uzumushi	Ectoplana Limuli		North Kyushu & Seto Sea
O	R	Izu Uzumushi	Dugesia Izuensis		Izu (Shizuoka)

(continued)

Table 5-1 (Continued)

Group	Class	Japanese	Scientific	English	Location
O	R	Kantouido Uzumushi	Phagocata Papillifera		(Tokyo & Ibaragi)
O	R	Kyoto Uzumushi	Dendrocoelopsis Kishidai		(Kyoto)
O	R	Kishinoue Totategumo	Latouchia Typica		Honshushikoku & Kyushu
O	R	Kinobori Totategumo	Ummidia Fragaria		Honshushikokukyushu & Nonsei Islands
O	R	Mizugumo	Argyroneta Aquatica		(Hokkaidoaomorikyotooita & Kagoshima)
O	R	Hondo Waragimushi	Hondoniscus Kitakamiensis		(Iwate)
O	R	Shinohara Fusayasude	Polyxenus Shinoharai		Southern Bohso Pen.
O	R	Kanten Kokemushi	Asajirella Gelatinosa		South of Kanto
O	R	Himeten Kokemushi	Lophopodella Carteri		(Gunma)

Table 5-2

Integrated Natural Resource Management Plan Outline

(FGS-Japan Table 13-2)

1. General Requirements:

   a. The Inventory, including mapping, must be continuously updated as changes occur; the Conservation Plan must be modified as needed.
   b. It must have a consistent format within each service component and be reviewed and approved in accordance with service component directives.
   c. It should be set up for each camp or district geographic area. Remote sites can be consolidated for documentation purposes.
   d. It must ensure that any newly acquired land is immediately incorporated into the Inventory and Conservation Plan. Any land released is dropped from the Conservation Plan; inventory records must be maintained for five additional years and copies turned over to the affected GOJ/DFAB.
   e. It must identify the key people and phone numbers of all affected City, Prefectural level, and DFAB offices.

2. Natural Resource Inventories must:

   a. Provide a detailed description of ground- and surface waters (including fresh and salt water), wetlands, flood plains, highly erodible soils, threatened and endangered species populations and habitats, forests and woodland areas (including urban forests), native grasslands or other unique vegetation, and recreational areas (including fishing/hunting areas and watchable wildlife areas) whenever these natural resources occur on an installation.
   b. As needed, group inventories for unique habitats, such as coastal zones, together.
   c. Group and/or identify native plant and animal species.

3. Natural Resource Conservation/Management Plans must:

   a. Provide for sustained yield of renewable resources
   b. Provide for conservation and management plans for inventory items mentioned above, including goals, restoration, improvement, preservation, and wise-use methods; and assign responsibilities for implementation; establish monitoring systems; and provide for enforcement.
   c. As needed, provide a separate management plan section for unique habitats, such as coastal zones.
   d. Recommend the outdoor recreation plan, or a version of it, be produced under separate cover for public distribution.
   e. Include enough detail to allow easy implementation and monitoring.

Table 5-3

Procedures for Establishing a Watchable Wildlife Area

(FGS-Japan Table 13-4)

1. Coordination and Consultation. Agents should consult with their local Prefectural wildlife offices, as well as with the local chapters of the private conservation organizations for suggestions and advice on establishing a watchable wildlife program.

2. Establishment criteria. The following should be considered in the selection of a watchable wildlife area:

   a. Resource impacts. Areas and sites should be located and designed to minimize disturbance to wildlife and to protect wildlife habitats from degradation.
   b. Public access. Areas and sites should be reasonably and legally accessible by vehicle, boat, or trail. Operationally sensitive areas must be avoided.
   c. Scenic quality. Areas and sites should be situated in acceptable visual settings. Areas where adverse visual impacts would detract from public use and enjoyment should be avoided.
   d. Wildlife availability. Areas and sites should provide the public with a high probability of viewing and experiencing wildlife during specified periods of time.
   e. Conflicting uses. Areas and sites should be relatively free of conflicting land uses such as military operations, industrial areas, and other public recreational activities due to increased land use movement and noise.
   f. Geographic balance. Areas and sites should be selected to provide a balanced regional distribution of representative wildlife species and habitats and to avoid duplication of nearby viewing areas established by other installations or Japanese organizations.
   g. Enjoyment and education. Areas and sites will provide for public enjoyment and understanding of wildlife and its needs through interpretive and educational materials, including signs, brochures, displays, audio, video, and other media as appropriate.
   h. Public safety. Areas and sites must be located and designed to minimize hazards to the public, and to include appropriate visitor safety awareness for viewing some wildlife species, or their habitats.

3. Management

   a. Include each watchable wildlife area in the Installation Natural Resource Management Plan. Specific areas which the plan must address are: site description, management and use objectives and practices, and monitoring procedures.
   b. Mark each watchable wildlife area with appropriate signs.

INSTALLATION:	COMPLIANCE CATEGORY: NATURAL RESOURCES MANAGEMENT Japan ECAMP	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 6

OTHER ENVIRONMENTAL ISSUES

Japan ECAMP

SECTION 6

OTHER ENVIRONMENTAL ISSUES

A. Applicability of this Section

This section applies to all U.S. Air Force (USAF) installations overseas. Currently, this section contains major subsections that address environmental impacts, environmental noise, the Installation Restoration Program (IRP), the Pollution Prevention Program, and environmental program management in general.

The regulatory requirements in this section are based on the *United States Forces-Japan (USFJ) Final Governing Standards*, Department of Defense (DOD) regulations, and Air Force Instructions (AFIs) that apply at overseas installations. Management practices (MPs) are derived from U.S. Environmental Protection Agency (USEPA) regulations that are not mandatory overseas but are important to follow to preserve the health and safety of AF employees and protect the environment.

Environmental Impacts

This topic of this subsection is the AF's Environmental Impact Analysis Process (EIAP). The subsection addresses FGS-Japan and AF standards the goal of which is to ensure that decision makers are presented with sufficient relevant analysis to understand and evaluate the impact on the environment of the actions they approve and that they receive this information at appropriate times in the decision-making process.

Environmental Noise

This subsection contains standards to control environmental noise within installations. It is limited to measures allowing reasonable internal DOD planning efforts, but it does not address procedures for operating aircraft or ships, which are outside the scope of DOD Directive 6050.16.

Installation Restoration Program

This subsection contains standards to ensure that cleanup projects at sites contaminated by AF operations are executed to the appropriate point.

Pollution Prevention

The U.S. Environmental Protection Agency (USEPA) has developed a hierarchy of options regarding environmental management. The highest priority in this hierarchy of management methods is source reduction as a means of preventing pollution. Source reduction includes reuse or closed-loop recycling. The hierarchy then proceeds to recycling, treatment, and disposal as management methods of decreasing priority.

The concept of pollution prevention, as defined by the USEPA, is the maximum feasible reduction at the source of all wastes generated. This reduction is accomplished by the judicious use of resour through source reduction, materials substitution, energy efficiency, reuse of input materials during p duction, and reduced water consumption. Some of the benefits of pollution prevention are:

1. reducing operating costs (materials, waste management and disposal, production, energy, and facility cleanup)
2. reducing risk of liability
3. enhancing public image
4. protecting the environment and public health.

In Air Force Policy Directive (AFPD) 32-70, *Environmental Quality*, 30 November 1993, the AF explicitly makes Pollution Prevention one of the four pillars of its Environmental Quality Program. The AF will eliminate pollution from its activities wherever possible. It will reduce the generation of waste and the procurement of environmentally damaging materials to as near zero as feasible through material substitution, process change, and other techniques. It will prevent at the source, to the greatest extent possible, environmentally harmful discharges to the air, land, surface water, and groundwater. If the generation of waste cannot be prevented at the source, spent material and waste will be reused or recycled whenever possible. What cannot be reused or recycled will be disposed of in an environmentally sound manner. Both waste disposal and releases to the environment are permitted only after all other pollution prevention alternatives have been exhausted.

The regulatory requirements in this subsection are based on the AFIs that address pollution prevention. Management Practices (MPs) are derived from USEPA regulations that are not mandatory overseas but are important to the protection of the environment.

Program Management

This subsection contains standards relevant to weapons ranges, the A-106 Pollution Abatement Plan, certain reporting requirements, the installation's Environmental Protection Committee (EPC), standards addressing the management of environment-related data in the Work Information Management System-Environmental Subsystem (WIMS-ES), and deployments of forces to AF installations overseas.

B. DOD Directives/Instructions

Environmental Impacts

- *United States Forces-Japan (USFJ) Final Governing Standards*, January 1995, Chapter 17 contains procedures for informing decision makers of environmental considerations when authorizing or approving major DOD actions.

- DOD Directive (DODD) 6050.7, *Environmental Effects Abroad of Major Defense Department Actions*, 31 March 1979, also contains EIAP requirements for overseas installations.

Environmental Noise

- *United States Forces-Japan (USFJ) Final Governing Standards*, January 1995, Chapter 10, contains criteria for controlling environmental noise on installations.

Installation Restoration Program

- None.

Pollution Prevention

- None.

Program Management

- None.

C. U.S. Air Force Documents

Environmental Impacts

- AFI 32-7061, *Environmental Impact Analysis Process,* 24 January 1995, contains requirements that apply to EIAP overseas.

- HQ USAF/CEV Policy Letter, *MAJCOM EPC Coordination of EIAP Documents*, 26 August 1994, requires documentation indicating prior MAJCOM EPC coordination or approval to accompany EIAP documents sent to them for senior staff approval or signature.

Environmental Noise

- AFI 13-212, Volume 1, *Weapons Ranges*, 28 July 1994, requires that installations with air-to-surface weapons ranges address those ranges in plans required by environmental regulations.

- Air Force Instruction (AFI) 13-201, *Air Force Airspace Management,* 1 August 1994, includes practices to decrease disturbances from flight operations.

Installation Restoration Program

- AFI 32-7006, *Environmental Program in Foreign Countries*, 29 April 1994, contains requirements relevant to the cleanup of overseas sites that have been contaminated in the course of AF actions.

Pollution Prevention

- AFI 32-7080, *Pollution Prevention Program*, 12 May 1994, outlines the requirements for the AF's Pollution Prevention Program. It provides instruction in the areas of planning, use of ozone depleting chemicals (ODCs), hazardous substance management and minimization, solid waste management, nonpoint source pollution, and air pollutant emissions.

- AF Policy Letter, *Air Force Ban on Purchases of ODCs*, 7 January 1993, governs the purchase, use, and management of controlled ODCs. It outlines the ODCs and equipment that use them that cannot be purchased and it outlines the steps that should be taken to replace ODCs currently in use.

- AF Pollution Prevention Strategy, 24 July 1995, details the goals and strategies promoted by the AF for pollution prevention.

Program Management

- AFI 13-212, Volume I, *Weapons Ranges*, 28 July 1994, environmental requirements for bases that operate air-to-surface weapons ranges.

- AFI 32-7001, *Environmental Budgeting*, 9 May 1994, provides guidance on identifying, developing, and processing requirements to meet environmental standards at AF installations.

- AFI 32-7002, *Environmental Information Management System*, 31 May 1994, provides guidance and procedures to standardize the use of WIMS-ES.

- AFI 32-7005, *Environmental Protection Committees*, 25 February 1994, provides guidance on the make-up and responsibilities of the installation's Environmental Protection Committee (EPC).

- AFI 32-7006, *Environmental Program in Foreign Countries*, 29 April 1994, requires installations to cooperate with host nation regulatory authorities. Further, it requires that copies of host nation regulatory authority inspection reports be forwarded to HQ USAF/CE and that receipt or notification of the imminent receipt of findings involving media attention or off-base impacts be reported to specific authorities. It also imposes on installations requirements for planning prior to receiving deployments.

D. Responsibility for Compliance

Environmental Impacts

- The BCE provides support to the Environmental Planning Function (EPF), including managing and getting the technical analyses necessary to support the EIAP.

- The BES provides technical assistance to the EPF concerning environmental quality standards, effects, and monitoring capabilities relating to the action(s) being assessed.

- The Environmental Protection Committee (EPC) reviews and approves or disapproves environmental documents prepared by the EPF during the EIAP.

- The SJA advises the EPF and EPC of legal issues regarding environmental documents.

- The PAO reviews environmental documents for public affairs sufficiency and advises the EPF on issues to be addressed in environmental impact statements (EISs).

- The Proponent Activity is responsible for providing a complete description of the proposed action and alternatives (DOPAA) and for identifying key decision points and assisting in making sure that the EIAP is properly phased so that the relevant environmental documents are available to the decision maker.

Environmental Noise

- The Airspace Manager, under the Deputy Commander for Operations, is responsible for managing special use airspace (SUA) and military training routes (MTRs).

- The Public Affairs Officer (PAO) is responsible for making all public releases of information about AF activities.

- The Range Management Agency is responsible for activities at an air-to-ground range, including planning for the range.

Installation Restoration Program

- The BCE is normally responsible for IRP execution. However, this responsibility may be assigned to the installation's Environmental Management Office if one has been established.

- The BES is responsible for providing technical support in Remedial Investigation/Feasibility Study (RI/FS), risk analysis, Quality Assurance or Quality Control (QA/QC), worker health and safety, and other areas.

- The Staff Judge Advocate (SJA) is responsible for providing legal and negotiation support.

Pollution Prevention

- The Installation Commander (IC) must establish and maintain an active program to survey the use, generation, and disposal of hazardous and radioactive waste. The commander must identify requirements and execute the programs to comply with AF policy.

- The Deputy Commander for Maintenance (DCM) ensures that nonhazardous/nontoxic materials are used where possible, maintains a list of hazardous materials used in the work area by shop and maintenance related task, ensures that personnel are properly trained in ordering, using, handling, controlling, and storing hazardous materials and wastes. DCM is also responsible for ensuring that hazardous waste is properly labeled and for notifying the appropriate headquarters when a nonhazardous substitute can be used. In addition, he/she works with the civil and bioenvironmental engineers to develop the installation's waste management plan.

- The Base Civil Engineer (BCE) is responsible for the maintenance and operation of incinerators, fuel burners (boilers), and all installed petroleum storage and dispensing systems. The BCE is also responsible for the storage and handling of all hazardous materials and fuels used by civil engineering shops. The BCE or designated Environmental Management Office (EMO) develops installation-specific policy for all aspects of hazardous waste and pollution prevention management for all activities on the installation (including AF and non-AF tenants). The BCE/EMO also manages the pollution prevention program and serves as the Office of Primary Responsibility (OPR) for developing and implementing the pollution prevention plan.

- The Bioenvironmental Engineering Services (BES) provides technical expertise on hazardous waste identification and, along with the Environmental Manager and the Environmental Protection Committee, establishes the baseline inventory of the Industrial Toxic Project (ITP) targeted chemicals (see Table 6-1). The BES identifies pollution prevention opportunities based on workplace surveys and recommends substitute processes. The BES reviews all substitutions to ensure that substituted materials do not introduce new hazards.

- The Supply Officer has primary responsibility to receive, store, and issue all items ordered. He/she serves as the equipment approval authority, administers the supply improvement program, provides

technical guidance and assistance on supply matters to agencies across the installation, and serves as the primary stock fund manager.

- The Environmental Protection Committee (EPC) is comprised of representatives from all activities involved in pollution prevention management. It reviews and coordinates the installation commander's pollution prevention management program. The committee reviews summary data on waste generation and personnel exposure. The EPC helps with establishing the baseline inventory of ITP targeted chemicals. It should also adopt a policy recommending against the procurement of hazardous materials containing any USEPA ITP chemicals.

- The Environmental Manager (EM) is responsible for managing the installation hazardous waste (HW) management program. The EM, along with the BES and the EPC, establishes the baseline inventory of ITP chemical quantities. The EM then tracks the issue of these chemicals and sends the information to the MAJCOM.

- Hazardous Waste Generators manage hazardous waste in their custody. Management includes proper storage, inspection, recordkeeping, labeling of containers, and transfer for disposal.

- The Water and Waste Shop within Base Civil Engineering has responsibility for operations and maintenance of treatment plants, pretreatment facilities, pump stations, oil/water separators, and other associated facilities around the installation.

Program Management

A-106 Pollution Abatement Plan

- The BEC is responsible for managing the A-106 program, including updating the current plan, inputting new projects, and coordinating with the Civil Engineering Programmer to ensure projects are included in the Civil Engineering Contract Reporting System (CECORS) or the Programming Design and Construction (PDC) System.

- The Civil Engineering Programmer (CEP) is responsible for getting projects into the CECORS or the PDC system.

- The EPC is responsible for coordinating and approving the A-106 Plan.

WIMS-ES

- The BCE or the Environmental Manager (EM) will coordinate the input of data into WIMS-ES.

Reporting Requirements and Deployments

- AFI 32-7006 does not designate the parties responsible for actions required by these sections.

E. Definitions

- *Affirmative Procurement* - Federal agencies must establish programs to encourage purchase of products containing recycled materials, in particular, USEPA Guideline Items. Affirmative procurement programs must establish preference for products containing recycled material, must include a pro-

motion plan to place emphasis on buying recycled, and must have procedures for obtaining and verifying estimates and certifications of recycled content (AFI 32-7080, Attachment 1, Section C).

- *Alternatives* - ways of reducing adverse effects of hazardous materials (HM). Alternatives, as applied to HM decision making, include, but are not limited to, such possibilities as substituting less hazardous or nonhazardous material; redesigning a component such that HM is not needed in its manufacture, use, or maintenance; modifying processes or procedures; restricting users; consumptive use; on-demand supply; direct ordering; extending shelf life; regenerating spent material; downgrading and reuse of spent material; use of waste as raw material in other manufacturing and combinations of those factors. Alternatives are to be analyzed in a could cost approach, considering what the lowest amount the decision could cost by overcoming barriers to getting the job done, while ensuring protection of human health and the environment (AFI 32-7080, Attachment 1, Section C).

- *A-Weighted Sound Level* - calculation of noise exposure that emphasizes sound in the frequency range where most speech information occurs, and thus closely resembles the frequency response of the human ear. Sound measures that are measured on the A-scale are abbreviated dB(A) (FGS-Japan 10-2).

- *Baseline* - quantified starting points from which progress is measured. For the purposes of this instruction, baselines are quantities of material purchased or generated over a specified period of time (AFI 32-7080, Attachment 1, Section C).

- *Categorical Exclusion* - a class of actions, defined and approved in accordance with Executive Order 12114, DOD Directive 6050.7, that normally do not, individually or cumulatively, significantly harm the environment (FGS-Japan 17-2).

  (NOTE: Attachment 2 to AFI 32-7061 contains an extensive list of actions that are categorically excluded in the absence of unique circumstances.)

- *Characteristic Waste* - a waste that exhibits any of the characteristics listed in 40 Code of Federal Regulations (CFR) 261, Subpart C (i.e., toxicity, corrosiveness, ignitability, reactivity) (AFI 32-7080, Attachment 1, Section C).

- *Cost Factors* - the expense and cost avoidance associated with hazardous materials that may be reduced to monetary terms, which includes future liability. Cost factors refer to direct and indirect costs attributable to hazardous materials that are encountered in operations such as acquisition, manufacture, supply use, supply, use, storage inventory control, treatment, recycling, emission control, training, work place safety, labeling, hazard assessments, engineering controls, personal protective equipment, medical monitoring, regulatory overhead, spill contingency, disposal, remedial action and liability (AFI 32-7080, Attachment 1, Section C).

- *Day-Night Average Sound Level* (L_{dn}) - a measure of installation noise exposure expressed in a single number ("xx L_{dn}" as in 55 L_{dn}) that is obtained by adding a 10 dB penalty to nighttime sound levels (2200-0700) to account for increased annoyance caused by noise during these hours (FGS-Japan 10-2).

- *Decibel* (dB) - the unit of sound pressure is the decibel and is symbolically represented as dB. Sound pressure is the amplitude or measure of the difference between atmospheric pressure (with no sound present) and total pressure (with sound present). The decibel scale is a logarithmic scale (FGS-Japan 10-2).

- *Description of Proposed Action and Alternatives (DOPAA)* - an AF document that is the framework for assessing the environmental impact of a proposal. It describes the purpose and need for the action, the alternatives to be considered, and the rationale used to arrive at the proposed action (AFI 32-7061, Attachment 1).

- *Economic Analysis* - an evaluation of the costs associated with the use of hazardous materials and potential alternatives. An economic analysis is not a specific, step-by-step procedure that can be applied by rote to all cases of analyzing whether to use a hazardous material. Rather, organizations shall be guided by basic principles of economics and informed judgment (AFI 32-7080, Attachment 1, Section C).

- *Environment* - the natural and physical environment, excluding social, economic and other environments (FGS-Japan 17-2).

- *Environmental Assessment* - a concise analysis to assist DOD activities in determining whether there is a potential for significant environmental impacts associated with the proposed action and whether an environmental impact statement, environmental review, or environmental study is required (FGS-Japan 17-2).

- *Environmental Impact Statement (EIS)* - an analysis of the likely environmental consequences of a proposal for a major Federal action that is to be considered by DOD activities in deciding whether to approve the proposal. It includes a review of the affected environment, a description of any adverse environmental effects that cannot be avoided if the proposal is adopted, alternatives to the proposed action (including a no-action alternative), actions taken to avoid environmental harm or otherwise to better the environment, and environmental considerations and actions by the other participating nations, bodies, or organizations (FGS-Japan 17-2).

- *Environmental Manager* - the Base environmental management function supervisor or designated representative. Synonymous with the term Environmental Coordinator (AFI 32-7080, Attachment 1, Section C).

- *Environmental Review* - an analysis of the likely environmental consequences of the action that is to be considered by DOD activities in the decision-making process. It includes a review of the affected environment, actions taken to avoid environmental harm or otherwise to better the environment, and environmental considerations and actions by the other participating nations, bodies, or organizations. Environmental reviews are prepared either unilaterally by DOD or in conjunction with another U.S. Agency but do not include foreign government participation (FGS-Japan 17-2).

- *Environmental Study* - an analysis of the likely environmental consequences of the action that is to be considered by DOD activities in the decision-making process. It includes a review of the affected environment, actions taken to avoid environmental harm or otherwise to better the environment, and environmental considerations and actions by the other participating nations, bodies, or organizations. Environmental studies are prepared by the United States in conjunction with one or more foreign nations or by an international body or organization in which the United States is a member or participant (FGS-Japan 17-2).

- *Environmentally Preferable* - products or services that are less harmful to human health and the environment to use, reuse, operate and maintain, and dispose of in comparison with competing products or services of equal value (AFI 32-7080, Attachment 1, Section C).

- *Equivalent Level* (L_{eq}) - the equivalent steady-state sound that, in a stated period of time, would contain the same acoustic energy as the time-varying sound during the same period (FGS-Japan 10-2).

- *Federal Action* - an action that is implemented or funded directly by the United States Government. This includes both operational and installation (e.g., construction) activities including actions which are for Research and Development projects, policies, programs, test and evaluation, procurement, etc. It does not include actions in which the United States participates in an advisory, information gathering, representational, or diplomatic capacity, nor does it include actions taken by Japan when the United States is a beneficiary of the action or actions in which Japan uses funds derived indirectly from the United States (FGS-Japan 17-2).

- *Foreign Nation* - any geographic area (land, water, and airspace) that is under the jurisdiction of one or more foreign governments; any area under military occupation by the U.S. alone or jointly with any other foreign government; and any area that is the responsibility of an international organization of governments. For the purposes of this document, foreign nation includes contiguous zones and exclusive economic zones established consistent with customary international law (FGS-Japan 17-2).

- *Global Commons* - geographic areas that are outside the jurisdiction of any nation, and include the oceans outside territorial limits and Antarctica. Global commons do not include contiguous zones and fisheries zones of foreign nations (FGS-Japan 17-2 and DODD 6050.7, para C(4)).

- *Hazardous Material Pharmacy* - single point control of hazardous material (AFI 32-7080, Attachment 1, Section C).

- *Hazardous Materials* - any substances or materials that pose a threat to human health or the environment typically due to their toxic, corrosive, ignitable, explosive, or chemically reactive nature. More specific definitions may be found in various Federal regulations that implement statutes (i.e., *Hazardous Material Transportation Act, Comprehensive Environmental Response, Compensation, and Liability Act* (CERCLA)) (AFI 32-7080, Attachment 1, Section C).

- *Hazardous Waste* - any waste by-products of society that can pose a substantial or potential hazard to human health or the environment when improperly managed; possess at least one of five characteristics (toxic, corrosive, ignitable, explosive, or chemically reactive) or are listed in 40 CFR 261.3 or applicable state or local waste management regulations (AFI 32-7080, Attachment 1, Section C).

- *Hazardous Waste Characterization* - the identification, description, and quantification of a hazardous waste stream (AFI 32-7080, Attachment 1, Section C).

- *Level 1 Projects and Services* - in the context of the A-106 Pollution Abatement Plan (AFI 32-7001, para 3.4.2.1.1):
    1. correct conditions out of compliance with the FGS or the *Overseas Environmental Baseline Guidance Document* (OEBGD) if there are no FGS (see AFI 32-7006)
    2. restore contaminated sites posing imminent and substantial endangerment to human health and safety

3. restore contaminated sites as needed to sustain current operations.

- *Level 2 Projects and Services* - in the context of the A-106 Pollution Abatement Plan, these address (AFI 32-7001, para 3.4.2.2.1):
  1. conditions that will be out of compliance with future requirements of international agreements such as treaties, Status of Forces Agreements (SOFAs), or bilateral agreements
  2. conditions that will be out of compliance with future FGS requirements.

- *Level 3 Projects and Services* - in the context of the A-106 Pollution Abatement Plan, these projects and services enhance the environment beyond current and future FGS requirements. (AFI 32-7001, para 3.4.2.2)

  (NOTE: Do not use U.S. funds to restore contaminated sites beyond that needed to eliminate imminent and substantial endangerment to human health and safety or sustain current operations (unless required by international agreement).)

- *Life Cycle Economic Analysis* - an evaluation of the costs associated with the use of hazardous materials and potential alternatives over the life of the investment or hazardous material. The analysis is not a specific, step-by-step procedure that can be applied by rote to all cases. Analysis shall be guided by basic principles of economics and informed judgement (AFI 32-7080, Attachment 1, Section C).

- *Life Cycle of Hazardous Material* - the period starting when the use or potential use of hazardous material is first encountered and extending as long as the actual material or its after effects, such as a discarded residual in a landfill, have a bearing on cost. In the case of weapon system acquisition, the life cycle starts when the system is first envisioned. Effects of the use of hazardous material on later operations and maintenance are to be considered. This also holds true for a new use of a hazardous material. Where the hazardous material is already in general use, the life cycle starts when the material is first encountered by any organization that must deal with it (AFI 32-7080, Attachment 1, Section C).

- *Major Action* - an action involving substantial expenditures of time, money, or resources, that affects the environment on a large geographic scale or has substantial environmental effects on a more limited geographic area, and that is substantially different or a significant departure from other actions previously analyzed with respect to environmental considerations and approved, with which the action under consideration may be associated. A deployment of units, ships, aircraft, or mobile military equipment that does not involve significant changes to the physical environment and that does not require additional support facilities that would significantly change the physical environment is not a major action for the purposes of the FGS-Japan (FGS-Japan 17-2).

- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *Media* - the term referring to air, land, water, and groundwater (AFI 32-7080, Attachment 1, Section C).

- *Municipal Solid Waste* (MSW) - trash wastes generated by administrative and domestic activities. MSW does not include hazardous wastes (AFI 32-7080, Attachment 1, Section C).

- *Negative Decision* - a written record of decision not to prepare an environmental assessment, environmental impact statement, environmental review, or environmental study (FGS-Japan 17-2).

- *Nonpoint or Nonstationary Source (NPS) Pollution* - a diffuse source of pollution that does not discharge through a single point, such as (AFI 32-7080, Attachment 1, Section C):
  1. for water - runoff from construction activities and agricultural, silvicultural, urban areas, and industrial areas including airfield operating areas
  2. for air - aircraft test stands, vehicles, aerospace ground equipment (AGE), and aircraft operations.

- *Opportunity Assessment* - a systematic procedure to identify and assess ways to prevent pollution by reducing or eliminating wastes (AFI 32-7080, Attachment 1, Section C).

- *Ozone Depleting Chemicals (ODCs)* - chlorofluorocarbons, halons, and other substances that deplete the stratospheric ozone layer as classified by the *Clean Air Act* (CAA) Amendment of 1990 (AFI 32-7080, Attachment 1, Section C).

- *Pollution Prevention* - all the actions necessary, to include use of processes, practices, products or management actions that eliminate or reduce undesirable impacts on human health and the environment. These actions are a hierarchy of source reduction, recycling, treatment, and disposal or means source reduction and other practices that reduce or eliminate the creation of pollutants through increased efficiency in the use of raw materials, energy, water, or other natural resources, and the protection of natural resources (AFI 32-7080, Attachment 1, Section C).

- *Proponent* - any office, unit, or activity that proposes to initiate an action (AFI 32-7061, Attachment 1).

- *Protected Global Resource* - a natural or ecological resource of global importance designated for protection by the President, or in the case of such a resource protected by international agreement binding on the U.S., designated for protection by the Secretary of State (FGS-Japan 17-2).

- *Recycling* - the use, reclamation and reuse of a material. Use/reuse includes return of the recovered waste to the original process or when the waste is substituted for a raw material in another process. Waste reclamation includes processing of residual waste to recover a useful product and generation of waste material (AFI 32-7080, Attachment 1, Section C).

- *Sound Exposure Level* (SEL) - a measure of single noise events, such as ground runup. It is the level, in decibels, of the time integral of squared A-weighted sound pressure over a given time period or event, with reference to the square of the standard reference sound pressure of 20 micropascals (μPa) and a reference duration of 1 s (FGS-Japan 10-2).

- *Source Reduction* - any practice that reduces or eliminates any hazardous material, pollutant, or contaminant entering any waste stream or otherwise residual waste generation at the source, usually within the generation process. The term includes equipment or technology modifications, process or procedure modifications, reformulation or redesign of products, feedstock substitutions, improvements in feedstock purity, shipping and packaging modifications, improvements in housekeeping, maintenance, training, and management practices, increases in machinery efficiency, and recycling within a process (AFI 32-7080, Attachment 1, Section C).

- *Toxic Chemicals* - those chemicals listed in Section 313 of the *Emergency Planning and Community Right-to-Know Act* (EPCRA) as of 1 December 1993 (AFI 32-7080, Attachment 1, Section C).

- *Volatile Organic Compound (VOC)* - organic substances that react rapidly with NO_x in the air and in the presence of sunlight to form oxidants or smog (AFI 32-7080, Attachment 1, Section C).

OTHER ENVIRONMENTAL ISSUES

GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS: (a)
Environmental Impacts		
All Installations	JA.6-1 through JA.6-7	(1)(2)(3)(4)(14)
Environmental Analyses	JA.6-8 through JA.6-23	(1)
Environmental Noise		
All Installations	JA.6-24 through JA.6-33	(1)(3)(4)(5)(6)
Aircraft Noise	JA.6-34	(1)(5)
IRP	JA.6-35 through JA.6-39	(1)(3)
Pollution Prevention (P2)		
All Installations	JA.6-40 through JA.6-42	(1)(3)(7)
Opportunity Assessments	JA.6-43	(8)(11)
P2 Management Plan	JA.6-44 and JA.6-45	(8)(10)(11)
ODCs	JA.6-46 through JA.6-55	(1)(2)(7)(8)(9)(11)(12)
Hazardous Substances	JA.6-56 through JA.6-59	(1)(7)(8)(9)(11)
Solid Waste	JA.6-60 through JA.6-63	(1)(7)(8)(9)(11)(12)
Program Management		
All Installations	JA.6-64 through JA.6-66	(1)(3)
Weapons Ranges	JA.6-67 and JA.6-68	(13)
A-106	JA.6-69 and JA.6-70	(1)
Reporting Requirements	JA.6-71 through JA.6-73	(1)
EPC	JA.6-74 through JA.6-76	(1)(11)
WIMS-ES	JA.6-77 and JA.6-78	(1
Deployments	JA.6-79 and JA.6-80	(1)

(a) CONTACT/LOCATION CODE:

(1) BCE (Environmental Planning)
(2) BES (Bioenvironmental Engineering Services)
(3) Base Staff Judge Advocate
(4) PAO (Public Affairs Officer)
(5) Deputy for Operations (Airspace Manager)
(6) Range Operating Agency
(7) Supply Officer
(8) Environmental Manager
(9) Generating Activities (Including Accumulation Point Managers/Operators)
(10) Water and Waste Shop
(11) EPC (Environmental Protection Committee)
(12) Contracting
(13) Natural Resources Manager (or Environmental Coordinator)
(14) Base Safety Officer

OTHER ENVIRONMENTAL ISSUES

Records To Review

Environmental Impacts
- Documentation related to EIAP
- Documentation of finding of no adverse effect (for construction activities)
- Environmental Impact Statements (EISs)
- Environmental Analyses (EAs)

Environmental Noise
- Installation Master Plan Document
- Log of complaints from the local community

Installation Restoration Program
- Documentation related to IRP

Pollution Prevention
- Inventory records
- Supply/distribution procedures
- Opportunity assessments
- Baseline records
- Pollution Prevention Management Plan
- Records of any waste reduction/pollution prevention programs
- Records of resource recovery practices including the sale of materials for the purpose of recycling
- Equipment maintenance and inspection records
- Records of waste recovery equipment (i.e., solvent distillation equipment)
- Plans and procedures applicable to air pollution control
- Air emission inventories

Program Management
- A-106 Pollution Abatement Plan
- Exercise- or contingency-specific environment plans, if any

Physical Features To Inspect

Environmental Impacts
- None

Environmental Noise
- Power generators or other noise sources
- Emergency generators
- Test tracks

Installation Restoration Program
- None

Pollution Prevention
- Shop activities
- Hazardous materials and wastes storage areas
- Fire fighting equipment
- Vehicle maintenance areas/motor pool
- Supply area
- Waste recovery areas
- Reuse facility
- VOC sources
- Recycling area

Program Management
- None

People To Interview

Environmental Impacts
- BCE (Environmental Planning)
- BES (Bioenvironmental Engineering Services)
- Base Staff Judge Advocate
- PAO (Public Affairs Officer)
- Base Safety Officer

Environmental Noise
- BCE (Environmental Planning)
- Deputy for Operations (Airspace Manager)
- PAO (Public Affairs Officer)
- Range Operating Agency

Installation Restoration Program
- BCE (Environmental Planning)
- BES (Bioenvironmental Engineering Services)

Pollution Prevention
- BCE (Base Civil Engineer)
- Supply Officer
- BES (Bioenvironmental Engineering Services)
- Environmental Manager
- Generation Activities (Including Accumulation Point Managers/Operators)
- Water and Waste Shop
- EPC (Environmental Protection Committee)
- Contracting

Program Management
- BCE (Environmental Planning)
- Natural and Cultural Resources Managers (or Environmental Coordinator)

COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ENVIRONMENTAL IMPACTS	(NOTE: Japanese Facility Improvement Program (JFIP) actions are not subject to analysis under EIAP.) (NOTE: For proposed Federal actions that involve more than one DOD activity or installation, the parties concerned designate a lead agency, which then analyzes the proposed action and completes any required documentation with the assistance of the other parties.)
All Installations	
JA.6-1. Determine actions or changes since previous review (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (1)
JA.6-2. Copies of all relevant DOD directives/ instructions, USAF directives, and guidance documents should be maintained at the installation (MP).	Verify that copies of the following regulations are maintained and kept current at the installation: (1)(3) - *USFJ Final Governing Standards* (FGS-Japan), January 1995 - AFI 32-7061, *The Environmental Impact Analysis Process,* 24 January 1995 - DODD 6050.7, *Environmental Effects Abroad of Major Department of Defense Actions*, 31 March 1979. Verify that the Base SJA reviews the documents annually for currency and completeness and submits the findings of the review to the Base Environmental Protection Committee.
JA.6-3. Installations must meet regulatory requirements issued since the finalization of the manual (a finding under this checklist item will have the citation of the new regulation as a basis of finding).	Determine whether new regulations concerning EIAP have been issued since the finalization of the manual. (1)(3) Verify that the installation is in compliance with newly issued regulations.
JA.6-4. Installations must have an EPF (AFI 32-7061, para 1.3.4).	Determine who at the installation participates in the EPF. (1)(3) (NOTE: The EPF is the interdisciplinary staff responsible for the EIAP.)

(1) BCE (Environmental Planning) (2) BES (Bioenvironmental Engineering Services) (3) SJA (Staff Judge Advocate) (4) PAO (Public Affairs Officer) (5) Deputy for Operations (Airspace Manager) (6) Range Operating Agency (7) Supply Officer (8) Environmental Manager (9) Generating Activities (Including Accumulation Point Managers/Operators) (10) Water and Waste Shop (11) EPC (Environmental Protection Committee) (12) Contracting (13) Natural & Cultural Resources Managers (or Environmental Coordinator) (14) Base Safety Officer

COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.6-4. (continued)	Verify that the EPF: - assists the proponent in preparing a DOPAA - evaluates proposed actions and completes Sections II and III of AF Form 813, *Request for Environmental Impact Analysis* subsequent to submissions by the proponent and makes categorical exclusion (CATEX) determinations - identifies and documents, with technical advice from the bioenvironmental engineer and other staff members, environmental quality standards that relate to the action under evaluation - prepares environmental documents, or obtains technical assistance through the AF channels or contract support, and adopts the documents as official AF papers when completed and approved - ensures the EIAP is conducted on base-level plans, including contingency plans for the training, movement, and operation of AF personnel and equipment - prepares Notices of Intent (NOI) to prepare an EIS with assistance from the proponent and the PAO - prepares AF Form 813 and applicable portions of Certificates of Compliance for each military construction (MILCON) project according to AFI 32-1021. (NOTE: Determining whether an action significantly affects the environment entails procedures set up to review AF Form 332 and project documentation such as DD Form 1391/C.) Verify that the EPF responsible official signs the AF Form 813 certification.
JA.6-5. Any office, unit, or activity at any level that initiates AF actions (the proponent) must perform specific functions in the EIAP process (AFI 32-7061, para 1.3.5).	Verify that the proponent of an action does the following: (1)(3) - notifies the EPF of pending actions and completes Section I of AF Form 813, including a DOPAA for submittal to the EPF - identifies key decision points and coordinates with the EPF on EIAP phasing to ensure that environmental documents are available to the decision maker before the final decision is made and activities associated with the proposal are not implemented until the EIAP is complete - integrates the EIAP into the planning stage of a proposed program or action and, with the EPF, determines as early as possible whether to prepare an EIS - presents the DOPAA to the EPC for review and comment - coordinates with the EPF prior to organizing public or interagency meetings that deal with EIAP elements of a proposed action and involve persons or agencies outside the Air Force - assists the EPF and PAO in preparing a draft NOI when a decision is made to prepare an EIS.

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COMPLIANCE CATEGORY:
OTHER ENVIRONMENTAL ISSUES
Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
JA.6-6. The SJA, PAO, BES, and Safety Office must perform specific functions in the EIAP process (AFI 32-7061, para 1.3.7 through 1.3.10).	Verify that the SJA does the following: (3) - advises the command level proponent EPF and EPC on CATEX determination and the legal sufficiency of environmental documents - advises the EPF during the scoping process of issues that should be addressed in EISs and on procedures for the conduct of public hearings - coordinates with AFLSA/JAJT on the appointment of an independent hearing officer - refers matters causing, or likely to cause substantial public controversy or litigation through channels to AFLSA/JACE. Verify that the PAO: (4) - advises the EPF, the EPC, and proponents on public affairs implications of proposed actions and review environmental documents for public affairs issues - advises the EPF during the scoping process of issues that should be addressed in the EIS - prepares, coordinates, and distributes news releases related to the proposal and associated EIAP documents - notifies the media and purchases advertisements when newspapers will not run the notices free of charge. Verify that, as a representative of Medical Services, the bioenvironmental engineer provides technical assistance to the EPF in the areas of environmental health standards, effects, and monitoring capabilities. (2) Verify that the Safety Office provides technical assistance to the EPF to ensure consideration of safety standards and requirements. (14)
JA.6-7. The EPC must help the commander assess, review, and approve EIAP documents (AFI 32-7061, para 1.3.6).	Verify that the EPC helps the commander assess, review, and approve EIAP documents. (1) (NOTE: The HQ USAF/CEV policy letter of 26 August 1994 requires documentation indicating prior MAJCOM EPC coordination or approval to accompany EIAP documents sent to them for senior staff approval or signature. The policy is directed at, but not limited to, Draft and Final EISs, EAs, Records of Decision, Findings of No Practicable Alternative, and FONSIs.)

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Environmental Analyses (EAs)	(NOTE: The term 'environmental analysis' is understood to include environmental impact statements (EISs), environmental reviews (ERs), and environmental studies (ESs).)
JA.6-8. A service components that is responsible for a proposal must complete the appropriate EAs (FGS-Japan 17-3.1).	Determine whether the installation has sponsored proposals that require EAs. (1) Verify that the installation has completed the EA appropriate to each such proposal. (NOTE: See Table 6-2 for a simplified summary of how to proceed in the analysis of proposed Federal actions in Japan.)
JA.6-9. If a proponent determines that no EA is required, the installation must document that decision (FGS-Japan 17-3.1).	Verify that, if a proponent determines that no environmental analysis is required, the EPF completes a negative decision. (1) (NOTE: The negative decision should be recorded on AF Form 813 or 332, or on the Certificate of Compliance (DD Form 1391/C).)
Environmental Impact Statements	(NOTE: EISs are required for the following types of actions *only*: - major DOD actions that do significant harm to the environment of the global commons - major DOD actions that significantly affect natural or ecological resources of global importance designated for protection by the President or in the case of such a resource protected by an international agreement that is binding on the United States.)
JA.6-10. Installations must take certain actions with regard to decisions not to prepare an EIS (FGS-Japan 17-3.1 and AFI 32-7061, para 5.2.1).	Determine whether the installation has made any decisions not to prepare EISs for the types of actions listed in the above note. (1) Verify that the EPF documents its decisions not to do EISs. Verify that the installation forwards decisions not to prepare EISs to the appropriate headquarters and to the Executive Agent.
JA.6-11. Installations in the process of completing an EIS must meet certain requirements while engaged in that process (DODD 6050.7, Encl. 1, para C(2) through C(6)).	Verify that no action is taken that does significant harm or limits the choice of a reasonable alternative until the completion of the documentation process. (1) (NOTE: In the case of an emergency where the actions are taken that do significant harm to the environment, the DOD component concerned must consult with the Assistant Secretary of Defense (Manpower, Reserve Affairs, and Logistics.) (NOTE: Environmental documents may be combined with other documents to reduce duplication. Both the use of collective statements and tiering is acceptable.)

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.6-11. (continued)	(NOTE: If a current and acceptable environmental document already exists for a particular action, regardless of which federal agency prepared it, DODD 6050.7 does not require the preparation of a new document.)
JA.6-12. EISs must be prepared in two stages (DODD 6050.7, Encl. 1, para D(2)).	Verify that the installation prepares both a draft and a final version of its EISs. (1)
JA.6-13. Draft EISs must be sufficiently complete to permit meaningful analysis and comment (DODD 6050.7, Encl. 1, para D(2)).	Verify that the installation's draft EISs are sufficiently complete to permit meaningful analysis and comment. (1)
JA.6-14. Installations must take into account substantive comments received on draft EISs (DODD 6050.7, Encl. 1, para D(3)).	Verify that final EISs consider, either individually or collectively, substantive comments received on draft EISs. (1)
JA.6-15. Installations must use supplements to draft or final EISs under certain circumstances (DODD 6050.7, Encl. 1, para D(4)).	Verify that supplements to draft or final EISs are prepared when: (1) - substantial changes to the proposed action are made relative to the environment of the global commons - significant new information or circumstances (relevant to environmental concerns) bears on the proposed action or its environmental effects on the global commons.
JA.6-16. Draft and final EISs must include certain information (DODD 6050.7, Encl. 1, para D(5) and D(6)).	Verify that EISs contain the following: (1) - a section on consideration of the purpose and need for the proposed action - a section on the environmental effects of the proposed action and reasonable alternatives - a section that provides a succinct description of the environment of the global commons affected by the proposed action and reasonable alternatives - a section that analyzes, in comparative form, the environmental effects on the global commons of the proposed action and reasonable alternatives.

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.6-16. (continued)	Verify that the EIS contains clear statements as to why relevant information is missing, whether that information is unavailable or scientifically uncertain.
Environmental Studies and Environmental Reviews	(NOTE: The decision whether a proposed action is one that would significantly affect the environments (potential for significant harm) covered by this section is taken by the EPF.)

JA.6-17. Specific analyses and documentation procedures must be carried out when an installation performs certain types of major DOD actions that do significant harm to the environment of a foreign nation or to a protected global resource (FGS-Japan 17-3.1 and DODD 6050.7, Encl. 2, para B(1) and C(3)(a)).	Verify that the installation performs appropriate analyses and creates documentation for the following types of major Federal actions: (1)
	- those that significantly affect the environment of a foreign nation that is not involved in the action
	- those that are determined to cause significant harm to the environment because they provide to that nation:
	  - a product or involve a physical project that produces a principal product, emission, or effluent that is prohibited or strictly regulated by Federal law in the United States because its toxic effects on the environment create a serious public health risk
	  - a physical project that is prohibited or strictly regulated in the United States by Federal law to protect the environment against radioactive substances
	- those that significantly harm natural or ecological resources of global importance designated for protection by the President or, in case of such a resource protected by international agreement binding on the United States, designated for protection by the Secretary of State.
	(NOTE: Included in the category of "prohibited or strictly regulated" are the following: asbestos, vinyl chloride, acrylonitrile, isocyanates, polychlorinated biphenyls, mercury, beryllium, arsenic, cadmium, and benzene.)
	Determine whether any of the actions occurring at the installation have been granted a categorical exclusion by the DOD.
	Verify that either an environmental study or an environmental review was prepared, as appropriate.

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.6-17. (continued)	(NOTE: The following are exempt from these requirements: - actions that the EPF determines do not significantly affect the environment of a foreign nation that is not participating in the action, or that do not cause significant harm to a designated resource of global importance - actions taken by the President - actions taken by or pursuant to the direction of the President or a cabinet officer in the course of armed conflict - actions taken by or pursuant to the direction of the President or a cabinet officer when the national security or national interest is involved - intelligence activities and arms transfers - votes and other actions in international conferences and organizations - actions involving export licenses, export permits, or export approvals, other than those relating to nuclear activities - actions relating to nuclear activities and nuclear material, except actions providing a nuclear production or utilization facility as defined in the *Atomic Energy Act* of 1954, as amended, or a nuclear waste management facility to a foreign nation - disaster and emergency relief action.) (NOTE: Additional exemptions may be granted on a case-by-case basis.) (NOTE: If a current and acceptable environmental document already exists for a particular action, regardless of which federal agency prepared it, DODD 6050.7 does not require the preparation of a new document.)
JA.6-18. Certain information must be recorded in the event that a decision is made not to prepare an ES (DODD 6050.7, Encl. 2, para D(3)).	Verify that, if a negative decision is made, the file is documented with a a record of that decision and the names of the decision makers who participated. (1) (NOTE: The negative decision should be recorded on AF Form 813 or 332, or on the Certificate of Compliance (DD Form 1391/C).)
JA.6-19. Installations in the process of completing an environmental study (ES) must meet certain requirements while engaged in that process (DODD 6050.7, Encl. 2, para D(3)).	Verify that no action concerning the proposal is taken that would do significant harm to the environment until the study has been completed and the results considered. (1)

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.6-20. The content of an ES is subject to certain requirements (DODD 6050.7, Encl. 2, para D(4)).	Verify that the environmental study includes the following: (1) - a general review of the affected environment - the predicted effects of the action on the environment - significant know actions taken by governmental entities with respect to the proposed action to protect or improve the environment - if no actions are being taken to protect or enhance the environment, a statement as to whether the decision not to do so was made by the affected foreign government or international organization.
JA.6-21. Certain information must be recorded in the event that a decision is made not to prepare an environmental review (ER) (DODD 6050.7, Encl. 2, para E(3)).	Verify that, if a decision is made not to prepare an ER, a record is made of that decision and its basis. (1) (NOTE: The negative decision should be recorded on AF Form 813 or 332, or on the Certificate of Compliance (DD Form 1391/C).)
JA.6-22. Installations in the process of completing an ER must meet certain requirements while engaged in that process (DODD 6050.7, Encl. 2, para E(3)).	Verify that no action concerning the proposal is taken that would do significant environmental harm until the review has been completed. (1)
JA.6-23. The content of an ER is subject to certain requirements (DODD 6050.7, Encl. 2, para E(4)).	Verify that the environmental review includes the following, to the extent reasonably practical: (1) - a statement of the proposed action including its timetable, physical features, general operating plan, and other similar broad-gauge descriptive factors - identification of the important issues involved - the aspects of the actions taken or to be taken by the AF that ameliorate or minimize the impact on the environment - the actions known to have been taken or to be planned by the government of any participating and affected foreign nations that will affect environmental considerations.

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ENVIRONMENTAL NOISE **All Installations**	
JA.6-24. Determine actions or changes since previous review (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (1)(5)
JA.6-25. Copies of all relevant DOD directives/ instructions, U.S. Air Force (USAF) directives, and guidance documents should be maintained at the installation (MP).	Verify that the following documents are maintained and kept current at the installation: (1)(3) - *USFJ Final Governing Standards* (FGS-Japan), January 1995 - AFI 13-201, *Air Force Airspace Management*, 1 August 1994. Verify that the Base SJA reviews the documents annually for currency and completeness and submits the findings of the review to the Base Environmental Protection Committee.
JA.6-26. Installations must meet regulatory requirements issued since the finalization of the manual (a finding under this checklist item will have the citation of the new regulation as a basis of finding).	Determine whether any new regulations concerning noise emissions have been issued since the finalization of the manual. (1)(3)(5) Verify that the installation is in compliance with newly issued regulations.
JA.6-27. Installations with significant noise sources must develop and maintain a noise contour map (FGS-Japan 10-3.1 through 10-3.3).	Determine whether the installation has significant noise sources. (1)(5) Verify that the installation has developed and maintains a noise contour map limited to the installation and areas immediately next to the installation. Verify that noise contours for significant noise sources are developed using a computerized program from operational data using the Day-Night Average Sound Level (L_{dn}) noise descriptor system. Verify that noise analysis for airfields is developed using the A-weighted L_{dn}. (NOTE: The noise simulation program used to assess heavy weapons noise is MicroBNOISE. This software was developed and is maintained by the U.S. Army Construction Engineering Research Laboratories (USACERL).)

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.6-27. (continued)	(NOTE: Noise level contours are generated using the NOISEMAP 6.1 computer program. This program is maintained by the USAF Armstrong Aerospace Medical Research Laboratory.)
JA.6-28. Installations must maintain records of incompatible buildings and land uses (FGS-Japan 10-3.4).	Verify that the installation maintains records of incompatible buildings and land uses on the installation. (1)(5) (NOTE: Table 6-3 establishes compatible uses and the Noise Level Reduction (NLR) to achieve acceptable indoor noise levels for facilities.)
JA.6-29. Installations must review installation master plans to ensure that existing and future facility siting are consistent with an acceptable noise environment (FGS-Japan 10-3.5).	Verify that the installation master plan has been reviewed to ensure that existing and future facility siting is consistent with an acceptable noise environment for the facility and areas next to it both on and off the installation. (1)(5)
JA.6-30. The siting and conduct of ground runup must be evaluated for low frequency vibration as well as general audible noise (FGS-Japan 10-3.6).	Verify that the siting and conduct of ground runup are evaluated for both low frequency vibration and general audible noise. (1)(5)
JA.6-31. Installations must maintain operational data on noise producing activities (FGS-Japan 10-3.8).	Verify that the installation maintains operational data to facilitate development of noise level contour installation compatible use zone studies. (1)(5)
JA.6-32. Installations must have procedures to register and resolve noise complaints (FGS-Japan 10-3.9 and AFI 13-201, para 3.2.7).	Verify that a noise complaint procedure has been instituted. (1)(4)(5)(6) Verify that response to complaints are coordinated with PAO. (NOTE: PAOs are responsible for responding to questions regarding DOD aircraft.)

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.6-33. Installations must take specific actions with regard to noise mitigation (FGS-Japan 10-3.7 and 10-3.10).	Verify that the installation identifies noise sources that create noise impacts. (1)(5)(6) Verify that the installation evaluates the noise impact of construction and other activities that generate noise. Verify that the installation investigates possible mitigation measures. Verify that the installation develops administrative procedures and/or physical measures to mitigate the effects of noise generating activities when needed. Verify that, if practical, the installation programs resources to reduce noise impacts. (NOTE: The computer programs mentioned in checklist item JA.6-27 may, at the installation's discretion, be used for noise control planning.)
Aircraft Noise	
JA.6-34. Installations with MTRs, SUA, and/or supersonic areas or routes must meet requirements with regard to keeping the public informed (AFI 13-201, para 3.2.1 through 3.2.6).	Determine whether the installation has MTRs, SUA, and/or supersonic areas or routes. (1)(5) Verify that an explanatory letter has been developed, outlining the purpose, routes, areas, altitudes, intensity, day and time of use of the areas or routes, and locations of existing operating areas or routes in the vicinity. Verify that the PAO distributes the explanatory letter to community news media and local officials. (NOTE: The information needs to be presented not only to those communities in the immediate vicinity of the facility but also to those communities situated under or near SUAs and/or MTRs.) Verify that copies of the explanatory letter have been sent to airport managers at airports within 20 nautical miles (NM) of MTRs, military operating areas, and restricted areas and within 40 NM of supersonic operations. Verify that news releases are prepared for new areas and routes or major modifications to existing ones. Verify that follow-up news releases are prepared for distribution as necessary through PAO channels to appropriate media outlets explaining the status of the areas and routes being used. Verify that procedures are established for answering community and news media inquiries on changes to operational areas or routes.

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
INSTALLATION RESTORATION PROGRAM (IRP)	
JA.6-35. Determine actions or changes since previous review (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (1)
JA.6-36. Copies of all relevant DOD directives/ instructions, USAF directives, and guidance documents should be maintained at the installation (MP).	Verify that the following documents are maintained and kept current at the installation: (1)(3) - AFI 32-7006, *Environmental Program in Foreign Countries,* 29 April 1994. Verify that the Base SJA reviews the documents annually for currency and completeness and submits the findings of the review to the Base EPC.
JA.6-37. Installations must meet regulatory requirements issued since the finalization of the manual (a finding under this checklist item will have the citation of the new regulation as a basis of finding).	Determine whether new regulations or policies concerning the cleanup of contaminated sites have been issued since the finalization of the manual. (1) Verify that the installation is in compliance with newly issued regulations.
JA.6-38. Cleanup projects at sites contaminated by AF operations must be executed to a point established by AF policy (AFI 32-7006, para 2.2 and 2.3).	Determine whether the installation has planned or conducted any cleanup projects. (1) Verify that cleanup projects are executed to the point that contamination no longer poses an imminent and substantial danger to human health and safety. Verify that cleanup projects are executed as needed to sustain current operations. (NOTE: These requirements do not apply if the AF is bound by international agreement to do more.)

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.6-39. Installations or facilities identified for return to the host nation must meet specific requirements with regard to documentation (AFI 32-7006, para 2.3.2).	Determine whether the installation or facility has been identified for return to the host nation. (1) Verify that the installation or facility documents all known environmental contamination and provides the documentation to the host nation. (NOTE: This requirement applies only after appropriate U.S.-host public announcement of the return, and only after Major Command (MAJCOM) has granted clearance to release the documentation.)

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
POLLUTION PREVENTION **All Installations**	
JA.6-40. Determine actions or changes since previous review (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (1)
JA.6-41. Copies of all relevant DOD directives/ instructions, U.S. Air Force (USAF) directives, and guidance documents should be maintained at the installation (MP).	Verify that the following documents are maintained and kept current at the installation: (1)(3) - AFI 32-7080, *Pollution Prevention Program,* 12 May 1994 - AF Policy Letter, *Air Force Ban on Purchases of ODCs*, 7 January 1993. Verify that the Base SJA reviews the documents annually for currency and completeness and submits the findings of the review to the Base EPC.
JA.6-42. Installations must meet regulatory and AF requirements issued since the finalization of the manual (a finding under this checklist item will have the citation of the new regulation as a basis of finding).	Determine whether any new regulations concerning pollution prevention have been issued since the finalization of the manual. (1)(7) Verify that the installation is in compliance with newly issued regulations.
Opportunity Assessments	
JA.6-43. Installations must conduct Opportunity Assessments to review waste generating activities and installation waste streams (AFI 32-7080, para 2.2.1).	Verify that an Opportunity Assessment of each waste generating activity is conducted on a recurring basis. (8)(11) Verify that the Opportunity Assessment provides a systematic review of the waste generating activities and installation waste streams. Verify that the assessment examines the total waste generation by type and volume of content and determines the most economical and practical waste minimization option. Verify that consideration is given to cost/benefit analysis when evaluating options.

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.6-43. (continued)	(NOTE: An example of the composition of an assessment team includes the following persons: - raw material supplier - Quality Assurance/Quality Control (QA/QC) Officer - consultant - process engineer - safety engineer - purchasing specialist - line laborer - plant manager.)
Pollution Prevention Management Plan	
JA.6-44. Installations must develop and execute a Pollution Prevention Management Plan (AFI 32-7080, para 2.2).	Verify that the installation has a Pollution Prevention Management Plan. (8)(11) Verify that the plan addresses all of the following issues: - the process required to run a pollution prevention program - the program required to fund pollution prevention projects - the road map to achieve AF pollution prevention goals - the actions required to execute the program. Verify that the plan contains management strategies for the following areas: - ODCs - USEPA 17 industrial toxics - hazardous wastes - municipal solid waste - affirmative procurement of recycled materials - energy conservation - air pollution reduction. Verify that the plan identifies and programs projects needed to achieve stated objectives.
JA.6-45. Installations should include additional strategies for improving the pollution prevention program in the Pollution Prevention Management Plan (MP).	Verify that the plan includes the following information: (8)(10)(11) - plans to crossfeed information to the rest of the AF - plans to brief the base EPC - plans to implement Opportunity Assessments - oil/water separator management strategies - usable measures of success - programming and budgeting strategies.

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ODCs	(NOTE: See also Section 1, *Air Emissions Management.*) (NOTE: The only Halon 1211 extinguishers classified as mission critical are the 150 lb flight line extinguishers lsited in TO 00-25-172 to support parked aircraft and those hand-held extinguishers on board large frame aircraft.) (NOTE: As of March 1996 no acceptable replacement for Halon 1211 had been identified.)
JA.6-46. Installations must eliminate dependence on ODCs (AF Policy Letter, 7 January 1993).	Determine whether the installation uses any of the substances listed in Table 6-4. (8)(11)(12) Verify that the installation's dependence on chlorofluorocarbons (CFCs), halons, and other substances that deplete the stratospheric ozone layer is being reduced. Verify that any new system or modification to an existing system does not include the use of ODCs as a solvent. (NOTE: This requirement does not apply if the system or modification is approved by the proper waiver approval authority.)
JA.6-47. Installations should have a refrigerant management plan (MP).	Verify that the installation has a plan for managing the use and disposal of refrigerant. (8)
JA.6-48. Installations must follow specific requirements during the period of transition away from ODC dependence (AF Policy Letter, 7 January 1993 and AFI 32-7080, para 3.1.2).	Verify that, when non-ODC substitutes need long research and development lead times, existing uses are converted to ODCs with lower ozone depletion potential as interim substitutes, (i.e., hydrochlorofluorocarbons (HCFCs)). (1)(2)(7)(8) Verify that inventory reserves are used only to aid a transition from ODCs. (NOTE: This requirement applies after production has been outlawed.) (NOTE: Inventory reserves may not be used as a substitute for changing to non-ozone-depleting practices.) Verify that, if reserves are used to extend the service life of ODC dependent equipment, the installation practices conservation, recovery, and reuse.

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.6-49. Installations must initiate certain ODC replacement programs (AF Policy Letter, 7 January 1993).	Verify that halon systems on crash/rescue vehicles are disabled and a phased program is in place to replace them with nonhalon fire fighting agents. (1)(8) Verify that a phased replacement program has been initiated to replace halon in the 150 lb [≈68 kg] flightline extinguishers. (NOTE: Halon removed from crash/rescue vehicles, or from existing installation stock, may be used to service flightline extinguishers until the phased replacement program is complete.) Verify that existing halon fire extinguishers for facilities are replaced through attrition. Verify that refrigerators and other domestic equipment are replaced at the end of their economic life with non-ODC equipment. (NOTE: Existing airborne cooling systems and subsystems that require ODC refrigerants are considered mission critical.)
JA.6-50. Installations must follow specific requirements regarding contract writing for the use of ODCs (AF Policy Letter, 7 January 1993).	Verify that contracts awarded after 1 June 1993 do not include a requirement to use ODCs or any requirement that can be met only through the use of ODCs. (8)(11) (NOTE: This requirement does not apply if waived by the waiver approval authority (Air Force Logistics (AF/LG), Air Force Civil Engineering (AF/CE), or Deputy Assistant Secretary of the Air Force (SAF/AQ)).)

JA.6-51. Installations must reduce the atmospheric discharge of ODCs (AF Policy Letter, 7 January 1993).	Verify that the discharge of ODCs is reduced to zero as soon as possible. (8)(11)
	
	Verify that one of the following is being used to reduce discharges:
	
	- modification of operating, training, and testing practices
	- implementation of conservation measures such as:
	  - recovery
	  - recycling
	  - reuse
	  - material substitution.
	
	Verify that existing halon systems that discharge to the atmosphere for other than actual fire situations, such as fuel tank inerting systems, are used only in actual combat or in in-flight emergencies.
	
	Verify that fire warning systems and operational procedures operate in such a way that there are no false alarms or false discharges.
	
	Verify that automatic discharge extinguisher systems in facilities are disabled and placed on manual activation.

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.6-51. (continued)	Verify that all servicing of aircraft halon systems captures the halon for recycling with no atmospheric discharge, other than *de minimis* amounts. Verify that leaking systems are repaired quickly.
JA.6-52. Installations must eliminate purchases of ODCs (AF Policy Letter, 7 January 1993 and AFI 32-7080, paras 3.1.1 and 3.1.3).	Verify that the substances listed in Table 6-5 are no longer being purchased. (8)(11)(12) Verify that the following are no longer purchased: - new or recycled ODCs, unless a waiver has been granted - halon extinguishers for facilities - total flooding systems - facility air conditioning systems, AGE, and other refrigeration and support equipment that use ODCs - commercial vehicles with ODC air conditioning equipment - ODC solvents and the equipment/systems/products that require these solvents for maintenance or operation. (NOTE: ODC needed to meet the mission critical applications will be obtained by using stocks, or from the Defense Logistic Agency (DLA) Defense Reserve, or purchased from commercial sources if the reserve is not able to fill a request.) Verify that ODC-containing products are not purchased or obtained from the Defense Reserve without an approved waiver. (NOTE: Organizations may apply for waivers prior to the award of any contract which requires the use of Class I ODCs to purchase new or recycled ODCs, or obtain ODCs from the DLA Ozone Depleting Chemical Bank for mission critical applications. Waivers are not required for government use of ODCs currently in stock on Air Force facilities.)
JA.6-53. Installations should follow specific procedures for the processing of reclaimed ODCs (MP).	Verify that processes are in place to ensure that reclaimed and excess ODC halons, refrigerants, and solvents are routed to the DLA Defense Reserve. (2)(7)(9)
JA.6-54. Installations must manage halons in existing systems in a specific manner (AF Policy Letter, 7 January 1993).	Verify that halons are removed from aircraft that are being retired from service. (9) Verify that such halons are redeployed or added to the AF account at the DLA Defense Reserve.

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.6-55. Installations must maintain equipment and inventories at a certain level (AF Policy Letter, 7 January 1993).	Verify that chillers are well maintained and repaired promptly. (1)(9)
Hazardous Substances (Waste and Material)	
JA.6-56. Installations must develop centralized control procedures for the purchase and use of hazardous materials (AFI 32-7080, para 2.4.1).	Verify that the purchase of hazardous materials is under centralized control. (7)(8) (NOTE: This requirement also applies to ODCs.) Verify that the issuance and distribution of hazardous materials is centrally controlled. Verify that hazardous materials are issued in the smallest quantity necessary to meet the customer's need.
JA.6-57. Installations must reduce the use of USEPA ITP chemicals (AFI 32-7080, para 3.2).	Verify that the installation is working to reduce the use of the chemicals listed in Table 6-1. (1)(7)(8) (NOTE: Due to the high levels of certain USEPA 17 Toxics in jet fuel, and the direct link between fuels and flying hours, the AF's USEPA 17 reduction goals exempt jet fuels.)
JA.6-58. Installations must work to minimize hazardous waste generation (AFI 32-7080, para 3.3 and para 2.4.3).	Verify that hazardous waste from industrial, maintenance, and cleanup operations is minimized to the greatest extent practical and economical. (8)(9)(11) Verify that the installation strives to reduce hazardous waste generation at the source. Verify that alternatives to hazardous materials and processes are used whenever possible. Verify that, when technical orders require the use of many hazardous substances or out-of-date technology, the installation submits an Air Force Technical Order (AFTO) Form 22. (NOTE: This requirement applies only if alternative substances/technology are known to exist.)

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.6-59. Installations should encourage complete use of hazardous materials (MP).	Verify that a reuse facility of some type is established. (7)(8)(11)
Solid Waste	
JA.6-60. Installations must institute pollution prevention procedures as part of their solid waste management (AFI 32-7080, para 3.4.1 and para 3.4.1.1).	Verify that cost-effective waste reduction and recycling programs have been integrated into the Municipal Solid Waste Management program. (1)(9) Verify that the installation either operates a composting program for yard wastes, or participates in a regional composting program. (NOTE: This requirement does not apply if the program can be shown to be cost prohibitive.) Verify that the installation establishes a single qualified recycling program (QRP) that serves all AF and tenant organizations occupying space on the installation, including leased space. Verify that the installation has a QRP manager. Verify that the Services Squadron, AAFES, and the Commissary coordinate their recycling activities with the QRP manager. Verify that recycling includes the following materials: (8) - high quality copier paper - plastic - metals - glass - used oil - lead acid batteries - cardboard - newspaper - tires. Verify that contracts awarded after 20 October 1993 for government owned, contractor operated (GOCO) facilities include provisions that obligate the contractor to participate with a DOD installation or establish their own qualified recycling program. Verify that, when economically feasible and to the extent required by law, existing contracts covering GOCO facilities are modified to incorporate these recycling provisions.

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.6-60. (continued)	Verify that the installation conducts an annual opportunity assessment of the solid waste stream to identify source reduction potential and additional recyclable materials.
JA.6-61. Installations must issue a municipal solid waste and recycling report quarterly (AFI 32-7080, para 3.4.2).	Verify that the municipal solid waste and recycling report (RCS, HAF-CEV(Q)9424 is released quarterly to the Air Staff within 45 days after the end of each quarter. (8) (NOTE: This report can be discontinued during emergency conditions.)
JA.6-62. Installations must implement affirmative procurement programs for materials with recycled content (AFI 32-7080, para 3.5).	Verify that each activity reviews and revises specifications for the following designated items to allow procurement of products containing recycled materials: (1)(7)(8)(11)(12) - paper - retread tires - building insulation - cement/concrete containing fly ash - rerefined oils. Verify that all of the following elements are included in the installation's affirmative procurement program: - a preference program - a promotion plan - procedures requiring vendors and contractors to estimate and certify the content of recovered materials in the above designated items that they sell to the installation or use in construction projects on the installation - annual review of the effectiveness of the program.
JA.6-63. Installations must issue an affirmative procurement purchases report quarterly (AFI 32-7080, para 3.5.4).	Verify that the affirmative procurement report (RCS, HAF-CEV(Q)9424 is released quarterly to the Air Staff within 45 days after the end of each quarter. (8) (NOTE: This report can be discontinued during emergency conditions.)

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
PROGRAM MANAGEMENT **All Installations**	
JA.6-64. Determine actions or changes since previous review (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (1)
JA.6-65. Copies of all relevant DOD directives/ instructions, USAF directives, and guidance documents should be maintained at the installation (MP).	Verify that following documents are maintained and kept current at the installation: (1)(3) - AFI 13-212, Volume 1, *Weapons Ranges*, 28 July 1994 - AFI 32-7001, *Environmental Budgeting*, 9 May 1994 - AFI 32-7002, *Environmental Management System*, 31 May 1994 - AFI 32-7005, *Environmental Protection Committees*, 25 February 1994 - AFI 32-7006, *Environmental Program in Foreign Countries*, 29 April 1994. Verify that the Base SJA reviews the documents annually for currency and completeness and submits the findings of the review to the Base EPC.
JA.6-66. Installations must meet regulatory requirements issued since the finalization of the manual (a finding under this checklist item will have the citation of the new regulation as a basis of finding).	Determine whether new regulations concerning the following program management topics have been issued since the finalization of the manual: (1) - weapons ranges - A-106 - reporting requirements - the EPC - WIMS-ES - deployments. Verify that the installation is in compliance with newly issued regulations.

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Weapons Ranges **JA.6-67.** Weapons ranges must be addressed in plans required by environmental regulations (AFI 13-212, Volume 1, para 1.10.2.2).	(NOTE: These requirements apply to air-to-surface weapons ranges only.) Determine whether the installation has air-to-surface weapons ranges. (13) Verify that each weapons range is addressed in the plans required by environmental regulations. (NOTE: Examples of such plans are: - the hazardous materials management plan - the hazardous waste management plan - the Spill Prevention, Control, and Countermeasures (SPCC) Plan - the spill contingency plan.)

JA.6-68. Installations must develop a comprehensive weapons range plan that meets specific requirements (AFI 13-212, Volume 1, para 1.10.1.1).	Verify that the installation has a comprehensive weapons range plan. (13)
	
	Verify that the plan addresses:
	
	- land space
	- airspace
	- range facilities
	- targets
	- instrumentation (including scoring devices)
	- environmental items
	- local community and government use of adjacent land (regional development agreements)
	- legal liability
	- base facilities
	- range budget
	- any proposed expansion, construction, rehabilitation, or other action that may have an impact on the range.
	
	(NOTE: For overseas ranges, Major Commands (MAJCOMs) may alter the requirements of this plan as necessary to comply with host nation requirements.)
	
	Verify that a brief narrative is included in the plan for only those items that are impacted.
	
	Verify that the plan contains a statement that all of the following areas have been considered:
	
	- Range:
	  - equipment
	  - targets
	  - structures
	  - land requirements (waivers and exemptions)
	  - airspace requirements

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.6-68. (continued)	- maintenance and decontamination - Environmental: - fauna and flora - endangered species - emissions - ambient air quality - noise - water resources - wetlands - coastal zones - mineral resources - soil conservation - timber resources - grazing and croplands - hunting and fishing - outdoor recreation - hazardous wastes - historical sites - archaeological sites - range land use - wilderness - flood plains - Community and Government: - off-range land use - regional development - zoning - intergovernmental agreement(s) - encroachment(s) - Legal: - liabilities - environmental laws - ingrants and outgrants - other agreements - Base Facilities - Range Budget: - past - present - future. Verify that, for new weapons ranges, a plan is developed no later than 1 yr after the range has become operational. Verify that the plan is updated at least every 2 yr.

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
A-106 Pollution Abatement	(NOTE: See Table 6-6 for additional guidance on determining A-106 compliance.)
JA.6-69. Installations must submit a 5 yr pollution abatement plan (the A-106 report) that details the actions they plan to take to get into or maintain compliance (AFI 32-7001, para 3.8).	Verify that the installation submits a 5-yr pollution abatement plan (the A-106 report) that details the actions they plan to take to get into or maintain compliance. (1)
JA.6-70. The installation's A-106 Plan should meet specific requirements with regard to content (MP).	Verify that the installation A-106 Pollution Abatement Plan reflects environmental requirements and properly prioritizes each as Operation and Services, Level 1, Level 2, or Level 3. (1) Verify that the A-106 Plan includes all projects involving costs that are necessary to comply with environmental standards. Verify that projects resulting from previous Environmental Compliance Assessment and Management Program (ECAMP) evaluations or regulatory inspections are included in the A-106 Plan. (NOTE: Management action plans from ECAMP will give projects required to get installation back in compliance.) Verify that the A-106 Plan includes funds required for studies, management, and monitoring associated with the definition and development of corrective measures and necessary equipment to assure compliance with standards. Verify that the installation budgets for the environmental requirements are recorded in the installation A-106 Plan. (1) (NOTE: Assessors compare listings in the A-106 with the Project by Contract Management System (PCMS) and PDC listings in Civil Engineering and compare official financial records with obligation/expenditure data reflected in the A-106 system.) Verify that funds have been requested for Level 1 projects in the current fiscal year. Verify that design funds have been requested for those projects that will be Level 1 projects in the subsequent fiscal year.

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Reporting Requirements	
JA.6-71. Installations must cooperate with host nation regulatory authorities to achieve and maintain environmental quality (AFI 32-7006, para 6.3.5).	Verify that the installation cooperates with host nation regulatory authorities to achieve and maintain environmental quality. (1)
JA.6-72. Installations must promptly forward copies of host nation regulatory authority inspection reports to HQ USAF/CE (AFI 32-7006, para 6.3.5).	Verify that the installation promptly forwards copies of host nation regulatory authority inspection reports to HQ USAF/CE. (1)
JA.6-73. Installations must immediately report receipt or notification of the imminent receipt of findings involving media attention or off-base impacts to certain authorities (AFI 32-7006, para 6.3.5).	Verify that the installation immediately reports receipt or notification of the imminent receipt of findings involving media attention or off-base impacts to the following: (1) - HQ USAF/CE - MAJCOM Surgeon - AFLSA/JACE - HQ USAF/JAI.
Environmental Protection Committee (EPC)	
JA.6-74. Installations must have an EPC that fulfills specific functions (AFI 32-7005, para 4.3).	Verify that the installation has an EPC. (1) Verify that it meets at least quarterly or at the direction of the chairperson. Verify that the EPC reviews and approves environmental impact analysis on proposed actions and forwards to the decision maker. Verify that the EPC reviews environmental policy, resources, and performance and makes recommendations on required changes.

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.6-74. (continued)	Verify that the EPC ensures that appropriate training and manpower exist to meet environmental responsibilities.
JA.6-75. The EPC must consist of certain members (AFI 32-7005, para 3.3).	Verify that the membership of the EPC mirrors the membership of the USAF EPC. (1)(11) (NOTE: The membership of the USAF EPC includes: - the Assistant Secretary of the Air Force for Manpower, Reserve Affairs, Installations, and Environment (SAF/MII) and the Assistant Vice Chief of Staff (HQ USAF/CVA) cochair the EPC - Assistant Secretary for Acquisition (SAF/AQ) - Assistant Secretary for Budget (SAF/FM) - The General Counsel (SAF/IG) - The Inspector General (SAF/IG) - Office of Legislative Liaison (SAF/LL) - Office of Public Affairs (SAF/PA) - the Civil Engineer (HQ USAF/CE) is the EPC Executive Secretary - Deputy Chief of Staff (DCS) Logistics (HQ USAF/LG) - Director, Programs and Evaluations (HQ USAF/PE) - DCS Plans and Operations (HQ USAF/XO) - Chief of Safety (HQ USAF/SE) - The Judge Advocate General (HQ USAF/JA) - DCS Personnel (HQ USAF/DP) - Services (HW USAF/MW) - DCS Command, Control, Communications and Computers (HQ USAF/SC) - Surgeon General (HQ USAF/SG) - Chief of Air Force Reserves (HQ USAF/RE) - Director, Air National Guard (NGB/CF) - Director, Air Force Base Conversion Agency (AFBC/DR).) Verify that the membership of the EPC also includes representatives from tenant organizations, including DRMO and the Army/Air Force Exchange Services (AAFES).
JA.6-76. The EPC has particular responsibilities with regard to record-keeping (AFI 32-7005, para 5).	Verify that a record of the EPC meetings is prepared within 30 days of the meeting. (1)(11) Verify that the minutes of EPC meetings and related documents are kept for at least 10 yr.

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
WIMS-ES Management	
JA.6-77. Installations must meet specific requirements with regard to the tracking and reporting of certain data (AFI 32-7006, para 6.1).	Verify that the installation tracks and reports data from the following areas using WIMS-ES: (1) - cleanup - compliance with FGS - ECAMP - EIAP - comprehensive planning - pollution prevention - data on host nation regulatory findings.

JA.6-78. Program management reporting should be done in WIMS-ES (AFI 32-7002, paras 3.1, 4.1, 5.1, 6.1, 7.1, 8.1, 9.1, 10.1, 11.1, 12.1, 13.1, 14.1, and 15.1).	Verify that quarterly reports are being added and released. (1)
	Verify that programming records are being added for projects and Operations and Services expenses.
	Verify that the following modules are in use:
	- A-106 Module, for reporting planned environmental expenditures and budgeting for the following programs:
	  - restoration
	  - compliance
	  - conservation
	  - pollution prevention
	- Release Reporting Module, for tracking and reporting releases
	- ECAMP Module, for tracking and reporting ECAMP findings and action plans
	- Underground storage tanks (UST) Module, for tracking and monitoring USTs
	- PCB Module, for inventorying all PCB-containing equipment (excluding sealed PCB items and capacitors containing less than 3 lb [≈1 kg] of dielectric fluid)
	- Inspection and Enforcement Module, for tracking host nation regulatory findings
	- Hazardous Waste Module, for tracking and monitoring hazardous waste data
	- Air Management Module, for tracking and monitoring air pollution sources and permits
	- Water and Wastewater Module, for tracking water- and wastewater-related data
	- Cleanup Module, for tracking and reporting information concerning cleanup of contaminated sites

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COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

JA.6-78. (continued)	- Pollution Prevention Module, for reporting data related to the pollution prevention program, including the following:
	  - solid waste disposal
	  - hazardous material purchases
	  - affirmative procurement of recycled products
	  - justification information for funding requirements
	- Conservation Module, for tracking and reporting of the following:
	  - Base Comprehensive Plan status
	  - Installation compatible use zone (ICUZ) status
	  - EIAP actions
	  - Natural and Cultural Resource data.
	
	(NOTE: The Training Tracking Module may be used to track environmental training received by personnel at all levels.)

Deployments	
JA.6-79. Installations must comply with specific instructions for deployments (AFI 32-7006, para 7.1).	Verify that the installation complies with the provisions of AFI 32-7061 (EIAP) for deployments. (1) (NOTE: See checklist items JA.6-5, JA.6-6, and JA.6-10).
JA.6-80. Installations must develop and comply with an exercise- or contingency-specific environmental plan (AFI 32-7006, para 7.1 and 7.3.2).	Verify that the installation develops and complies with an exercise- or contingency-specific environmental plan. (1) Verify that the plan meets the requirements of Joint Chiefs of Staff (JCS) Publication 4-04. Verify the plan specifies environmental responsibilities and policies. Verify that the plan addresses at least the following concerns: - certification of local water sources by medical field units - solid and liquid waste management - hazardous materials management - protection of flora and fauna - archaeological and historical preservation - spill response.

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Table 6-1

USEPA 17 Industrial Toxic Chemicals

(AFI 32-7080, A2.2)

1. Benzene
2. Cadmium and its compounds
3. Carbon Tetrachloride
4. Chloroform
5. Chromium and its compounds
6. Cyanide and its compounds
7. Lead and compounds
8. Mercury and compounds
9. Methylene Chloride
10. Methyl Ethyl Ketone
11. Methyl Isobutyl Ketone
12. Nickel and its compounds
13. Tetrachloroethylene
14. Toluene
15. 1,1,1 - Trichloroethane
16. Trichloroethylene
17. Xylenes

Table 6-2

Analysis of Proposed Federal Actions in Japan

(FGS-Japan Table 17-1)

1. Is the action a major Federal action that could significantly harm global commons? - If no, then no EIS is required. Go to 3, below. - If yes, then go to 2, below.
2. Is the action categorically excluded? - If yes, then document as a negative decision. - If no, then prepare an EIS (will usually involve COMUSJAPAN or higher headquarters).
3. Is the action a major Federal action that could significantly harm the environment *and* will: a. Generate a hazardous waste, a hazardous substance, or radioactive material? *or* b. Involves potential harm to protected resources? - If yes, then go to 4, below. - If no, then document as a negative decision.
4. Is the action exempt from environmental analysis under one of the following subparagraphs: a. Actions taken by the President? *or* b. Actions taken by or pursuant to the direction of the President or a Cabinet Officer when the national security or interest is involved or when the action occurs in the course of an armed conflict? *or* c. Intelligence activities and arms transfers? *or* d. Actions relating to nuclear activities, except actions providing to a foreign nation a nuclear production or utilization facility as defined in the Atomic Energy Act of 1954, or a nuclear waste management facility? *or* e. A disaster or emergency relief action? - If yes, then document as a negative decision. - If no, then go to 5, below.
5. Is the action on the list of CATEXs in DOD Directive 6050.7? - If yes, then document as a negative decision. - If no, then go to 6, below.
6. Does the action involve the Japanese government or another foreign government? - If yes, then prepare an ES. (An ER may also be appropriate; consult COMUSJAPAN and the Embassy.) - If no, then prepare an ER. (An ES may also be appropriate; consult COMUSJAPAN and the Embassy.)

Table 6-3

Minimum Building Sound Level Requirements and Acceptable Land Uses

(FGS-Japan Table 10-1)

Facility	Outdoor Noise Environment (L_{dn}/L_{eq} in dB(A))				
	85-89	**80-84**	**75-79**	**70-74**	**65-69**
Family housing	No	No	No	NLR30(4)	NLR25(4)
Bachelor housing	No	No	NLR35(4)	NLR30(4)	NLR25(4)
Transient Lodging - Hotel, Motel, etc.	No	No	NLR35(4)	NLR30(4)	NLR25(4)
*Classrooms, Libraries, Churches	No	No	No	NLR30	NLR25
*Offices and Administration Buildings - Military	NLR40	NLR35	NLR30	NLR25	Yes
*Offices - Business and Professional	No	No	NLR30	NLR25	Yes
Hospitals, Medical Facilities, Nursing Homes (24-h occupancy)	No	No	No	NLR30	NLR25
*Dental Clinic, Medical Dispensaries	No	No	NLR30	NLR25	Yes
*Outdoor Music Shells	No	No	No	No	No
*Commercial and Retail Stores, Exchanges, Movie Theaters, Restaurants and Cafeterias, Banks, Credit Unions, Enlisted Member/ Officer Clubs	No	No	NLR30	NLR25	Yes
*Flight Line Operations, Maintenance and Training	NLR35(5)	NLR30(5)	Yes	Yes	Yes
*Industrial, Manufacturing and Laboratories	No	NLR35(5)	NLR30(5)	NLR25(5)	Yes
*Outdoor Sports Arenas, Outdoor Spectator Sports	No	No	No	Yes(1)	Yes(1)
*Playgrounds, Active Sport Recreational Areas	No	No	No	Yes	Yes
*Neighborhood Parks	No	No	No	Yes	Yes
*Gymnasiums, Indoor Pools	No	NLR30	NLR25	Yes	Yes
*Outdoor - Frequent Speech Communication	No(2,3)	No(2,3)	No(2)	No(2)	No(2)
*Outdoor - Infrequent Speech Communication	No(2,3)	No(2,3)	Yes	Yes	Yes
Livestock Farming, Animal Breeding	No	No	No	Yes	Yes
*Agricultural (except livestock)	Yes(3)	Yes(3)	Yes	Yes	Yes

*For detailed design, the L_{eq} for the appropriate period of usage is the preferred measure of the noise environment.

Yes - Land use compatible with noise environment. No special noise control restriction. Normal construction appropriate.

(continued)

Table 6-3 (continued)

NLR - Appropriate noise level reduction where indoor activities predominate.

No - Land use not compatible with noise environment, even if special building noise insulation provided.

KEY:

(1) Land use is acceptable, provided special sound reinforcement systems are installed.

(2) Land use may be acceptable, provided special speech communication systems are used.

(3) Land use may be acceptable provided hearing protection devices are worn by personnel. Check applicable hearing damage regulations.

(4) Although it is recognized that local conditions may require residential uses in these areas, this use is strongly discouraged in L_{dn} 70-74 and L_{dn} 75-79 and discouraged in L_{dn} 65-69. The absence of viable development options should be determined. NLR criteria will not eliminate outdoor environment noise problems, and, as a result, site planning and design should include measures to minimize this impact, particularly where the noise is from ground level sources.

(5) The NLR must only be incorporated into the design and construction of portions of these buildings where the public is received, where office areas and noise sensitive work areas exist, or where the normal noise level is low.

Table 6-4

ODCs Subject to AF Policy Letter, 7 January 1993

(AF Policy Letter, 7 January 1993)

HALONS
Halon 1211, Halon 1301, Halon 1202, and Halon 1011 are used primarily as firefighting agents.
CFCs
CFCs -11, -12, -13, -111, -112, -113, -114, -115, -211, -213, -214, -215, -216, and -217 are used primarily as refrigerants and cleaning solvents.
OTHER CONTROLLED SUBSTANCES
Carbon tetrachloride and methyl chloroform are used primarily as cleaning solvents. Methyl bromide is used as pesticide and fumigant.

Table 6-5

Ozone Depleting Chemicals to which AFI 32-7080 Applies

(AFI 32-7080, A2.1)

Halocarbon Number	Molecular Formula	Name
Section A: Class I Ozone Depleting Chemicals		
CFC-11	CCl_3F	Trichlorofluoromethane
CFC-12	CCl_2F_2	Dichlorodifluoromethane
CFC-113	$C_2Cl_3F_3$	Trichlorotrifluoroethane
CFC-114	$C_2Cl_2F_4$	Dichlorotetrafluoroethane
CFC-115	C_2ClF_5	Chloropentafluoroethane
Halon 1211	CF_2ClBr	Bromochlorodifluoromethane
Halon 1301	CF_3Br	Bromotrifluoromethane
Halon 2402	$C_2F_4Br_2$	Dibromotetrafluoroethane
CFC-13	$CClF_3$	Chlorotrifluoromethane
CFC-111	C_2Cl_5F	Pentachlorofluoroethane
CFC-112	$C_2Cl_4F_2$	Tetrachlorodifluoroethane
CFC-211	$C_3Cl_7F_3$	Heptachlorofluoropropane
CFC-212	$C_3Cl_6F_2$	Hexachlorodifluoropropane
CFC-213	$C_3Cl_5F_3$	Pentachlorotrifluoropropane
CFC-214	$C_3Cl_4F_4$	Tetrachlorotetrafluoropropane
CFC-215	$C_3Cl_3F_5$	Trichloropentafluoropane
CFC-216	$C_3Cl_2F_6$	Dichlorohexafluoropropane
CFC-217	C_3ClF_7	Chloroheptafluoropropane
Carbon Tetrachloride	CCl_4	Tetrachloroethane
Methyl Chloroform	$CHCl_3$	Trichloroethane (all isomers)
Methyl Bromide		
Section B: Class II Ozone Depleting Chemicals		
HCFC-12	$CHCl_2F$	Dichloromethane
HCFC-22	$CHClF_2$	Chlorodifluoromethane
CHFC-121	C_2HCl_4F	Tetrachlorofluoroethane
CHFC-122	$C_2HCl_3F_2$	Trichlorodifluoroethane
CHFC-123	$C_2HCl_2F_3$	Dichlorotrifluoroethane
HCFC-124	C_2HClF_4	Chlorotetrafluoroethane
HCFC-131	$C_2H_2Cl_3F$	Trichlorofluoroethane
HCFC-132	$C_2H_2Cl_2F_2$	Dichlorodifluoroethane

(continued)

Table 6-5 (continued)

Halocarbon Number	Molecular Formula	Name
HCFC-133	$C_2H_2ClF_3$	Chlorotrifluoroethane
HCFC-141	$C_2H_3Cl_2F$	Dichlorofluoroethane
HCFC-142	$C_2H_3ClF_2$	Chlorodifluoroethane

Table 6-6

Guidance for A-106 Compliance

Use the following list of questions to aid in determining whether the A-106 package has been completed correctly.

1. Is **MAJCOM** field correct?
2. Is the **BASE** field filled in?
3. Is the **PROJECT** number correct in accordance with CEV A-106 guidance letter?
4. Does the **MODULE IND** read PREV?
5. Is the **TITLE** one of the standard titles included in the call letter?
6. Is the **Nature of the PROJECT** I, E, or O? If it is E. is it fully justified? If it is O is it an O&S project?
7. Is a **BASE POC** and a **PHONE** listed?
8. Is there an N on screen two?
9. If the **Pgm FY** correct?
10. Does the PA amount match the PPPN?
11. Is the **CWE** entered in? For an initial entry is it the same as the PA amount?
12. Is the **fund type** entered?
13. Is there an N in **Multiple INST**?
14. **PGM Element** for 3400, 3010, or 3020 money should be 78054. For 3600 money it should be 65854.
15. Is **Assessment** left blank?
16. Is the **progress code** only one of the following: (for an initial entry it should be either 1 or 9)
    1 = project validated and funded
    2 = funds have been obligated
    6 = project canceled
    9 = all O&S
17. Is **ownership type** and **statutory auth** filled in?
18. Does **design/plan** have a year and month that the project will be RTA? Does it make sense (i.e., to late in the FY or already past)?

(continued)

Table 6-6 (continued)

19. Is **pollutant category** entered only for O&S projects?

20. **COMPL level** is left blank for O&S. For all other purposes ensure the validated level is entered as follows:
    Level 1 - ESDP
    Level 2 = ESDF
    Level 3 = ESDL

21. **Narrative Screen,** does the narrative match the PPPN and is it complete?

INSTALLATION:	COMPLIANCE CATEGORY: OTHER ENVIRONMENTAL ISSUES Japan ECAMP	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 7

PESTICIDE MANAGEMENT

Japan ECAMP

SECTION 7

PESTICIDE MANAGEMENT

A. Applicability of this Section

This section applies to any U.S. Air Force (USAF) installation that uses, stores, or handles pesticides. This section integrates the requirements of Department of Defense Directives (DODDs), DOD Instructions (DODIs), and Air Force Instructions (AFIs) into a single document that normally will apply to any installation that handles pesticides.

Much of the guidance for pest management involves operations and maintenance (O&M) procedures. This section combines O&M guidance and compliance matters. It is used to determine the compliance status of operations, facilities, and equipment used to store and apply pest control chemicals. The section addresses the adequacy of facilities and operating procedures, and personnel qualifications.

The regulatory requirements in this section are based on DODIs, DODDs, and AFIs that apply at overseas installations. Management Practices (MPs) are derived from U.S. Environmental Protection Agency (USEPA) regulations that are not mandatory overseas but are important to follow to preserve the health and safety of AF employees and protect the environment.

B. DOD Directives/Instructions

- *United States Forces-Japan (USFJ) Final Governing Standards* (FGS-Japan), January 1995, Chapter 11, contains criteria regulating the use, storage, and handling of pesticides, herbicides, and defoliants at DOD installations. It does not address the use of these items by individuals acting in an unofficial capacity in a residence or garden.

- DODI 4150.7, *Department of Defense Pest Management Program*, 22 April 1996, sets forth the policy, responsibilities, and procedures for pest management programs. This instruction establishes the DOD policy of maintaining safe, efficient, and environmentally sound integrated pest management programs to prevent or control pests that may adversely affect health, readiness, or military operations, or damage structures, materiel, or property. The *DOD Plan for the Certification of Pesticide Applicators of Restricted-Use Pesticides* establishes the requirement that USAF military and civilian pest managers be certified. DODI 4150.7 requires that a Component pest management consultant do an onsite consultant review of each installation's pest management program at least every 36 months. An Environmental Compliance Assessment and Management Program (ECAMP) assessment does not preclude such a visit. DODI 4150.7 applies outside the continental United States consistent with applicable international agreements, Status of Forces Agreements, and the FGS issued for the host nation.

- Technical Information Memoranda (TIM) supplement DODI 4150.7. They provide specific criteria and procedures for the operation of a pest management program, but they contain guidance only and are not regulatory in nature. The following TIM are appropriate to have on hand:
  TIM 13 - *Ultra Low Volume Dispersal of Insecticides by Ground Equipment* (March 1985)
  TIM 14 - *Personal Protective Equipment for Pest Management Personnel* (March 1992)
  TIM 15 - *Pesticide Spill Prevention and Management* (June 1992)
  TIM 16 - *Pesticide Fires: Prevention, Control, and Cleanup* (June 1981)

TIM 18 - *Installation Pest Management Program Guide* (February 1987)
TIM 20 - *Pest Management Operations in Medical Treatment Facilities* (October 1989)
TIM 21 - *Pesticide Disposal Guide for Pest Control Shops* (October 1986)
TIM 24 - *Contingency Pest Management Pocket Guide* (September 1991)
TIM 25 - *Devices for Electrocution of Flying Insects* (August 1988)
TIM 26 - *Lyme Disease - Vector Surveillance and Control* (March 1990)
TIM 27 - *Stored Products Pest Monitoring Techniques* (June 1992)
TIM 29 - *Integrated Pest Management In and Around Buildings* (July 1994).

- Military Handbook 1028-8A, *Design of Pest Management Facilities*, 1 November 1991, includes basic criteria for planning and designing military pest control facilities.

- DOD 4145.19-R-1, *Storage and Materials Handling*, September 1979. Chapter 5, Section 4 of this regulation provides overall guidance for storage and handling of various hazardous commodities at AF installations.

C. U.S. Air Force Documents

- AFI 32-1053, *Pest Management Program*, 18 May 1994, provides guidance for pest management at AF installations. It updates, clarifies, and streamlines previous guidance on the subject and more fully emphasizes environmental impact.

D. Responsibility For Compliance

- Base Civil Engineering (BCE): assures that pest management facilities comply with all applicable USAF and DOD regulations and standards; submits annual reports; and assumes responsibility for the completion of daily records, inspections, requests for additional support, biennial physical examinations, notifications to Public Health (PH), protection of the health and safety of pest management personnel, and required training and certification/recertification of pesticide applicators. The Installation Pest Control Supervisor (i.e., pest management coordinator) within BCE is the principal individual charged with proper pesticide management at AF installations.

- Public Health (PH): determines the type, source, and prevalence of vectors and medical nuisance pests that affect the health and efficiency of personnel; recommends preventive and control measures and monitors the effectiveness of BCE pest management efforts; schedules occupational physical examinations for all BCE and golf course personnel who apply pesticides; provides Hazard Communication training to pest management personnel.

- Bioenvironmental Engineering Services (BES): sets local standards for obtaining and using personal protective equipment (PPE) for pest management personnel and trains all pest management personnel in testing the fit of respiratory protection equipment.

E. Definitions

- *Certified Pesticide Applicator* - a person who applies pesticides or supervises the use of pesticides and who has been authorized to do so by successfully completing a training program approved by the Armed Forces Pest Management Board (AFPMB), followed by formal certification (FGS-Japan 11-2).

- *Direct Supervision* - supervision that includes being at the specific location where pest management work is conducted; providing instruction and control; and maintaining a line-of-sight view of the work performed. Certain circumstances may temporarily remove the line-of-sight view of the application of pesticide from the supervisor such as topographic constraints, vegetation constraints, or building structural constraints. Under these temporary circumstances, the supervisor shall be responsible for the actions of the pesticide applicators (DODI 4150.7, Enclosure 2).

- *Disease Vector* - any animal capable of transmitting the causative agent of a human disease; serving as an intermediate or reservoir host of a pathogenic organism; or producing human discomfort or injury, including (but not limited to) mosquitoes, flies, other insects, ticks, mites, snails, and rodents. It is recognized that certain disease vectors are predominately economic pests that as conditions change may require management or control as a disease vector (DODI 4150.7, Enclosure 2).

- *DOD-Certified Pesticide Applicator* - DOD military or civilian personnel certified in accordance with the *DOD Plan for the Certification of Pesticide Applicators of Restricted-Use Pesticides* (DODI 4150.7, Enclosure 2).

- *Hazardous Waste Profile Sheet* - a document that identifies and characterizes the waste by providing user's knowledge of the waste, and/or laboratory analysis, and details the physical, chemical, and other descriptive properties or processes that created the hazardous waste (FGS-Japan 6-2).

- *Installation Pesticide Applicator* - DOD employees or contract personnel whose job responsibilities involve the application of pesticides on DOD installations and property (DODI 4150.7, Enclosure 2).

- *Integrated Pest Management (IPM)* - the use of all appropriate technology and management techniques to bring about pest prevention and suppression in a cost-effective and environmentally sound manner (FGS-Japan 11-2).

  For the purposes of DODI 4150.7, a planned program, incorporating continuous monitoring, education, record-keeping, and communication to prevent pests and disease vectors from causing unacceptable damage to operations, people, property, materiel, or the environment. IPM uses targeted, sustainable (effective, economical, environmentally sound methods, including education, habitat modification, biological control, genetic control, cultural control, mechanical control, physical control, regulatory control, and where necessary, the judicious use of least-hazardous pesticides (DODI 4150.7, Enclosure 2).

- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *On-Site Supervision* - supervision that includes being physically located on the installation, but not necessarily at the specific worksite, during the work performance and being able to be contacted and at the worksite within 30 min (DODI 4150.7, Enclosure 2).

- *Personal Relief* - pest management control efforts made by DOD personnel or their family members at their own expense for control of pests consistent with DOD and Component pest management policy (DODI 4150.7, Enclosure 2).

- *Pest* - arthropods, birds, rodents, snakes, snails, marine borers, algae, bacteria, fungi, viruses, weeds, and other organisms (except for microorganisms that cause human or animal disease) that adversely affect the well being of humans or animals, attack real property, equipment and supplies, vegetation, and wildlife, or are otherwise undesirable (FGS-Japan 11-2).

  (NOTE: The term 'pest' is defined by AFI 32-1053, para 1.2.2, as a plant or animal out of place.)

- *Pest Management* - the effective, economical, and environmentally sound prevention or control of animal pests and vectors, undesirable terrestrial and aquatic plants, and plant diseases. It includes such methods as education; inspection (surveys); sanitation and proper waste management (such as use of pressure washing and self-closing compactors); proper storage of food and other pest-susceptible items; exclusion, trapping, and other mechanical or physical means of containing pests (such as using portable vacuum cleaners); pest-preventive building construction and maintenance (caulking); biological control; minimal use of pesticidal chemicals in a manner (such as containerized baits and crack and crevice application) that causes the least harm to the environment (AFI 32-1053, para 1.2.1).

  For DODI 4150.7, the prevention and control of disease vectors and pests that may adversely affect the DOD mission or military operations; the health and well-being of people; or structures, materiel, or property (DODI 4150.7, Enclosure 2).

- *Pest Management Consultant* - professional DOD pest management personnel located at Component Headquarters, field operating agencies, major commands, facilities engineering filed divisions or activities, or area support activities who provide technical and management guidance for the conduct of installation pest management operations. Some pest management consultants may be designated by their Component as certifying officials (DODI 4150.7, Enclosure 2).

- *Pest Management Coordinator* - the individual officially designated by the Installation Commander (IC) to coordinate and oversee the installation pest management program and installation pest management plan. Pest management coordinators shall be certified as pesticide applicators if their job responsibilities require them to apply or supervise the use of pesticides (DODI 4150.7, Enclosure 2).

  (NOTE: This term is understood to be synonymous with 'installation pest control supervisor,' a term that is used in AFI 32-1053 but not defined there.)

- *Pest Management Facility* - a building or enclosure where pesticides are stored or mixed. This excludes storage facilities for self-help (ready-to-use) program items (FGS-Japan 11-2).

- *Pest Management Personnel* - personnel involved with activities that monitor or mitigate pest problems, including personnel that manage a pest management program, carry out pest control work (which includes selecting, mixing, or applying pesticides), monitor pest populations, coordinate various activities that prevent or mitigate pest problems. This includes active duty, civilian (appropriated and non-appropriated U.S. and host country nationals) and contract workers directly involved with the program; it does not include persons whose contact with pesticides is limited to transporting, loading, and unloading closed containers (FGS-Japan 11-2).

- *Pest Management Plan* - a long-range, comprehensive installation planning and operational document that establishes the strategy and methods for conducting a safe, effective, and environmentally sound IPM program. Written pest management plans are required as a means of establishing and implementing an installation pest management program (DODI 4150.7, Enclosure 2).

- *Pesticide* - any substance or mixture of substances used to destroy pests, control their activity, or prevent them from causing damage (FGS-Japan 11-2).

- *Pesticide Applicator* - any individual who applies pesticides or supervises the use of pesticides by others (DODI 4150.7, Enclosure 2). See also *Certified Pesticide Applicator, DOD-Certified Pesticide Applicator, Installation Pestiicide Applicator,* and *Uncertified Installation Pesticide Applicator.*

- *Pesticide Handling* - operations involving contact or potential contact with pesticides, including loading, unloading, transferring, mixing, and applying pesticides, filling or cleaning pest management equipment, preparing pesticide waste for disposal, and pesticide spill response (FGS-Japan 11-2).

- *Pesticide Waste* - materials that are subject to pesticide disposal restrictions and should be treated as excess pesticides for purposes of disposal (FGS-Japan 11-2):
  1. any pesticide that has been suspended, that does not meet specifications, or that is contaminated, improperly mixed, or otherwise unusable, whether concentrated or diluted
  2. used spill cleanup material
  3. any containers, equipment, or material that are contaminated with pesticides; empty pesticide containers that have been triple rinsed are not considered hazardous waste but are normal waste.

- *Professional Pest Management Personnel* - DOD military officers commissioned in the Medical Service or Biomedical Sciences Corps or DOD civilian personnel with college degrees in biological or agricultural sciences who are in a current assignment that includes pest management responsibilities exercised regularly. DOD civilian employees also shall meet Office of Personnel Management qualification standards. Based on assignment, some professional pest management personnel are pest management consultants (DODI 4150.7, Enclosure 2).

- *Registered Pesticide* - a pesticide that has been registered and approved for sale or use within the U.S. or the host nation (FGS-Japan 11-2).

- *Restricted-Use Pesticide* - (also *Restricted Pesticide*) a pesticide that has been determined to merit additional restrictions by either the U.S. or the host nation because it would cause unreasonable adverse effects on health or the environment (See Table 7-1) (FGS-Japan 11-2).

- *Specially Designated Landfill* - a landfill at which complete long-term protection is provided for the quality of surface and subsurface waters from pesticides, pesticide containers, and pesticide-related wastes, and against hazards to public health and the environment, including a chemical waste landfill as defined in Section 11, *Toxic Substances* (FGS-Japan 11-2).

- *Uncertified Pesticide Applicator* - DOD employees who are not certified under the DOD plan during an apprenticeshipt period not exceeding two years and who must apply pesticides under the supervision of a DOD-certified applicator (DODI 4150.7, Enclosure 2).

- *Vector* - an arthropod or other organism that transmits a disease agent to another organism (AFI 32-1053, para 1.2.3).

PESTICIDE MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS: (a)
All Installations	JA.7-1 through JA.7-14	(1)(2)(3)(4)(5)(7)(8)
Pesticide Application	JA.7-15 through JA.7-36	(1)(2)(3)(4)(5)
Documentation and Notification	JA.7-37 through JA.7-40	(3)(4)(5)(6)
Pest Management Facilities	JA.7-41 through JA.7-57	(1)(4)(5)
Storing, Mixing, and Preparation of Pesticides	JA.7-58 through JA.7-69	(1)(2)(4)(5)
Highly and Moderately Toxic Pesticides	JA.7-70 through JA.7-75	(1)(3)(4)(5)(6)
Disposal	JA.7-76 through JA.7-79	(1)(2)(4)(5)
GOCO Facilities	JA.7-83 and JA.7-84	(1)

(a) CONTACT/LOCATION CODE:

(1) BCE (Base Civil Engineering)
(2) BES (Bioenvironmental Engineering Services)
(3) BMS (Base Medical Service)/EHO (Environmental Health Office)
(4) Pest Management Shop
(5) Golf Course Maintenance
(6) Base Fire Department
(7) Base Contracting Officer
(8) Base Staff Judge Advocate

PESTICIDE MANAGEMENT

Records To Review

- Records of pesticides purchased by the facility (purchase orders, inventory)
- Pesticide application records
- Description of the facility's pest control program
- Certificates of applicators of restricted-use pesticides
- Facility applicator certification and training program
- Pesticide disposal manifests
- Installation Spill Contingency Plan (ISCP)
- Inventory of stored pesticides
- Copy of notification letter to local emergency officials of pesticides stored onsite
- Pest Management Plan

Physical Features To Inspect

- Pesticide application equipment
- Pesticide storage areas, including storage containers
- Golf course maintenance areas

People To Interview

- BCE (Base Civil Engineering)
- BES (Bioenvironmental Engineering Services)
- BMS (Base Medical Service)/EHO (Environmental Health Office)
- Pest Management Shop
- Golf Course Maintenance
- Base Fire Department
- Base Contracting Officer
- Base Staff Judge Advocate

COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
ALL INSTALLATIONS	
JA.7-1. Determine actions or changes since previous review (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (1)(2)
JA.7-2. Copies of all relevant DOD directives/ instructions, USAF directives, and guidance documents should be maintained at the installation (MP).	Verify that copies of the following regulations are maintained and kept current at the installation: (1)(8) - *USFJ Final Governing Standards* (FGS-Japan), January 1995 - DODD 4150.7, *DOD Pest Management Program*, 22 April 1996 - AFI 32-1053, *Pest Management Program*, 18 May 1994 - TIM 13 - *Ultra Low Volume Dispersal of Insecticides by Ground Equipment* (Mar 1985) - TIM 14 - *Personal Protective Equipment for Pest Management Personnel* (Mar 1992) - TIM 15 - *Pesticide Spill Prevention and Management* (Jun 1992) - TIM 16 - *Pesticide Fires: Prevention, Control, and Cleanup* (Jun 1981) - TIM 18 - *Installation Pest Management Program Guide* (Feb 1987) - TIM 20 - *Pest Management Operations in Medical Treatment Facilities* (Oct 1989) - TIM 21 - *Pesticide Disposal Guide for Pest Control Shops* (Oct 1986) - TIM 24 - *Contingency Pest Management Pocket Guide* (Sep 1991) - TIM 25 - *Devices for Electrocution of Flying Insects* (Aug 1988) - TIM 26 - *Lyme Disease - Vector Surveillance and Control* (Mar 1990) - TIM 27 - *Stored Products Pest Monitoring Techniques* (Jun 1992) - TIM 29 - *Integrated Pest Management In and Around Buildings* (Jul 1994) - Military Handbook 1028-8A, *Design of Pest Management Facilities* (1 Nov 1991). Verify that the Base Staff Judge Advocate (SJA) reviews the documents annually for currency and completeness and submits the findings of the review to the Base Environmental Protection Committee.
JA.7-3. Installations must meet regulatory requirements issued since the finalization of the manual (a finding under this checklist item will have the citation of the new regulation as a basis of finding).	Determine whether any new regulations concerning pesticides have been issued since the finalization of the manual. (1)(2)(8) Verify that the installation is in compliance with newly issued regulations.

(1) BCE (Base Civil Engineering) (2) BES (Bioenvironmental Engineering Services) (3) BMS (Base Medical Service)/EHO (Environmental Health Office) (4) Pest Management Shop (5) Golf Course Maintenance (6) Base Fire Department (7) Base Contracting Officer (8) Base Staff Judge Advocate

COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-4. Installation Commanders (ICs) have specific responsibilities with regard to pest management programs (FGS-Japan 11-4.1, 11-4.2, and 11-4.3(a), (c), and (e) through (g)).	Verify that the IC budgets for costs to operate and maintain pest control facilities in compliance with legal requirements. (1)(2)(3)(4) Verify that the IC identifies as early as possible and requests funds for corrective projects required to bring all pesticide use, storage, pest management facilities, and disposal operations into compliance with applicable standards. Verify that the IC ensures that wastewater discharged from pesticide mixing facilities is in compliance with applicable pretreatment standards. Verify that the IC ensures that all pesticide transportation, storage, and formulation are addressed in activity hazardous substance release contingency plans. Verify that the IC forecasts and funds necessary training costs. (NOTE: Under the provisions of FGS-Japan, it is the responsibility of the appropriate DOD component to provide necessary annual training to certify and recertify preventive medicine technicians and other medical department personnel, civilian (U.S. and local) applicator personnel, and non-appropriated department personnel.) (NOTE: Under the provisions of FGS-Japan, it is the responsibility of each service to provide specialized area-wide operational services, including contingency response, medical entomology information, vector-borne disease assessments, and emergency disease vector control in the event of vector-borne disease outbreaks, disasters, or other situations where vector control is beyond the scope of local commands.)
JA.7-5. Each installation must have a comprehensive pest management plan (FGS-Japan 11-3.1 and DODI 4150.7, E.3.v(1)).	Verify that the installation implements and maintains a written pest management plan. (1)(2)(4)

(1) BCE (Base Civil Engineering) (2) BES (Bioenvironmental Engineering Services) (3) BMS (Base Medical Service)/EHO (Environmental Health Office) (4) Pest Management Shop (5) Golf Course Maintenance (6) Base Fire Department (7) Base Contracting Officer (8) Base Staff Judge Advocate

COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:

JA.7-6. Installation pest management plans must meet specific content requirements (FGS-Japan 11-3.1 and DODI 4150.7, Encl. 4, para 4b).	Verify that the plan is a comprehensive, long-range, narrative document that: (1)(2)(4)
	
	- describes all installation and satellite installation pest management requirements and programs, including those for contracts, natural resources, golf courses, and out leases, and identifies minimum pest management staffing requirements
	- describes all IPM procedures required to monitor and control pests on the installation
	- describes all IPM procedures for surveillance and control of disease vectors
	- identifies all resources, such as work years, facilities, and equipment, required to support the installation pest management program
	- identifies all pesticides (including USEPA registration numbers) approved by the Component pest management consultant for use in the installation pest management program
	- describes all health and safety measures that will be taken to protect both pest management personnel and the general public from pesticide exposure and risk
	- describes pest management functions that can be done more economically through commercial contracts and provides, or references, cost comparison analysis
	- describes any pest management operation with special environmental considerations such as those that:
	  - use a restricted-use pesticide
	  - use any pesticide application that may contaminate surface or ground water
	  - include 259 or more contiguous hectares (640 acres) in one pesticide operation
	  - may adversely affect endangered or other protected species and their habitat
	  - involve aerial application of pesticides
	  - involve permits for the use of experimental-use pesticides
	- identifies animal control efforts for feral cats, feral dogs, or wildlife
	- identifies active or potential vector-borne diseases and describe medical department collaboration with host nation agencies for vector surveillance and control matters
	- identifies golf course pest management operations.

(1) BCE (Base Civil Engineering) (2) BES (Bioenvironmental Engineering Services) (3) BMS (Base Medical Service)/EHO (Environmental Health Office) (4) Pest Management Shop (5) Golf Course Maintenance (6) Base Fire Department (7) Base Contracting Officer (8) Base Staff Judge Advocate

COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-7. Installations must meet additional requirements with regard to pest management plans (DODI 4150.7, Encl. 4, paras 2, 8d, and 8h, and AFI 32-1053, para 2.4).	Verify that the plan is reviewed and updated annually by qualified personnel. (1)(2)(3)(4) Verify that the pest management coordinator formally coordinates appropriate portions of the plan with the senior medical officer, environmental coordinator, and senior engineering officer and that these individual sign the cover sheet of the plan. Verify that appropriate portions of the plan are reviewed by the Natural Resources Program Manager for consistency with the National Resources Management Plan. Verify that the plan was forwarded to the cognizant component pest management consultant for review, technical approval, and signature on the cover sheet. Verify that the plan has been signed and approved by the IC. Verify that the plan lists all program objectives, arranged in order of priority, according to potential or actual impact on health, morale, structures, materiel, or property. Verify that the plan specifically addresses the surveillance and control of insects and other arthropods in child care and food service facilities. Verify that the plan clearly delineates the responsibilities for surveillance and control of medically important insects and other arthropods. (NOTE: A suggested format for the plan appears in Enclosure 8 of DODI 4150.7.)
JA.7-8. The installation's pest management coordinator must meet specific requirements (DODI 4150.7, Encl. 4, paras 5a and 2a(3)).	Verify that the installation's pest management coordinator has an appropriate position and educational background and has the management skills necessary to implement the installation's pest management plan. (4)(5) Verify that the pest management coordinator is DOD-certified.

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-9. Installations must meet specified measures of merit in the pest management program (DODI 4150.7, Encl. 3).	Verify that the installation meets the following measures of merit: (1)(4)(5)(7) - Measure of Merit 1: by the end of FY97 the installation has a pest management plan that is prepared, reviewed, and updated annually by pest management professionals - Measure of Merit 2: by the end of FY 2000, the amount of pesticides applied annually on DOD installations is reduced by 50% from the FY 93 baseline in pounds of active ingredients (NOTE: The goal for this measure of merit must not be obtained by substituting more toxic pesticides that have lower application rates than the pesticide in use.) - Measure of Merit 3: by the end of FY 98, 100 percent of installation pesticide applicators are properly certified. (NOTE: Direct hire employees have a maximum of 2 yr to become certified after initial employment, contract employees need appropriate certification when the contract is let.)
JA.7-10. Installations must notify Component pest management consultants whenever host nation regulators ask to inspect pest management operations (DODI 4150.7, Encl. 4, para 4c(2)).	Verify that the installation notifies the Component pest management consultant whenever host nation regulators ask to inspect pest management operations. (1)(4)(5)
JA.7-11. Installations must not construct buildings that have heating, ventilation, or air-conditioning (HVAC) ducts located below the floor (DODI 4150.7, Encl. 4, para 4c(2)).	Verify that buildings are not constructed with HVAC ducts located in and below the floor. (1) (NOTE: This prohibition is intended to prevent accidental contamination of the ducts with termiticides.) (NOTE: Postconstruction treatment of structures with HVAC ducts is prohibited without a waiver from the Component pest management consultant.)
JA.7-12. Self-help programs must be managed in accordance with specific standards (DODI 4150.7, para. E.3.v.(3) and Encl. 4, para 8i(3)).	Verify that self-help programs are established for military housing when cost effective and when IPM monitoring indicates the need for a self-help program. (1)(4) Verify that liquid pesticides are not issued. (NOTE: Self-help pest management materials issued may include cockroach and ant baits and/or traps, mouse traps, glue boards, and general use pesticide aerosols with crack and crevice devices as recommended by the Component pest management consultant.)

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-12. (continued)	Verify that self-help personnel provide written instructions and appropriate precautions beyond those on pesticide labels to military quarters' and housing occupants. Verify that, if a pesticide is issued to an occupant, records are maintained.
JA.7-13. Pest management and disease vector control during military contingency operations, readiness training exercises, and deployments must meet specific standards (DODI 4150.7, Encl. 4, para 9).	Verify that pesticides are applied consistent with the policies and procedures described in DODI 4150.7 during military contingency operations, readiness training exercises, and deployments. (1)(4) Verify that individuals who apply pesticides in these situations are certified in accordance with the *DOD Plan for the Certification of Pesticide Applicators of Restricted-Use Pesticides* or are under the direct or on-site supervision of a certified individual. (NOTE: Shipboard independent duty technicians and other military personnel who have received special training for limited site application of preselected pesticides during military operations or deployments are exempt from the certification requirement, but they must be fully trained.)
JA.7-14. Pest management consultants must provide the guidance needed to protect all closing or closed facilities from pests from the beginning of deactivation until property disposal (DODI 4150.7, Encl. 4, para 8j).	Verify that pest management consultants provide the guidance needed to protect all closing or closed facilities from pests from the beginning of deactivation until property disposal. (1)(4)
PESTICIDE APPLICATION	
JA.7-15. Installations must use approved pesticides only (FGS-Japan 11-3.4(a) and 11-3.4(b); DODI 4150.7, para E.3.v(6) and Encl. 4, para 6a(2)).	Verify that pesticides that are used at the installation are: (4)(5) - approved for stocking by the AFPMB - approved in writing by the area DOD entomologist or Pest Management Consultant (PMC).

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-16. Certain information must be included on ordering documents in order to make sure that no one buys or issues nonapproved pesticides (AFI 32-1053, para 3.5.3.).	Verify that advice code 2B is used on ordering documents to tell Supply that it may not substitute another product for the requested item. (4)(5)
JA.7-17. Installations must follow specific restrictions when ordering pesticides and application equipment (AFI 32-1053, para 3.5.2.).	Verify that standard pesticide application equipment is ordered from Federal supply catalogues. (4)(5) Verify that only pesticides from the Federal listings approved by the AFPMB and the preapproved WIMS Air Force master inventory are used. Verify that the installation has sought and received MAJCOM approval before ordering or using nonstandard, locally purchased pesticides or application equipment.
JA.7-18. Installations must use IPM (FGS-Japan 13-5.4(e)).	Verify that IPM is used when rodents, insects, etc. impair safe and efficient land use, pose health or safety problems to humans or animals, or impair military operations. (4)(5)
JA.7-19. Installations must use the least toxic but effective product in their pest management efforts (FGS-Japan 11-3.1(a)).	Verify that, where the use of pesticides is warranted, the installation uses the least toxic but effective product. (4)(5)
JA.7-20. Installations must evaluate and monitor outside chemical applications for adverse effects on natural resources (FGS-Japan 13-5.3(g)).	Verify that the installation evaluates and monitors outside chemical applications for adverse effects on soil quality, sensitive plants and animals, and watersheds. (1)(4)(5)
JA.7-21. Paint containing insecticides is prohibited from use on DOD property (DODI 4150.7, Encl. 4, para 6f).	Verify that neither interior nor exterior paint that contains pesticides is used on the installation. (1)(4)(5) (NOTE: This prohibition also applies to insecticides formulated and labelled for use as paint additives.)

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-21. (continued)	(NOTE: Paints containing fungicides as mildew inhibitors may be used when the application directions specify no special restrictions due to the fungicide. Approved marine antifouling compounds or coatings may be applied to protect the surfaces of watercraft.)
JA.7-22. The use of regularly scheduled, periodic pesticide applications and of preventative pesticide treatments is prohibited, (DODI 4150.7, Encl. 4, para 6g).	Verify that the installation does not perform regularly scheduled, periodic pesticide applications. (4)(5) (NOTE: This prohibition does not apply in situations where the installation pest management plan clearly documents that no other technology or approach is available to protect personnel or property of high value.) Verify that preventative pesticide treatments are not used unless the Component pest management consultant has given approval based on current surveillance information or records documenting past disease vectors or pest problems that require this approach.
JA.7-23. Installations must use recyclable and refillable pesticide containers and closed pesticide mixing and transfer systems as much as possible (AFI 32-1053, para 2.4.11.).	Verify that the installation uses recyclable and refillable pesticide containers and closed pesticide mixing and transfer systems as much as possible. (4)(5)
JA.7-24. Pest management personnel must use all pesticides according to label directions and use equipment according to the manufacturer's instructions (AFI 32-1053, para 3.5.4.).	Verify that pest management personnel use all pesticides according to label directions and use equipment according to the manufacturer's instructions. (4)(5)
JA.7-25. Pesticide applicators must meet certification requirements (FGS-Japan 11-3.2; DODI 4150.7, para E.3.v(4) and Encl. 4, para 5b; and AFI 32-1053, para 2.4.3).	Verify that all pesticide applicators have received certification training. (4)(5) Verify that pesticide applicators are certified in accordance with DODD 4150.7-M, *The DOD Plan for Certification of Pesticide Applicators of Restricted-Use Pesticides.*

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
JA.7-26. Pesticides may be applied only by or under the direct supervision of certified pesticide applicators (FGS-Japan 11-3.4(c)).	Verify that pesticides are applied by or under the direct supervision of certified pesticide applicators. (4)(5) (NOTE: This provision is stricter than that imposed by DODD 4150.7 and by AFI 32-1053, para 2.4.3, both of which require that *restricted-use* pesticides be applied by or under the direct supervision of certified pesticide applicators. For this reason, neither of those documents is cited under the regulatory requirement in this manual.)
JA.7-27. DOD-certified pesticide applicators must be recertified every 3 yr (DODI 4150.7, Encl. 4, para 5b(3)).	Verify that DOD-certified pesticide applicators are recertified every 3 yr. (1)(4)(5)
JA.7-28. Medical treatment facilities personnel may neither store nor use pesticides (AFI 32-1053, para 2.6.).	Verify that medical treatment facilities personnel neither store nor use pesticides. (2) (NOTE: This prohibition does not apply to disinfectants or germicides.)
JA.7-29. All pesticide applicators must participate in a medical surveillance program (FGS-Japan 11-3.3(a); AFI 32-1053, para 2.4.9.).	Verify that all pesticide applicators are included in a medical surveillance program. (3)(4)(5) Verify that all BCE personnel who apply pesticides receive a baseline physical examination and an interview with PH within 30 days after they arrive. Verify that, for U.S. employees, the program includes: - baseline physical examination with a cholinesterase test - annual physical - quarterly physical and cholinesterase test for personnel who work with organophosphates or carbamate pesticides. Verify that, for local employees, the program includes: - baseline physical examination with a cholinesterase test - semi-annual physical - quarterly physical and cholinesterase test for personnel who work with organophosphates or carbamate pesticides - monthly testing for cholinesterase levels, if these chemicals are handled for 7 or more days in any 30-day period.

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-30. All pest management personnel must be provided with PPE (FGS-Japan 11-3.3(b)).	Verify that all pest management personnel are provided with PPE that is appropriate for the work they perform and the types of pesticides to which they may be exposed. (4)
JA.7-31. Specific operational practices should be observed in dealing with pesticides (MP).	Verify that health and safety procedures emphasizing good work habits, reduction or elimination of hazards, and use of PPE are followed. (4)(5) Verify that protective clothing and equipment are stored away from chemical areas. Verify that respirator cartridges/canisters are changed at appropriate intervals. Verify that periodic fit testing of respirators is conducted.
JA.7-32. Pest management personnel who mix and apply pesticides must meet specific requirements with regard to PPE and clothing (AFI 32-1053, para 3.4).	Verify that overalls are kept clean at all times. (4)(5) Verify that shop washing machines and dryers are used or that any clothing sent to base laundry services is clearly identified as being contaminated with pesticides.
JA.7-33. Individuals who handle pesticides must wear an approved respiratory device (DOD 4145.19-R-1, para 3-415a(6) and 3-415a(7)).	Verify that all personnel who handle pesticides wear an approved respiratory device that is appropriate for protection against the pesticides they use. (4)(5) Verify that all respirators, gas masks, cartridges, and canisters are Occupational Safety and Health Administration/Mine Safety and Health Administration (OSHA/MSHA) approved for the specific pesticide being handled. (NOTE: Paint respirators do not provide protection from pesticide vapors.)
JA.7-34. Installations must meet specific requirements with regard to their pest control vehicles (AFI 32-1053, para 3.6).	Verify that only pest management personnel use pest control vehicles. (4)(5) Verify that pest management vehicles are painted with a chemical-resistant coating (similar to fire department vehicles) and equipped with plastic bed liners. Verify that vehicles are equipped with locking compartments for safe handling, storage, and transport of pesticides. (NOTE: A telephone maintenance truck will suit the purpose.) Verify that the truck carries emergency phone numbers and a spill cleanup kit. Verify that placards are attached to trailer-mounted sprayers that identify the pesticide being applied.

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-34. (continued)	Verify that all pesticide dispersal equipment is kept in the BCE pest management section. (NOTE: Equipment at base golf courses that have certified pesticide applicators is exempt from this requirement.) Verify that vehicles (prime movers) used for fogging, misting, dusting, or ultra-low volume (ULV) application are equipped with air conditioning.
JA.7-35. Equipment used for pesticide applications should be dedicated to the pest management operation (MP).	Verify that such vehicles and dispersal equipment are used solely in support of pest management activities. (4)(5)
JA.7-36. Insecticides and termiticides must not be injected into the soil to control subterranean termites in any military buildings with subslab or in-slab heating, ventilation, or air conditioning ducts (AFI 32-1053, para 2.4.11.).	Determine whether pesticide applications are undertaken to control subterranean termites. (1)(4) Verify that no subterranean termite control is undertaken for the types of buildings listed. (NOTE: This prohibition does not apply if such systems are made inoperable and duct registers are blocked to prevent air flow.)
JA.7-37. Installations must ensure the prevention of damage to wildlife from pesticide applications (DOD 4145.19-R-1, para 3-417).	Verify that basic precautions are observed that prevent drift of pesticides to the following: (1)(2)(4)(5) - wooded areas occupied by wildlife - land area not intended for treatment - fish-bearing waters. Verify that the installation guards against runoff or washoff by rain from treated areas to fish-bearing waters.
JA.7-38. Public safety should be ensured when applying or using pesticides (MP).	Verify that hazardous exposure to the general public has been eliminated by: (4)(5) - posting appropriate signs for treatment area - scheduling low use periods or restricted usage for a number of days - following water use restrictions and reentry times according to the pesticide labels.

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
DOCUMENTATION AND NOTIFICATION	
JA.7-39. Copies of material safety data sheets (MSDSs) for all pesticides must be available at the storage and holding facility (FGS-Japan 11-3.5(d)).	Verify that MSDSs are available at the storage and holding facility for the pesticides used at the installation. (4)(5) Verify that the MSDSs at the storage and holding facility are in both English and Japanese.
JA.7-40. All pest management operations and pesticide applications must be documented (FGS-Japan 11-3.8).	Verify that pesticide applicators document all pest management operations and pesticide applications. (4)(5) (NOTE: This recordkeeping requirement also applies to commercial pest control contractors.) (NOTE: It is the responsibility of the individual services to establish the required level of recordkeeping and reporting via their PMCs.) Verify that the appropriate records are forwarded as required to higher command and medical authorities for review.
JA.7-41. Records must be maintained and summary reports written for pest management activities (AFI 32-1053, para 2.4.13 and DODI 4150.7, para E.3.h.).	Verify that Work Information Management System (WIMS) pesticide software is used to track pesticide inventories and pesticide applicator certifications. (4)(5) Verify that daily pesticide use is recorded on the WIMS pesticide software. (NOTE: DD Forms 1532 and 1532-1 may be used if WIMS is not on-line.) Verify that historical data are kept on pesticide application in accordance with Air Force Manual (AFM) 37-139, *Record Disposition--Standards* (formerly Air Force Regulation (AFR) 4-20, volume 2). Verify that Quarterly Reports are sent no later than 15 days after the close of quarter to the MAJCOM.

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

JA.7-41. (continued)	Verify that the Quarterly Reports include the following:
	
	- pesticide inventory data
	- pesticide applicator certification data
	- pesticide application data (equivalent of Report Control Symbol (RCS) DD-P&L[A&AR]1080) for all pest management operations on AF real property:
	  - pest management shop
	  - self-help pest control
	  - roads and grounds
	  - golf course
	  - contractors
	  - forestry
	  - lessee and land permit holders.

JA.7-42. Installations must meet additional recordkeeping requirements (DODI 4150.7, para E.3.v(7) and Encl. 4, para 10).	Verify that records of all pest management operations performed on the installation are properly maintained and reported to the Component pest management consultant. (4)(5) Verify that the records: - account for all shop operations and provide a historical record of pest management operations and pesticide applications for each building, structures, or outdoor site - include information on kinds, amounts, uses, dates, places of application, and applications names and certifications numbers - include all pesticide application performed on the installation, including work done on golf courses by non-appropriated fund activities, by contract services, and as a part of leases and land management and forestry programs as well as the work performed by the installation pest management shop. Verify that applications performed during military operations, excluding arthropod skin and clothing repellant, are recorded. Verify that DD Form 1532, Pest Management Report, or an equivalent computer product, is produced monthly using the DD Form 1532-1 information. Verify that these records are archived after 2 yr for permanent retention. (NOTE: Pesticides applied by installation personnel for their own relief are excluded from the recordkeeping requirements.)

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-43. Notification must be made and/or approval received for certain application activities (AFI 32-1053, para 2.4.10 and 2.4.12.).	Verify that PH is notified prior to any pesticide applications in food preparation or consumption facilities, medical facilities, or child development centers. (3)(4)(6) Verify that PH and the fire department are notified prior to any fumigation activities. Verify that the Installation Pest Control Supervisor (i.e., pest management coordinator) coordinates all fumigations with installation medical, fire, security police, and safety personnel. Verify that no internal combustion or electrical power-driven spraying machines for aerosol or mist sprays are used inside buildings without approval from BES and the installation Fire Chief.
PEST MANAGEMENT FACILITIES	
JA.7-44. Pesticide management facilities and service vehicles must be provided with spill kits (MIL-HDBK 1028-A, para 3.5.2.2, implementing FGS-Japan 11-3.5(a)).	Verify that pesticide management facilities and service vehicles are provided with spill kits. (4)(5)
JA.7-45. Installations must include certain features in pest management facilities (MIL-HDBK 1028-A, paras 3.1.3, 3.1.4.3, and 3.4.8, implementing FGS-Japan 11-3.5(a)).	Verify that pest management facilities include at least the following: (1)(4) - clean areas (office, vestibule and airlock (where appropriate, given weather conditions), and mechanical and electrical spaces) - pesticide handling areas (storage and mixing rooms) - transitional areas (dressing area, shower and locker rooms, toilet, laundry, and cleaning gear room) - an outdoor hardstand and parking apron for vehicles and equipment.
JA.7-46. Pest management facilities must have security fencing and gates (MIL-HDBK 1028-A, para 3.4.6, implementing FGS-Japan 11-3.5(a)).	Verify that a climb-resistant chain link fence prevents unauthorized entry. (1)(4) (NOTE: The fence may be omitted if other security measures, such as bars or heavy-gauge wire mesh over the windows, are taken.) Verify that the fence is at least 7 ft (2.13 m) high, without top rail. Verify that the fence fabric is twisted and barbed at the top and bottom. Verify that security gates to the fence are kept locked.

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-47. Holding tanks are prohibited in new construction (MIL-HDBK 1028-A, para 3.5.2.3, implementing FGS-Japan 11-3.5(a)).	Verify that the facility has no drainage to holding tanks. (4)
JA.7-48. Pest management facilities must be located in accordance with specific criteria (MIL-HDBK 1028-A, para 3.4.1 and 3.4.2, implementing FGS-Japan 11-3.5(a)).	Verify that pest management facilities are located away from congested areas. (1)(4) Verify that new construction results in isolated, single-purpose structures. Verify that pest management facilities are located a minimum of 200 ft (61 m) from surface water, existing wells and cisterns, and 100-yr flood plains. Verify that the facility is located downhill from the above sensitive areas. (NOTE: Diking must be provided if space is limited.) Verify that the facility is not located uphill from potable water sources or continuously occupied structures. (NOTE: Facilities should not be located over aquifers (subsurface potable water supplies), unless the aquifer is adequately protected through containment measures.) Verify that the facility is located at least 100 ft (30.4 m) from other structures.
JA.7-49. Pest management facilities must meet specific standards with regard to accessibility, grading, and parking (MIL-HDBK 1028-A, para 3.4.3 through 3.4.5, implementing FGS-Japan 11-3.5(a)).	Verify that vehicles carrying supplies or pulling trailer-mounted dispersal equipment have access to the facility. (1)(4) Verify that the facility is accessible to vehicles and pedestrians on at least two sides. Verify that runoff from fire-fighting is prevented from reaching ponds, lakes, streams, or rivers. (NOTE: Diking, if provided, is recommended for large pest management facilities only.) Verify that there is adequate space to park all pesticide dispersal equipment inside the pest management area, under cover. Verify that the part of the compound used for travel and vehicle parking is covered with gravel or paved. Verify that employee parking, if provided, is located outside the security fence or perimeter.

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-50. The arrangement of spaces in pest management facilities must meet specific requirements (MIL-HDBK 1028-A, para 3.1.3 and 3.1.4.3, implementing FGS-Japan 11-3.5(a)).	Verify that arrangement of spaces allows workers to arrive in a clean area, dress for hazardous exposure in the change area, leave through a pesticide area doorway, and retrace that path at the end of the workday. (1)(4) Verify that there is no direct access between the office and the pesticide storage and mixing areas. Verify that doorways are arranged so that no pesticide need be carried through clean areas. Verify that the mixing room is located adjacent to the storage area and the equipment storage area (if indoors). Verify that the mixing room is accessible through the corridor to the shower and locker rooms and the exterior.
JA.7-51. Installations must meet specific requirements with regard to the foundations, floor slabs, and floor finishes in pest management facilities (MIL-HDBK 1028-A, para 3.1.5.1, implementing FGS-Japan 11-3.5(a)).	Verify that there are no floor drains in the interior pesticide areas. (1)(4) Verify that, in areas where pesticides are handled or stored, floors slope (3/100) from sills to the center. Verify that, if the floor does not slope, a 4 in. (102 mm) concrete curb is provided in the pesticide areas. Verify that exterior slabs slope to a sump with a closeable drain located not more than 6 ft (1.829 m) from the outer margin of the washstand. Verify that exterior ramps slope downward from exterior flat (flushed) door sills. (NOTE: The intent of these provisions is to provide containment for at least 110 percent of the capacity of the largest bulk liquid pesticide container anticipated for the facility.) Verify that no utility, heating, or ventilation ducting is located in or below slabs. Verify that pesticide concentrates and finished (formulated) materials are prevented from entering the sanitary or storm sewer systems. Verify that concrete floors are finished with a nonabsorbent nonskid finish. (NOTE: Change rooms and office floors may be tiled.) Verify that the floors in both the storage and mixing areas are covered with nonskid epoxy sealant or are otherwise made impermeable.

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-52. Installations must meet specific requirements with regard to the exterior walls of pesticide management facilities (MIL-HDBK 1028-A, para 3.1.5.2, implementing FGS-Japan 11-3.5(a)).	Verify that exterior walls are constructed of metal, concrete, or masonry. (1)(4) Verify that the interior surfaces of exterior walls are constructed of metal, coated concrete, or masonry. Verify that no porous surface finishes are used.
JA.7-53. Installations must meet specific requirements with regard to the doors and windows in pesticide management facilities (MIL-HDBK 1028-A, para 3.1.5.3, implementing FGS-Japan 11-3.5(a)).	Verify that exterior doors are self-locking and self-closing with weather stripping. (1)(4) Verify that doors have locks that prevent unauthorized entry. Verify that flat (flush) sills are provided for all doors between the mixing and storage areas. Verify that the facility has a 9 x 9 ft (2.74 x 2.74 m) overhead garage door with weather stripping. (NOTE: Higher doors may be necessary to accommodate high-mast equipment.) Verify that, if the garage is separate from the pesticide mixing and storage areas, a flat (flush) sill is provided for the garage doorway. Verify that, if the garage is not separate from the pesticide mixing and storage areas, a ramp to a 4 in. (104 mm) high sill is provided. Verify that there is a slope away from the exterior of the door to prevent rain water from entering the facility. Verify that the pest management facility has nonporous framed windows that are double glazed, where appropriate, with a thermal barrier feature. Verify that, if the facility is not surrounded by a climb-resistant chain link fence and security gates, it has interior security mesh windows. (NOTE: It is permissible to have no windows as an alternative.) Verify that drop ceilings are not used in pesticide areas.

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-54. A fire extinguisher must be provided by the door between the storage and mixing areas (MIL-HDBK 1028-A, para 3.7.1, implementing FGS-Japan 11-3.5(a)).	Verify that a fire extinguisher is located by the door between the storage and mixing areas. (4)
JA.7-55. Drains from pesticide mixing areas must not be connected to septic systems, sanitary sewers, or stormwater systems (MIL-HDBK 1028-A, para 3.5.2.5, implementing FGS-Japan 11-3.5(a)).	Verify that no pesticide mixing area is connected to septic systems, sanitary sewers, or stormwater systems. (1)(4)
JA.7-56. Pesticide management areas must have backflow prevention devices (MIL-HDBK 1028-A, para 3.5.2.10 and 3.5.2.11, implementing FGS-Japan 11-3.5(a)).	Verify that reduced pressure backflow prevention devices are installed on plumbing that provides a source of water for filling pesticide dispersal equipment tanks. (1)(4) Verify that permanent hose bibs (overhead filling pipes) have a discharge hose and an approved backflow prevention device. (NOTE: The requirement as to hose bibs applies to outdoor washdown areas of medium and large facilities.)
JA.7-57. Mixing and storage areas must have a ventilation system separate from that in the rest of the facility (MIL-HDBK 1028-A, para 3.5.4.2, implementing FGS-Japan 11-3.5(a)).	Verify that mixing and storage areas have a ventilation system separate from that in the rest of the facility. (1)(4) Verify that the system is provided with a roof-mounted, centrifugal fan system selected for a minimum of six air changes per hour. Verify that fans discharge vertically. Verify that replacement air is heated to 55 °F (13 °C). Verify that the ventilation system has a control switch with a light to indicate ON at the entrance to the pesticide handling areas.

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-57. (continued)	Verify that the control switch has a sign that reads as follows: VENTILATION SYSTEM SHOULD OPERATE CONTINUOUSLY DO NOT ENTER UNLESS VENTILATION SYSTEM HAS OPERATED FOR AT LEAST 10 MINUTES.
JA.7-58. Mixing sinks must have slotted hood, local exhaust systems (MIL-HDBK 1028-A, para 3.5.4.2, implementing FGS-Japan 11-3.5(a)).	Verify that the mixing sink has a slotted hood, local exhaust system. (4)
JA.7-59. Outdoor hardstands and parking aprons for vehicles must meet specific standards (MIL-HDBK 1028-A, para 3.4.8, implementing FGS-Japan 11-3.5(a)).	Verify that the outdoor hardstand and parking apron consists of a concrete pad sufficiently large to park a truck and trailer (at least 15 x 25 ft (4.57 x 7.62 m)). (1)(4) Verify that the hardstand pad slopes (3/100) to a sump fitted with a removable grate cover suitable for the anticipated vehicular traffic load. Verify that the sump is sufficiently large to contain a minimum of 110 percent of the capacity of the largest bulk liquid pesticide container anticipated to be used at the facility. Verify that there is a curb at least 4 in. (102 mm) high at the low edge of the pad to direct liquid into the sump. Verify that, if an industrial sewer is available, a 3 in. (75 mm) sump drain is provided. Verify that, if a connection to an industrial sewer exists, the sump has a ball valve in the sump drain to control discharge. Verify that the valve is located adjacent to the sump in a pit with a grate cover. Verify that the ball valve is normally closed and manually opened. Verify that, if no industrial sewer is available, a small section of removable grate is provided to accommodate a hose for recovering sump contents. Verify that the hardstand area has an elevated hose bib (fill pipe) of 1.5 to 2 in. (38 to 51 mm) diameter. (NOTE: This requirement applies if application equipment with tanks 50 gal (189.9 L) or larger will be used at the facility.)

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-59. (continued)	Verify that the hardstand area has an emergency eyewash and a deluge shower with manually operated, delayed-closing valves located adjacent to the mixing site. (NOTE: This requirement does not apply if devices inside the facility are accessible within 10 s from the outdoor mixing site.) (NOTE: The hardstand area may be provided with a canopy roof to protect parked vehicles and equipment and to minimize the accumulation of water.)
JA.7-60. Pesticide management facilities must meet specific requirements with regard to signs (MIL-HDBK 1028-A, para 3.8, implementing FGS-Japan 11-3.5(a)).	Verify that identification signs are provided in appropriate rooms and buildings and on fences. (1)(4)(5) (NOTE: Signs such as DANGER, POISON, PESTICIDE STORAGE AREA are suggested.) Verify that a NO SMOKING sign is located in pesticide areas. Verify that warning signs are provided on the exterior of the building at each entrance. Verify that building identification information is visible from 100 ft (30.48 m). Verify that a sign is installed over the sink that reads as follows: DO NOT DISCHARGE PESTICIDES INTO THE SINK. Verify that a sign is posted at the entrance(s) to toilets that reads: WASH HANDS BEFORE USING TOILET. Verify that the hardstand has a sign that reads as follows: CLOSE DRAIN WHILE HANDLING PESTICIDES ON HARDSTAND. Verify that a sign is provided near the hardstand's pit valve stating: RECOVER PESTICIDE SPILLS USE VALVE TO DRAIN WASHWATER AND RAIN. Verify that, if a flammable liquid storage cabinet is present, a sign is provided that reads as follows: FLAMMABLE PESTICIDES.

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-60. (continued)	Verify that a list of the types of materials stored is posted on the outside of the storage area. (NOTE: Copies of this list should be given to the installation on-scene hazardous waste coordinator and to the fire department.) Verify that the list includes chemical names and formulations rather than generic brand names. Verify that a sign is posted at the mixing area that requires the use of protective gloves, aprons and boots, protective eyewear or face shields, coveralls, and an approved pesticide respirator.
STORAGE, MIXING, AND PREPARATION OF PESTICIDES	
JA.7-61. Stored pesticides must be addressed in the ISCP (FGS-Japan 11-3.1(b)).	Verify that the ISCP addresses procedures and techniques used to contain and cleanup a pesticide spill at the pesticide storage facility. (1)(2)
JA.7-62. Labels on pesticides must bear the appropriate use instructions and precautionary messages (FGS-Japan 11-3.4(d) and 11-3.5(b)).	Verify that the pesticides are properly labeled. (4)(5) Verify that labels bear the appropriate use instructions and precautionary message based on the toxicity category of the pesticide. (NOTE: Examples of precautionary messages include DANGER, WARNING, or CAUTION.) Verify that, if Japanese employees use the pesticides, the precautionary message appears in English and Japanese. (NOTE: The pesticide label establishes directions for use, precautions for preventing adverse environmental effects, and disposal requirements. Failure to adhere to the labeling requirements or using the substance in a manner inconsistent with the product label is a violation of the law.)

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-63. Pesticide storage areas must be regularly inspected and secured to prevent unauthorized access (FGS-Japan 11-3.5(c) and MIL-HDBK 1028-8A, para 3.1.4.1.1, implementing FGS-Japan 11-3.5(a)).	Verify that storage areas are inspected regularly and secured to prevent unauthorized access. (4)(5)
JA.7-64. Pesticide storage areas must have a readily visible, current inventory of all items in storage (FGS-Japan 11-3.5(c)).	Verify that the inventory includes all items in storage and items awaiting disposal. (1)(2)(4)(5) Verify that the inventory is posted in a readily visible location at the storage area. Verify that the inventory is routinely sent to the installation fire department, its medical department, and to other emergency services departments.
JA.7-65. Indoor storage areas for pesticides must meet specific requirements (MIL-HDBK 1028-A, para 3.1.4.1.2, implementing FGS-Japan 11-3.5(a)).	Verify that pesticides are stored in an area sealed or separated from clean areas, with direct access to the exterior. (1)(4)(5) Verify that pesticides are stored in such a way that: - they are off the floor, with all labels visible - they are stored no more than 8-ft (2.44-m) high. Verify that lanes are present to provide effective access and inspection. Verify that pesticides are stored in a dry building in which a temperature is maintained that is above 50 °F (12 °C) and below 100° F (38° C). Verify that pesticides are stored separated from the following areas: - mixing areas - shower and locker room - offices - any area where personnel work for prolonged periods. Verify that no pesticide concentrates are stored in a room containing a floor drain of any type. Verify that storage and mixing areas have containment provided either by curbing or sloped floors.

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-66. Certain chemicals must be stored outside of occupied buildings (MIL-HDBK 1028-A, para 3.1.4.1.4, implementing FGS-Japan 11-3.5(a)).	Verify that all liquid fumigants are stored outside of occupied buildings in hazardous chemical lockers. (4) Verify that toxic or flammable pesticides are stored on the ground floor of unoccupied buildings.
JA.7-67. Outdoor storage areas for pesticides must meet specific requirements (MIL-HDBK 1028-A, para 3.1.4.1.4, implementing FGS-Japan 11-3.5(a)).	Verify that outdoor storage areas for pesticides are: (4) - secured and under cover - protected from radiant heating, freezing temperatures, and moisture.
JA.7-68. Motor vehicles may not be stored in the same areas as pesticides (MIL-HDBK 1028-A, para 3.1.4.1.3, implementing FGS-Japan 11-3.5(a)).	Verify that no motor vehicles are stored in the same area as pesticides. (4)(5) (NOTE: Whenever possible, vehicles are to be located outside or in a separate building from the pesticide storage or handling area.) Verify that, when motor vehicles are located under the same roof as the pesticide area, they are separated from the pesticide area by a minimum of 2-h fire-rated construction.
JA.7-69. Mixing rooms must meet specific requirements (MIL-HDBK 1028-A, para 3.1.4.2, implementing FGS-Japan 11-3.5(a)).	Verify that mixing rooms have electricity and hot and cold water. (4) Verify that mixing rooms have metal or plastic shelves to hold pesticides off the floor. (NOTE: Plastic is preferred for the pallets, and steel stands are recommended for keeping drums off the floor.) Verify that no wooden pallets are in use. Verify that the work area contains a pesticide-resistant sink equipped with the following: - a closeable drain - a contiguous self-draining, drip-proof counter top at least 5-ft (1.524-m) long - sideboards - splash panel on back - an adjacent shelf for holding measuring devices and concentrates.

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-70. Installations should store pesticides, pesticide containers, and pesticide residues in accordance with specific restrictions (MP).	Verify that pesticides, pesticide containers, and/or pesticide residues are stored such that: (4)(5) - labeling is consistent - there is no open dumping of pesticides or pesticide containers - there is no open burning, except when allowed by regulation - there is no water dumping or ocean dumping.
JA.7-71. Installations must store contingency pesticides under the same controlled temperature, security, and other conditions as daily use pesticides (AFI 32-1023, para 2.4.6.).	Verify that the installation stores contingency pesticides under the same controlled temperature, security, and other conditions as daily use pesticides. (1)(4)
JA.7-72. Installations must rotate contingency pesticide stocks back to pest management shop inventories and replace them with fresh chemicals annually (AFI 32-1023, para 2.4.6.).	Verify that the installation rotates contingency pesticide stocks back to pest management shop inventories and replaces them with fresh chemicals annually. (1)(4)
HIGHLY AND MODERATELY TOXIC PESTICIDES	
JA.7-73. Installations should consider installing an environmental monitoring system in the vicinity of pesticide storage facilities under certain conditions (MP).	Verify that the installation has considered providing monitoring systems when appropriate. (1)(4)(5) (NOTE: Monitoring systems are particularly appropriate when there is no spill management system and when the facility handles large quantities of pesticides and is located near a sensitive area.)

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
JA.7-74. Storage facilities for pesticides and excess pesticides that are classed as highly toxic or moderately toxic and that must be labeled DANGER, POISON, WARNING, or with the skull and crossbones should meet specific requirements (MP).	Verify that, if possible, the site location is in an area where flooding is unlikely and where hydrogeologic conditions prevent contamination of any water system by run-off or percolation. (1)(4)(5) (NOTE: The following may be considered: - proximity to surface water and to sanitary wastewater or stormwater systems - location relative to floodplains, depth of groundwater, and general soil types and typical permeabilities.) Verify that storage is in a dry, separate room, building, or covered area where fire protection is provided. Verify that: - pesticide containers are stored with the labels plainly visible - all containers are in good condition - the lids and bungs on metal or rigid plastic containers are tight - the pesticides are segregated, and if practicable, stored under a sign containing the name of the formulation - rigid containers are stored upright and all containers are stored off of the ground. Verify that containers are regularly inspected for corrosion and leaks and that absorbent material is available for spill cleanup. Verify that excess pesticides and containers are segregated.
JA.7-75. Personnel in storage/usage facilities for pesticides classed as highly toxic or moderately toxic and labeled DANGER, POISON, WARNING, or with the skull and crossbones symbol, should follow specific practices and procedures to ensure safety (MP).	Verify that no food consumption, drinking, smoking, or tobacco use is undertaken in any area where pesticides are present. (4)(5) Verify that the following practices are part of pest management operations: - people handling pesticides keep hands away from mouths and eyes and wear rubber gloves during all pesticide handling - people handling pesticides wash hands immediately upon completion of working with pesticides and always prior to eating, smoking, or using toilet facilities - inspections are made once a month to determine if any pesticide containers are leaking - pesticide containers are inspected for leakage prior to handling.

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-76. Installations must post signs and safety procedures in pesticide storage facilities and equipment that contain or use pesticides classed as highly toxic or moderately toxic and labeled DANGER, POISON, WARNING, or with the skull and crossbones symbol (MP).	Verify that signs reading DANGER, POISON, and PESTICIDE STORAGE are posted on or near entries to storage facilities. (4)(5) Verify that safety precautions and accident prevention measures are posted. Verify that an inventory of pesticides is displayed outside of the storage facility, identifying all chemicals in storage. Verify that mobile equipment used for pesticide applications is labeled: CONTAMINATED WITH PESTICIDES.
JA.7-77. Installations must notify the local fire department, hospitals, public health officials, and police department in writing that pesticides are being stored (MP).	Verify that notification has been submitted and includes a statement of the hazards that pesticides may present during a fire. (3)(6) Verify that a floor plan of the storage facility, indicating the location of the different pesticide classifications, has been submitted to the fire department. Verify that the fire chief has the home telephone numbers of the person(s) responsible for the pesticide storage facility. (NOTE: These requirements apply where large quantities of pesticides classed as highly toxic or moderately toxic and labeled DANGER, POISON, WARNING, or with the skull and crossbones symbol are being stored, or where other conditions warrant.)
JA.7-78. Certain precautions should be taken in the event of a fire at a pesticide storage area where pesticides are classed as highly toxic or moderately toxic and labeled DANGER, POISON, WARNING, or with the skull and crossbones symbol (MP).	Verify, by interviewing the fire chief, that the following precautions are taken: (6) - fire fighting personnel wear supplied air suits and rubberized clothing - personnel avoid breathing or otherwise contacting toxic smoke and fumes - personnel wash completely as soon as possible after encountering smoke and fumes - water used in fire fighting is contained within the storage site drainage system - individuals who might be threatened by the fumes/smoke are evacuated - firemen take cholinesterase tests after fighting fires involving organophosphate or N-alkyl carbamate pesticides.

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
DISPOSAL	
JA.7-79. Installation pest management programs must be conducted so as to ensure that pesticides do not become hazardous wastes (DODI 4150.7, Encl. 4, para 6c and FGS-Japan 11-3.6).	Verify that the installation's pest management program is conducted so as to ensure that pesticides do not become hazardous wastes. (1)(4)(5) Verify that excess USEPA registered pesticides are either: - returned to the DLA Materials Return Program - transferred to a DOD installation able to use the materials - transferred to the servicing DRMO. (NOTE: The Component pest management consultant can, if requested, provide assistance in identifying installations were usable pesticides could be used.) (NOTE: When the USEPA publishes a proposed pesticide regulatory action involving pesticide label suspension or cancellation that affects DOD, installations are required to comply with administrative procedures developed between the DLA and AFPMB.)
JA.7-80. If waste pesticides are generated, the installation must dispose of them in accordance with specific standards (FGS-Japan 11-3.6 and 11-4.3(d) and AFI 32-1053, para 3.5.5).	Verify that pesticide wastes are tested to determine if they are hazardous wastes. (1)(2)(4)(5) Verify that, if the pesticide waste is not a hazardous waste, it is disposed of in accordance with the label instructions, through Defense Reutilization and Marketing Office (DRMO), or in a specially designated landfill under Section 9, *Solid Waste Management.* Verify that, if the pesticide is a hazardous waste, it is disposed of in accordance with the provisions of Section 4, *Hazardous Waste Management.*
JA.7-81. Installations must properly dispose of any clothing that is heavily contaminated with pesticides (AFI 32-1053, para 3.4.2.).	Verify that the installation properly disposes of any clothing that is heavily contaminated with pesticides. (4)(5)

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COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.7-82. No concentrated pesticides may be discarded to the sanitary sewer or storm drain (MIL-HDBK 1028-A, para 3.5.2.1, implementing FGS-Japan 11-3.5(a)).	Verify that no concentrated pesticides are discarded to the sanitary sewer or storm drain. (1)(4)(5)
GOCO FACILITIES	
JA.7-83. Installation plant representatives must meet specific responsibilities with regard to GOCO facilities (FGS-Japan 11-3.7(a) and 11-3.7(b)).	Determine whether pest control services are required as part of the maintenance management program on GOCO facilities. (1) Verify that all pesticide uses are reported to the appropriate PMC via the installation plant representative. Verify that commercial pest control contractors are licensed and certified to perform work legally on DOD property.
JA.7-84. The installation plant representative must ensure that GOCO pest management programs are reviewed every 3 yr (FGS-Japan 11-3.7 and 11-4.3(b)).	Verify that the installation plant representative must ensures that the appropriate service PMC reviews GOCO pest management programs on site every 3 yr. (1) Verify that the review emphasizes protection of real property and structures from biological deterioration and lack of maintenance.

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Table 7-1

Restricted-Use Pesticides

(40 CFR 152.175)

The following uses of pesticide products containing the active ingredients specified below have been classified for restricted use and are limited to use by or under the direct supervision of a certified applicator.

Active Ingredient	Formulation	Use Pattern	Classification[1]	Criteria Influencing Restriction
Acrolein	As sole active ingredient. No mixtures registered.	All uses	Restricted	Inhalation hazard to humans. Residue effects on avian species and aquatic organisms.
Aldicarb	As sole active ingredient. No mixtures registered.	Ornamental uses (indoor and outdoor). Agricultural crop uses.	*do Under further evaluation.	Other hazards-accident history.
Aluminum phosphide	As sole active ingredient. No mixtures registered.	do	do	Inhalation hazard to humans.
Azinphos methyl	All liquids with a concentration greater than 13.5 percent. All other formulations.	do do	do Under further evaluation.	do
Carbofuran	All concrete suspensions and wettable powders 40 percent and greater. All granular formulations. All granular and fertilizer formulations.	do Rice All uses except rice.	do Under evaluation. do	Acute inhalation toxicity.
Chloropicrin	All formulations greater than 2 percent. All formulations. All formulations 2 percent and less.	All uses. Rodent control. Outdoor uses (other than rodent control).	Restricted Restricted Unclassified	Acute inhalation toxicity. Hazard to nontarget organisms.

*do means same as above (previous row).

(continued)

Table 7-1 (continued)

Active Ingredient	Formulation	Use Pattern	Classification[1]	Criteria Influencing Restriction
Clonitralid	All wettable powders 70 percent and greater. All granulars and wettable powders. Pressurized sprays 0.55 percent and less.	All uses. Molluscide uses. Hospital antiseptics.	do do Unclassified	Acute inhalation toxicity. Effects on aquatic organisms.
Dicrotophos	All liquid formulations 8 percent and greater.	All uses.	Restricted	Acute dermal toxicity; residue effects on avian species (except for tree injections).
Disulfoton	All emulsifiable concentrates 65 percent and greater, all emulsifiable concentrates and concentrate solutions 21 percent and greater with fensulfothion 43 percent and greater, all emulsifiable concentrates 32 percent and greater in combination with 32 percent fensulfothion and greater. Nonaqueous solution 95 percent and greater. Granular formulations 10 percent and greater.	do Commercial seed treatment. Indoor uses (greenhouse).	Restricted Restricted do	do Acute inhalation toxicity. Acute dermal toxicity. Acute inhalation toxicity.
Ethoprop	Emulsifiable concentrates 40 percent and greater. All granular and fertilizer formulations.	do do	do Under evaluation.	Acute dermal toxicity.
Ethyl parathion	All granular and dust formulations greater than 2 percent fertilizer formulations, wettable powders, emulsifiable concentrates, concentrated suspensions, concentrated solutions.	do	Restricted	Inhalation hazard to humans. Acute dermal toxicity. Residue effects or mammalian, aquatic, avian species.

*do means same as above (previous row).

(continued)

Table 7-1 (continued)

Active Ingredient	Formulation	Use Pattern	Classification[1]	Criteria Influencing Restriction
Ethyl parathion (continued)	Smoke fumigants.	do	do	Inhalation hazard to humans.
	Dust and granular formulations 2 percent and below.	do	do	Other hazards-accident history.
Fenamiphos	Emulsifiable concentrates 35 percent and greater.	do	do	Acute dermal toxicity.
Fonofos	Emulsifiable concentrates 44 percent and greater.	All uses.	do	Acute dermal toxicity.
	Emulsifiable concentrates 12.6 percent and less with pebulate 50.3 percent and less.	Tobacco	Unclassified	
Methamidophos	Liquid formulations 40 percent and greater.	All uses.	Restricted	Acute dermal toxicity; residue effects on avian species.
	Dust formulations 2.5 percent and greater.	All uses.	Restricted	Residual effects on avian species.
Methidathion	All formulations.	All uses except stock safflower and sunflower.	Restricted	Residue effects on avian species.
	All formulations.	Nursery stock, safflower, and sunflower.	Unclassified	Residue effects on avian species.

*do means same as above (previous row).

(continued)

Table 7-1 (continued)

Active Ingredient	Formulation	Use Pattern	Classification[1]	Criteria Influencing Restriction
Methomyl	As sole active ingredient in 1 percent to 2.5 baits (except 1 percent fly bait).	Nondomestic outdoor agricultural crops, ornamental and turf. All other registered uses.	Restricted	Residue effects on mammalian species.
	All concentrated solution formulations.	do	do	Other hazards accident history.
	90 percent wettable powder formulations (not in water soluble bags).	do	do	do
	90 percent wettable powder formulation in water soluble bags.	do	Unclassified	
	All granular formulations.	do	do	
	25 percent wettable powder formulations.	do	do	
Methomyl	In 1.24 percent to 2.5 percent dusts as sole active ingredient and in mixtures with fungicides and chlorinated hydrocarbon, inorganic phosphate and biological insecticides.	do	do	
Methyl bromide	All formulations in containers greater than 1.5 lb.	All uses.	Restricted	Other hazards accident history.
	Containers with not more than 1.5 lb of methyl bromide with 0.25 percent to chloropicrin as an indicator.	Single applications (nondomestic use) for soil treatment in closed systems.	Unclassified	
	Containers with not more than 1.5 lb having no indicator.	All uses.	Restricted	do

*do means same as above (previous row).

(continued)

Table 7-1 (continued)

Active Ingredient	Formulation	Use Pattern	Classification[1]	Criteria Influencing Restriction
Methyl parathion	All dust and granular formulations less than 5 percent.	do	do	Other hazards-accident history. All foliar applications restricted based on residue effects on mammalian and avian species.
	Microencapsulated. All dust and granular formulations 5 percent and greater and all wettable powders and liquids.	do	do	Residue effects on avian species. Hazard to bees. Acute dermal toxicity. Residue effects on mammalian and avian species.
Nicotine (alkaloid)	Liquid and dry formulations 14 percent and above.	Indoor (greenhouse).	Restricted	Acute inhalation toxicity.
	All formulations.	Applications to cranberries.	Restricted	Effects on aquatic organisms.
	Liquid and dry formulations 1.5 percent and less.	All uses (domestic and nondomestic).	Unclassified	
Paraquat (dichloride) and paraquat bis(methylsulfate)	All formulations and concentrations except those listed below.	All uses.	Restricted	Other hazards. Use and accident history, human toxicological data.
	Pressurized spray formulations containing 0.44 percent Paraquat bis(methylsulfate) and 15 percent petroleum distillates as active ingredients.	Spot weed and grass control.	do	
	Liquid fertilizers containing concentrations of 0.025 percent paraquat dichloride and 0.03 percent atrazine; 0.03 percent paraquat dichloride and 0.37 percent atrazine, 0.04 percent paraquat dichloride and 0.49 percent atrazine.	All uses.	Unclassified	

*do means same as above (previous row).

(continued)

Table 7-1 (continued)

Active Ingredient	Formulation	Use Pattern	Classification[1]	Criteria Influencing Restriction
Phorate	Liquid formulations 65 percent and greater.	do	Restricted	Acute dermal toxicity. Residue effects on avian species (applies to foliar applications only). Residue effects on mammalian species (applies to foliar application only).
	All granular formulations.	Rice	Restricted	Effects on aquatic organisms.
Phosphamidon	Liquid formulations 75 percent and greater.	do	do	Acute dermal toxicity. Residue effects on mammalian species. Residue effects on avian species.
	Dust formulations 1.5 percent and greater.	do	do	Residue effects on mammalian species.
Picloram	All formulations and concentrations except tordon 101R.	do	do	Hazard to nontarget organisms (specifically nontarget plants both crop and noncrop).
	Tordon 101 R forestry herbicide containing 5.4 percent picloram and 20.9 percent 2, 4-D.	Control of unwanted trees by cut surface treatment.	Unclassified	
Sodium cyanide[3]	All capsules and ball formulations.	All uses.	Restricted	Inhalation hazard to humans.
Sodium fluoroacetate	All solutions and dry baits.	do	do	Acute oral toxicity. Hazard to nontarget organisms. Use and accident history.

*do means same as above (previous row).

(continued)

Table 7-1 (continued)

Active Ingredient	Formulation	Use Pattern	Classification[1]	Criteria Influencing Restriction
Strychnine	All dry baits pellets and powder formulations greater than 0.5 percent.	do	do	Acute oral toxicity. Hazard to nontarget avian species. Use and accident history.
	All dry baits pellets and powder formulations.	All uses calling for burrow builders.	do	Hazard to nontarget organisms.
	All dry baits, and pellets, and powder formulations 0.5 percent and below.	All uses except subsoil.	do	do
	do	All subsoil uses.	Unclassified	do
Sulfotepp	Sprays and smoke generators.	All uses.	Restricted	Inhalation hazard to humans.
Zinc Phosphide	All formulations 2 percent and less.	All domestic uses and nondomestic uses in and around buildings.	Unclassified	
	All dry formulations 60 percent and greater.	All uses.	Restricted	Acute inhalation toxicity.
	All bait formulations.	Nondomestic outdoor uses (other than around buildings).	Restricted	Hazard to nontarget organisms.
	All dry formulations 10 percent and greater.	Domestic uses.	Restricted	Acute oral toxicity.

*do means same as above (previous row).

NOTES:

[1] Under evaluation means no classification decision has been made and the use/formulation in question is still under active review within the USEPA.

[2] Percentages given are the total of dioxathion plus related compounds.

[3] NOTE: M-44 sodium cyanide capsules may only be used by certified applicators who have also taken the required additional training.

The provisions in this amended table were effective as of 8 August 1995.

INSTALLATION:	COMPLIANCE CATEGORY: PESTICIDE MANAGEMENT Japan ECAMP	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 8

PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT

Japan ECAMP

SECTION 8

PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT

A. Applicability of this Section

This section applies to U.S. Air Force (USAF) installations that store, transport, dispose of, or use petroleum, oil, and lubricant (POL), including petroleum-based fuels. The section presents review action items that respond to regulations, procedures, and organizational mechanisms designed to prevent or limit the accidental release of POL materials to surface water, groundwater, or soils. Procedures to control volatile organic compounds (VOCs) from POL sources are addressed in Section 1, *Air Emissions Management.*

This section covers management of pipeline delivery systems, truck fill stands, immediate operating storage areas, and fueling/defueling flightline operations. POL materials addressed include jet fuel (JP-4, fuel oil, JP-8), aviation gasoline (AVGAS), motor gasoline (MOGAS), diesel fuel, and lubricating oils. Waste petroleum-based solvents (including PD-680) are addressed in Section 4, *Hazardous Waste Management.*

The regulatory requirements in this section are based on Department of Defense (DOD) regulations, Air Force Regulations (AFRs), and Air Force Instructions (AFIs) that apply at overseas installations. Management Practices (MPs) are derived from U.S. Environmental Protection Agency (USEPA) regulations that are not mandatory overseas but are important to follow to preserve the health and safety of Air Force (AF) employees and protect the environment.

B. DOD Directives/Instructions

- *United States Forces-Japan (USFJ) Final Governing Standards* (FGS-Japan), January 1995, Chapter 9, outlines the criteria for the control and abatement of pollution from the storage, transfer, and distribution of petroleum products. Chapter 18 contains criteria for a spill plan and a contingency plan.

C. U.S. Air Force Documents

- AFI 13-212, Volume 1, *Weapons Ranges*, 28 July 1994, includes a number of provisions relevant to the handling of used POL generated at air-to-surface weapons ranges.

- AFI 23-201, *Fuels Management*, 28 July 1994, provides managers at all AF activities with policy and procedures for fuels operations.

- AFI 23-502, *Recoverable and Unusable Liquid Petroleum Products*, 6 April 1994, sets goals, assigns responsibilities, and provides guidance for recovering usable and disposing of unusable liquid petroleum products. The Instruction applies to lubricating oils, aviation fuel, distillates, and gasoline.

- Air Force Manual (AFM) 85-16, *Maintenance of Petroleum Systems*, governs the maintenance of permanently installed storage and dispensing systems for petroleum and unconventional fuels.

- AFTO 42B-1-23, *Management of Recoverable and Waste Liquid Petroleum Products*, provides guidelines for collecting, segregating, and processing reclaimed, recoverable, and waste petroleum products.

D. Responsibility for Compliance

- The Base Environmental Protection Committee (EPC) is usually responsible for drafting and reviewing the Spill Prevention, Control, and Countermeasures (SPCC) Plan prior to its promulgation by the Base Commander and for the annual review and update of the SPCC Plan. Often, the EPC delegates the specific preparation of the plan to the Base Civil Engineer (BCE) for implementation by the Base Environmental Coordinator (BEC).

- The Installation Response Team (IRT) responds to spills, when requested by an Installation On-Scene Commander (IOSC), and performs spill containment, recovery, cleanup, disposal, and restoration activities as directed by the IOSC. The IRT is a multidisciplinary team often including the following: BCE, BEC, Bioenvironmental Engineering Services (BES), Fire Chief, Security Police Chief, Public Affairs Officer, Base Fuels Officer, Safety Chief, and Staff Judge Advocate (SJA).

- The Base Fire Department provides support in emergency response, spill events, exercises, and fire protection activities. In addition, the department will be responsible for making periodic fire safety inspections of flammable/combustible storage and handling areas, hazardous waste storage areas, and accumulation points on the installation.

- The Safety Manager is responsible for conducting workplace safety evaluations and inspections of the handling and storage of hazardous materials and waste. The Safety Manager will provide the appropriate manager with a report of his or her findings and recommended corrective actions. The Safety Manager is also responsible for ensuring the prompt and accurate investigation of any hazardous material mishaps that result in injury or property damage.

- The Base Fuels Management Officer (BFMO) is responsible for the safe and efficient receipt, storage, handling, issuing, and accounting of all petroleum products and for all general operations and inspections.

- The Base Civil Engineer (BCE) is responsible for the maintenance of all installed petroleum storage and dispensing systems. This responsibility often is discharged by the Liquid Fuels Maintenance (LFM) shop. The BCE also is responsible for the calibration of permanently installed meters.

- The Base Environmental Coordinator (BEC) monitors all POL activities that may affect the environment and usually is responsible for the coordination of the EPC review and updates of the spill plan. The BEC often coordinates notification of reportable spills on behalf of the IOSC.

- The Bioenvironmental Engineering Services (BES) takes samples to determine the chemical nature, pollutant concentration, and extent of each reportable-quantity spill as required for response actions and documentation.

E. Definitions

- *Generating Activity* - a base agency (host, tenant, or contractor) that generates recoverable or unusable petroleum products (AFI 23-502, Attachment 1, Section B).

- *Hazardous Substance* - any substance having the potential to do serious harm to human health or the environment if spilled or released in a reportable quantity. A listing of these substances and corresponding reportable quantity is contained in Table 4-1, Chart A.4. The term does not include (FGS-Japan 18-2):
  1. petroleum, including crude POL or any fraction thereof, that is not otherwise specifically listed or designated as a hazardous substance
  2. natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

- *Hazardous Waste Fuel* - a waste petroleum product mixed with a hazardous waste or exhibiting a characteristic of hazardous waste, in which there is an intent to discard (AFI 23-502, Attachment 1, Section B).

- *Incident* - any spill or release of POL or hazardous substances (FGS-Japan 18-2).

- *Installation On-Scene Commander (IOSC)* - the official that coordinates and directs DOD control and cleanup efforts at the scene of a POL spill or hazardous substance release at DOD installations or activities. This official is designated by the Installation Commander (IC) or the Activity Commander (FGS-Japan 18-2).

- *Installation Response Team (IRT)* - a team performing emergency functions as defined and directed by the IOSC (FGS-Japan 18-2).

- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *Off-specification Product* - product which has one or more off-specification characteristics (e.g., color, vapor pressure, flashpoint, etc.). Off-specification products can be blended as regraded products. Off-specification products are not identified as hazardous waste fuel (AFI 23-502, Attachment 1, Section B).

- *Oil* - POL of any kind or in any form, including, but not limited to, petroleum, fuel POL, sludge, POL refuse, and POL mixed with wastes other than dredged spoil (FGS-Japan 18-2).

- *On-specification Product* - product of suitable quality for return to the base inventory. AFTO 42B-1-23, Table 3-1, *Management of Recoverable and Waste Liquid Petroleum Products*, sets the criteria for a suitable quality. Do not consider as off-specification if solids and water that can be removed by rotation through on-hand separators are present (AFI 23-502, Attachment 1, Section B).

- *Pipeline Facility* - includes new and existing pipes, pipeline rights of way, auxiliary equipment (e.g., valves, manifolds, etc.), and buildings or other facilities used in the transportation of POL (FGS-Japan 9-2).

- *POL* - includes, but is not limited to, petroleum and petroleum-based substances comprised of complex blends of hydrocarbons derived from crude oil, such as motor fuels, residual fuel oils, lubricants, petroleum solvents, and used oils (FGS-Japan 9-2 and 18-2).

- *POL Facility* - an installation with any individual aboveground tank of 2500 L (660 gal) or greater, aggregate aboveground storage of 5000 L (1320 gal) or greater, UST storage of greater than 15,900 L (4200 gal) or a pipeline facility as defined above (FGS-Japan 9-2).

- *Recoverable Products* - products that still have useful physical or chemical properties; see *Off-Specification Product* and *On-Specification Product* (AFI 23-502, Attachment 1, Section B).

- *Recyclable Products* - products determined to be surplus to AF needs that are burned for energy recovery (e.g., JP-4 contaminated with hydraulic fuel and used lubricating oil are recyclable products when burned for energy recovery as a fuel) (AFI 23-502, Attachment 1, Section B).

- *Reportable Quantity (RQ)* - a released quantity of POL or quantities of hazardous substances that meets or exceeds those identified in the definition of "significant spill or release" (FGS-Japan 18-2).

- *Significant Spill or Release* - an uncontained release to the land or water in excess of any of the following quantities (FGS-Japan 18-2):
  1. for hazardous waste or hazardous substance identified as a result of inclusion in Table 4-1, Chart A.4, any quantity in excess of the reportable quantity listed therein
  2. for POL or liquid or semi-liquid hazardous material, hazardous waste or hazardous substance, in excess of 415 L (110 gal)
  3. for other solid hazardous material, in excess of 225 kg (500 lb)
  4. for combinations of POL and liquid, semi-liquid and solid hazardous materials, hazardous waste or hazardous substance, in excess of 340 kg (750 lb).

- *Unusable Petroleum Product* - product that is no longer suitable for any use on an installation due to excessive contamination or quality degradation (AFI 23-502, Attachment 1, Section B).

- *Used Oil* - any oil or other waste POL product that has been refined from crude oil, or is a synthetic oil, that has been used and as a result of such use is contaminated by physical or chemical impurities. The following apply to used oil: (FGS-Japan 6-2)
  a) Used oil that exhibits a characteristic of HW is considered to be used oil and not HW ***unless it has been mixed*** with another characteristic waste. However, if the resultant mixture does not exhibit any characteristic of a HW, it is still considered used oil. If, however, the resultant mixture does continue to exhibit a characteristic of a HW, it is considered a HW.
  b) Used oil that has been mixed with a listed HW is considered to be a HW.
  c) Used oil burned for energy recovery must not exceed the following specifications. Used oil that does exceed these specifications is considered to be a HW:

Levels of Contaminates Beyond Which Used Oil is Considered Hazardous Waste	
Arsenic	5 ppm maximum
Cadmium	2 ppm maximum
Chromium	10 ppm maximum

Levels of Contaminates Beyond Which Used Oil is Considered Hazardous Waste	
Lead	100 ppm maximum
Flash point	100 °F minimum
Total halogens	1000 ppm maximum

PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS: (a)
All Installations	JA.8-1 through JA.8-6	(1)(2)(11)
POL Management	JA.8-7 through JA.8-15	(1)(2)(3)(4)(5)(6)(7)(8)(9)(10)
Pipelines	JA.8-16 through JA.8-21	(1)(3)(4)(7)
Discharges/Spills	JA.8-22	(1)(4)(6)
Used POL/Waste POL	JA.8-23 through JA.8-27	(1)(2)(3)(5)(8)(10)

(a) CONTACT/LOCATION CODE:

(1) BEC (Base Environmental Coordinator)
(2) BCE (Base Civil Engineer)
(3) BFMO (Base Fuels Management Office)
(4) LFM (Liquid Fuels Maintenance)
(5) BES (Bioenvironmental Engineering Services)
(6) Base Fire Department
(7) Power Production
(8) AAFES (Army/Air Force Exchange Service) Service Station Manager
(9) Generating Activities
(10) Vehicle Maintenance Shop
(11) Base Staff Judge Advocate

PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT

Records To Review

- Records of all spills, leaks, and associated site assessment/cleanup activities (for 3 yr)
- Installation Spill Plan
- Records of spill response training

Physical Features To Inspect

- Refueling facilities
- Washrack areas
- Vehicle maintenance areas
- Oil separators
- Oil and hazardous substance sites

People To Interview

- BEC (Base Environmental Coordinator)
- BCE (Base Civil Engineer)
- BFMO (Base Fuels Management Office)
- LFM (Liquid Fuels Maintenance)
- BES (Bioenvironmental Engineering Services)
- Base Fire Department
- Power Production
- AAFES (Army/Air Force Exchange Service) Service Station Manager
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COMPLIANCE CATEGORY: PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
ALL INSTALLATIONS	
JA.8-1. Determine actions or changes since previous review (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (1)(2)
JA.8-2. Copies of all relevant DOD directives/ instructions, U.S. Air Force (USAF) directives, and guidance documents should be maintained at the installation (MP).	Verify that copies of the following regulations are maintained and kept current at the installation: (1)(11) - *USFJ Final Governing Standards* (FGS-Japan), January 1995 - AFI 13-212, Volume I, *Weapons Ranges*, 28 July 1994 - AFI 23-201, *Fuels Management,* 28 July 1994 - AFI 23-502, *Recoverable and Unusable Liquid Petroleum Products*, 6 April 1994 - AFM 85-16, *Maintenance of Petroleum Systems*. Verify that the Base Staff Judge Advocate reviews the documents annually for currency and completeness and submits the findings of the review to the Base Environmental Protection Committee.
JA.8-3. Installations must meet regulatory requirements issued since the finalization of the manual (a finding under this checklist item will have the citation of the new regulation as a basis of finding).	Determine whether any new regulations concerning POL management have been issued since the finalization of the manual. (1)(2)(11) Verify that the installation is in compliance with newly issued regulations.
JA.8-4. Installations must have in place a program for the management of recoverable and unusable liquid petroleum products (AFI 23-502, para 6.2 through 8.7).	(NOTE: This requirement applies to lubricating oils, aviation fuel, distillates, and gasoline.) Verify that the installation has a comprehensive program to manage the segregation and collection, reuse, or recycling of recoverable petroleum products and the disposition of unusable petroleum products. (1)(3)(4) (NOTE: Documentation may be in the form of a plan or a base operating instruction.)

(1) BEC (Base Environmental Coordinator) (2) BCE (Base Civil Engineer) (3) BFMO (Base Fuels Management Office) (4) LFM (Liquid Fuels Maintenance) (5) BES (Bioenvironmental Engineering Services) (6) Base Fire Department (7) Power Production (8) AAFES (Army/ Air Force Exchange Service) Service Station Manager (9) Generating Activities (10) Vehicle Maintenance Shop (11) Base Staff Judge Advocate

COMPLIANCE CATEGORY: PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
JA.8-4. (continued)	Verify that the program includes: - specific responsibilities and criteria for the collection, storing, returning to inventory, reusing, recycling, and disposing of all unusable petroleum products and hazardous waste fuels generated at the base - identification of generating activities by organization - a list of all recoverable and unusable products and hazardous waste fuels generated by an organization, including source, approximate quantity, and condition - specific responsibilities of base organizations - the methods and facilities available to the base to collect, store, return to inventory, reuse, recycle, and dispose of products - accounting procedures for recoverable and unusable petroleum products and procedures to credit organizations using the guidelines in AFMAN 23-110, *USAF Supply Manual* - specific base and organizational procedures for the entry, exit, and control of unusable petroleum product vehicles - stress on sound conservation and property management of unusable products - where feasible, specification of positive product control by designating pick up locations, verifying pick up quantities, and whenever possible, using a single entry and exit. (NOTE: The priorities for disposition of products are: - return on-specification fuel to the base inventory or use as the original grade - return off-specification fuel to the base inventory and blend into the original or different grade making a regraded product - recycle products on base by reusing in secondary applications such as a heating fuel - categorize any remaining products as surplus, send them as recyclable products to DRMO, credit DRMO sales to the base RRR account - contract with a service company to remove nonrecylable waste from the base.) Verify that the BCE has developed procedures at the base level for the disposal of petroleum products. Verify that generating activities have obtained enough containers to properly segregate and store recoverable and unusable products and hazardous waste fuel by product type. (NOTE: Once the generating activity decides to discard the fuel rather than reuse, recover, or recycle it, the fuel is to be managed as hazardous waste.) Verify that the generating activity submits data on the quantity and identity of recoverable and unusable petroleum products, as required, to the designated installation environmental component of the program.

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COMPLIANCE CATEGORY: PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
JA.8-5. BFMO must appoint a Fuels Environmental Coordinator (AFI 23-201, para 1.5).	Verify that BFMO has appointed a Fuels Environmental Coordinator. (3) Verify that the Fuels Environmental Coordinator carries out the following functions: - follows host nation laws on environmental protection and the policies contained in AFPDs and AFIs - consults with agencies (such as the EPC, Base Environmental Manager, BCE, BES, and SJA).
JA.8-6. BFMO must obtain and maintain certain equipment (AFI 23-201, para 1.14.1).	Verify that BFMO obtains and maintains a vehicle washrack equipped with an oil-water separator and located within or near the refueling unit parking area. (3) Verify that BFMO obtains and maintains a liquid degreasing machine capable of cleaning engines on mobile fueling equipment. Verify that the discharge from the degreaser drains into an oil-water separator.
POL MANAGEMENT	
JA.8-7. All DOD installations must prepare, maintain, and implement a SPCC plan and an Oil and Hazardous Substance Pollution Contingency (OHSPC) Plan (FGS-Japan 9-3.1 and 18-3.1).	Verify that the installation has, maintains, and implements both an SPCC plan and an OHSPC Plan. (1)(2)(5)(6) (NOTE: These plans may be consolidated into one plan that meets the requirements for both plans.) Verify that a plan has been written specifically for each POL storage and distribution facility. Verify that the plans are certified by a competent authority. Verify that the plans are reviewed annually. Verify that the plans are updated as necessary.

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COMPLIANCE CATEGORY: PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:

JA.8-8. Installations must meet specific requirements with regard to the contents of their SPCC Plans (FGS-Japan 18-3.1(a)).	Verify that SPCC Plan includes, as a minimum: (1)(2)(5)(6)
	- name, title, responsibilities, duties, and telephone number of the designated IOSC
	- general information on the installation, including:
	  - name
	  - type or function
	  - location and address
	  - charts of drainage patterns
	  - designated water protection areas
	  - maps showing locations of facilities
	  - critical water resources
	  - land uses
	  - possible migration pathways
	- inventory of all storage, handling, and transfer facilities that could produce a significant spill of POL or hazardous substances; for each listing include:
	  - prediction of direction and rate of flow
	  - total quantity of POL or hazardous substance that could be spilled as a result of major failure
	- inventory of all POL and hazardous substances at storage and handling and transfer facilities
	- detailed description of countermeasures, including structures and equipment for diversion and containment of spills for each facility listed in the inventory
	- description of deficiencies in spill prevention and control measures at each listed site, including corrective measures required, procedures to be followed to correct listed deficiencies, and any interim control measures in place
	- written procedures for:
	  - operations to preclude spills of POL or hazardous substances
	  - inspections
	  - recordkeeping requirements.
	
	Verify that the countermeasures in the plan permit reclamation of spilled substances, as far as practical.

JA.8-9. Installations must meet specific requirements with regard to the contents of their OHSPC Plans (FGS-Japan 18-3.1(b)).	Verify that the OHSPC Plan identifies resources for mitigating incidents of POL or hazardous substances. Verify that the plan designates an IOSC. Verify that the plan assigns an IRT for POL spills and hazardous substance releases. Verify that the plan specifies the IRT's responsibilities, duties, procedures, composition, resources, and training requirements.

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COMPLIANCE CATEGORY: PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

JA.8-9. (continued)	Verify that the plan establishes notification procedures which:
	
	- develop and maintain a current roster of persons and alternates who must be notified of a spill or hazardous substance release, including:
	  - name
	  - organization mailing address
	  - work and home telephone number
	- assigns responsibilities for making the necessary notifications, including notification to the emergency service providers
	- without compromising security, includes provisions for the notification of the emergency coordinator (EC) after normal working hours
	- provides access to a reliable communications system that is organized to operate 24 h/day, 7 days/wk for timely notification of a POL spill or hazardous substance release
	- provides for the notification of the IC and local authorities in the event of hazard to human health and the environment
	- describes the procedures responsibilities, and methods for releasing information in the event of a spill or release.
	
	Verify that the plan establishes the following detection procedures:
	
	- surveillance procedures for early detection of POL spills and hazardous substance releases
	- a description of immediate response actions that should be taken when an incident is first discovered.
	
	Verify that the plan contains a prioritized list of various critical water resources that will protected in the event of a spill.
	
	Verify that the plan contains an up-to-date list of available resources located at the installation, such as the following:
	
	- fire extinguishing systems
	- spill control equipment
	- communications and alarm systems (internal and external)
	- decontamination equipment, where this equipment is required.
	
	Verify that the plan also includes the location of each item, a physical description of it, and a brief outline of its capabilities.
	
	Verify that the plan contains an up-to-date list of available resources established through prearranged agreements (within DOD or with the government of Japan) that are available to the installation to clean up or reclaim a large spill due to DOD actions, if such a spill exceeds the response capability of the installation.
	
	Verify that the plan describes arrangements with installation and/or local police departments, fire departments, hospitals, contractors, and emergency response teams to coordinate emergency services.

(1) BEC (Base Environmental Coordinator) (2) BCE (Base Civil Engineer) (3) BFMO (Base Fuels Management Office) (4) LFM (Liquid Fuels Maintenance) (5) BES (Bioenvironmental Engineering Services) (6) Base Fire Department (7) Power Production (8) AAFES (Army/Air Force Exchange Service) Service Station Manager (9) Generating Activities (10) Vehicle Maintenance Shop (11) Base Staff Judge Advocate

COMPLIANCE CATEGORY: PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.8-9. (continued)	Verify that the plan lists clean up methods, to include: - procedures and techniques used to identify, contain, disperse, reclaim, and remove POL and hazardous substances - procedures for the proper disposal of recovered substances, contaminated POL, and absorbent materials - procedures to be accomplished prior to resumption of operations - description of general safety and fire prevention precautions for spill cleanup actions. Verify that the plan contains an evacuation plan for personnel (where there is a possibility that evacuation would be necessary) that includes: - a description of the signal(s) used to begin evacuation - evacuation routes - alternate evacuation routes (when the primary route could be blocked by releases of hazardous waste or fires) - a designated meeting place. Verify that the reporting section of the OHSPC Plan addresses the following: - recordkeeping when emergency procedures are implemented, including for each incident: - date, time, and type of incident - name and quantity of material involved - measures taken to contain and clean up the spill - quantity and disposition of materials resulting from cleanup - measures taken to prevent recurrence - immediate notification of IOSC, if the spill exceeds RQs - immediate action to eliminate the source and contain the spill or release - notification of appropriate authorities.
JA.8-10. All fuels elements must be evaluated at least once each quarter (AFI 23-201, para 8.7).	Verify that the Quality Control and Inspection (QC&I) Supervisor evaluates each fuels element at least quarterly. (3) (NOTE: The QC&I function does not evaluate itself.) (NOTE: Locations that only have a ground fuels account are inspected semi-annually.) Verify that QC&I personnel or the Quality Assurance Evaluator (QAE) perform at least five no-notice spot checks each week. Verify that QC&I personnel or the QAE spot check all shifts. Verify that spot checks are conducted during exercises and contingencies.

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COMPLIANCE CATEGORY: PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
JA.8-10. (continued)	(NOTE: Installations with fewer than 20 full-time fuels personnel may conduct as few as two spot checks per week.)
JA.8-11. Persons who are designated to be IOSCs must meet specific requirements (FGS-Japan 18-3.1(b)(1)).	Verify that the IOSC is thoroughly familiar with the following: - all aspects of the OHSPC Plan - the location and characteristics of POL and hazardous substances handled - the location of all records - the storage layout. Verify that the IOSC has the authority to commit the resources needed to carry out the provisions of the OHSPC.
JA.8-12. Installations must provide annual training and conduct the necessary exercises to ensure the effectiveness of personnel and equipment (FGS-Japan 18-3.1(d)).	Verify that the installation provides annual training and conducts the necessary exercises to ensure the effectiveness of personnel and equipment. (3)(4)(5)(6) Verify that the training provides guidance in regard to the following: - notification - reporting - funding assistance - logistical support - resources available - coordinating efforts available.
JA.8-13. Facilities and equipment for storing, handling, or using oils should be designed to prevent or minimize spills to the environment and should be periodically tested and inspected (MP).	Verify that one of the following preventive systems, or an equivalent, is used: (1)(4)(5) - absorbent material - sand bags/temporary curbing devices - dikes, berms, or retaining walls sufficiently impervious to contain spilled oil - culverting gutters or other drainage system - weirs, booms, or other barriers - spill diversion ponds - retention ponds. Verify that each oil storage area: - has adequate supplies of appropriate materials that are readily accessible - has equipment that is in good condition.

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COMPLIANCE CATEGORY: PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.8-14. The materials and equipment needed to manage a spill should be readily available (MP).	Verify that materials and equipment needed to manage a spill as specified in the plan are readily available, including, for example: (1)(2)(3)(4)(5)(6)(7)(8)(9)(10) - respiratory protection - absorbents - ear/eye protection - spill kits - protective clothing - neutralizers.
JA.8-15. Secondary containment must be provided for all loading and unloading facilities (AFI 23-201, para A11.1).	Verify that all loading and unloading facilities have secondary containment that is impermeable to petroleum products. (3)
PIPELINES	
JA.8-16. Air Force operated offsite pipelines should be inspected at least once per week by air patrol, and once a year by line walker or vehicle patrol (MP).	Verify that records confirm that inspections were performed. (1)(3)(4) Verify that any detected leaks were reported and leaking pipes repaired or replaced. (NOTE: This MP is based on guidance found in AFM 85-16, Chapter 8.)
JA.8-17. All Air Force operated above and underground fuel piping systems at transfer operations, pumping and in-plant processing operations should be managed according to specific parameters (MP).	Verify that pressure tests have been conducted once a year. (3)(4)(7) (NOTE: Check under remarks Section of AF Form 172 if the testing pressure was maintained during the 2-h period.) Verify that confirmed leaks have been reported and leaking pipes repaired or replaced. Verify that pipelines are walked at least twice a year and that any suspicious circumstances lead to immediate investigation to include pressure testing of the line and excavation if soil conditions permit. (NOTE: This MP is based on guidance outlined in AFM 85-16, Chapter 8.)

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COMPLIANCE CATEGORY: PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
JA.8-18. All underground aviation fuel transfer pipelines should be subject to a hydrostatic pressure test on a 5-yr recurring basis (MP).	Verify that hydrostatic pressure tests were conducted as required by reviewing attachments to AF Form 172 and interviewing LFM personnel. (4) Verify that detected leaks were corrected through repair or replacement by inspecting test results. Verify that 150 percent of normal pressure was maintained during the 4-h test period by reviewing the Remarks Section of AF Form 172. (NOTE: This MP is based on guidance outlined in AFM 85-16, Chapter 8.)
JA.8-19. Buried fuel piping should have a protective wrapping and coating and should be cathodically protected if soil conditions warrant (MP).	Verify that buried fuel piping is properly protected from corrosion. (3)(4)(7) Verify that the voltage is greater than -0.85 V, but not more than -3.0 V (monthly), for impressed current systems. Verify that the voltage is greater than -0.85 V, but not more than -3.0 V (biannually), for sacrificial anode systems. Verify that leak detection and failure are reported.
JA.8-20. All pipeline facilities with a construction start date after 1 October 1995 must be designed and constructed to meet recognized U.S. industry standards (FGS-Japan 9-3.5).	Verify that all pipeline facilities with a construction start date after 1 October 1995 are designed and constructed to meet recognized U.S. industry standards. (3)(4)(7)
JA.8-21. All pipeline facilities carrying POL must be tested and maintained in accordance with recognized U.S. industry standards (FGS-Japan 19-3.4).	Verify that each pipeline operator handling POL prepares and follows a procedural manual for operations, maintenance, and emergencies. (3)(4)(7) Verify that each new pipeline system and each system in which pipe has been replaced or relocated is hydrostatically tested, in accordance with recognized U.S. industry standards, and is without leakage.

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COMPLIANCE CATEGORY:
PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT
Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
DISCHARGES/SPILLS	
JA.8-22. Installations must take specific actions in the event of POL spills (FGS-Japan 19-3.6 and FGS-Japan 18-3.1(c)).	Verify that the guidance in the spill plan is followed to control accidental POL releases. (1)(4)(6) Verify that, when there is a spill, the immediate response involves: - stopping the leak at the source - controlling the migration of the spill - calling for help. Verify that follow-up steps include: - preventing the migration of released POL into soils and nearby surface waters - continuing the monitoring and mitigation of any fire and safety hazards posed by vapors or free product - determining soil and water cleanup action - beginning free product removal as soon as possible. Verify that spills of reportable quantities (RQs) of POL are reported to the IOSC immediately. Verify that immediate action is taken to eliminate the source and contain the spill. Verify that the appropriate installation or activity chain of command (including COMUSJAPAN/J4) is notified within 4 h if any of the following occur: - the spill or release occurs inside a DOD installation and cannot be contained within any required berm or secondary containment - the spill exceeds 415 L (110 gal) of POL/fuel - a waster resource has been impacted - any toxic or hazardous material or waste has been spilled - the spill occurs off-base (including spills on the ocean, public roadways, or into a drainage system) - the IOSC has determined that the spill or release is significant. Verify that COMUSJAPAN/J4 and local Japanese officials are notified immediately when a hazardous substance release either: - occurs inside a DOD installation and cannot be contained within the installation's boundaries - threatens off-base Japanese people, property, or drinking water resources in an emergency situation. (NOTE: In the latter case, no prior J4 approval should be required because time may be of the essence and local off-base spill response actions will normally be needed at once to alleviate any threat to people or the environment.)

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COMPLIANCE CATEGORY: PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.8-22. (continued)	Verify that, in the latter case, notification is made to J4 via telephone/fax prior to informing local Japanese officials.
USED POL / WASTE POL	
JA.8-23. BFMO has specific responsibilities with regard to the management of waste fuel (AFI 23-201, para A11.2).	Verify that BFMO: (3) - designates interim storage and final disposition locations and procedures for off-specification bulk products and product-water mixtures under fuels management control - does not use installed hydrants, storage sumps, or slop tanks to collect or store waste fuels - obtains written MAJCOM approval to use stock listed vehicles and trailers for the collection and transport of waste fuels or oils - clearly marks and completely isolates the tanks and equipment used for waste products from active product storage and equipment to prevent contamination - ensures that there is direct supervision when waste materials are delivered to waste product tankage in the fuels area by the generating activity.

JA.8-24. Installations that burn used oil may do so in certain devices only (FGS-Japan 6-3.9(a)).	Verify that used oil fuel is burned in the following devices only: (1)(2)(5)
	- industrial furnaces
	- industrial boilers located on the site of a facility engaged in a manufacturing process where substances are transformed into new products, including the component parts of products, by mechanical or chemical processes
	- utility boilers used to produce electric power, steam, heated or cooled air, or other gases or fluids
	- used-oil-fired space heaters if all of the following conditions are met:
	  - the heat burns only used oil that the installation generates
	  - the heater is designed to have a maximum capacity of not more than 0.5 MBtu/h [0.147 MW]
	  - the combustion gases from the heater are properly vented to the ambient air.

JA.8-25. Neither used oil nor used oil contaminated with any hazardous waste may be used for dust suppression or road treatment (FGS-Japan 6-3.9(b)).	Verify that the installation does not use used oil for dust suppression or road treatment. (1)

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COMPLIANCE CATEGORY: PETROLEUM, OIL, AND LUBRICANT (POL) MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.8-26. Accumulation points must be set up for used petroleum products generated as part of the operation and maintenance of air-to-surface weapons ranges (AFI 13-212, para 1.10.2.1).	Determine whether the installation operates air-to-surface weapons ranges that generate used petroleum products. (1)(3)(5) Verify that accumulation points have been set up for such weapons ranges. Verify that arrangements have been made for periodic transport of such products to a storage facility.
JA.8-27. Installations that generate used oil and market it directly to a burner should meet specific standards (MP).	Verify that the installation prepares and sends the receiving facility an invoice detailing the following for off-specification used oil: (1)(2)(5)(8)(10) - an invoice number - the names and addresses of the shipping and receiving facilities - the quantity of off-specification oil to be delivered - the dates of shipment or delivery. Verify that copies of the invoices are kept for 3 yr. Verify that, for used oil that is not off-specification, copies of the waste analyses are kept for 3 yr. Verify that the installation has a signed notice from the burner that the oil will be burned only in approved furnaces and/or boilers.

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INSTALLATION:	COMPLIANCE CATEGORY: PETROLEUM, OIL, AND LUBRICANT MANAGEMENT Japan ECAMP	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 9

SOLID WASTE MANAGEMENT

Japan ECAMP

SECTION 9

SOLID WASTE MANAGEMENT

A. Applicability of this Section

This section addresses the collection, storage, and disposal of solid waste on Air Force (AF) installations. Solid waste is considered to be nonhazardous trash, rubbish, garbage, bulky wastes, liquids, or sludges generated by any AF installation operations and activities. This section also addresses the management of medical/pathological waste. The handling and disposal of asbestos waste materials are addressed in Section 11, *Toxic Substances Management*.

Recycling and resource recovery activities are also included in this section because this form of solid waste management is required by Department of Defense (DOD) and U.S. Air Force (USAF) directives.

The regulatory requirements in this section are based on DOD regulations and Air Force Policy that apply at overseas installations. Management Practices (MPs) are nonregulatory but are important to follow to preserve the health and safety of AF employees and protect the environment.

B. DOD Directives/Instructions

- *United States Forces-Japan (USFJ) Final Governing Standards* (FGS-Japan), January 1995, Chapter 7, includes criteria concerning the identification, classification, collection, transportation, storage, treatment, and safe disposal of solid waste. Chapter 8 addresses the management of medical waste at medical, dental, and veterinary facilities at the U.S. military installation level in Japan.

- DOD Directive (DODD) 4165.60, *Solid Waste Management*, 1 October 1976, provides guidance and direction to all DOD facilities relative to solid waste collection, disposal, material recovery, and recycling in agreement with the *Solid Waste Disposal Act* (SWDA).

C. U.S. Air Force Documents

- No additional documents.

D. Responsibility for Compliance

- Base Civil Engineering (BCE) is responsible for site location, licensing, construction, and operation of onbase landfills and for the storage and transportation of solid wastes to either onbase or offbase disposal activities.

- Bioenvironmental Engineering Services (BES) is responsible for reviewing and coordinating asbestos disposal plans and operations.

E. Definitions

- *Agent* - an office or individual, such as the natural resources manager, formally designated in writing to represent the command in natural resource matters (FGS-Japan 13-2).

- *Bottom Ash* - the solid material that remains on a hearth or falls off the grate after thermal processing is complete (DODD 4165.60, para V(A)).

- *Bulky Waste* - large items of solid waste such as household appliances, furniture, large auto parts, trees, branches, stumps, and other oversized wastes whose large size precludes or complicates their handling by normal solid waste collection, processing, or disposal methods (FGS-Japan 7-2).

- *Carry-out Collection* - collection of solid waste from a storage area proximate to the dwelling unit(s) or establishment where generated (FGS-Japan 7-2).

- *Cell* - compacted solid wastes that are enclosed by natural soil or cover material in a land disposal site (40 CFR 241.101 as adopted by DODD 4165.60, para V(A)).

- *Class A Compost* - compost that contains contaminant levels no greater than the following levels (FGS-Japan 7-3.15(a)):

Contaminant	Maximum Contaminant Level (mg/L)	Testing Method
Arsenic	50	Whole Content Test (dry)
Cadmium	5	Whole Content Test (dry)
Mercury	2	Whole Content Test (dry)
Lead	3	Leaching Test
Organophosphorus	1	Leaching Test
Chromium VI	1.5	Leaching Test
Cyanide	1	Leaching Test
Polychlorinated biphenyls (PCBs)	0.003	Leaching Test
Zinc	120	Whole Content Test (dry)
Copper	500	Whole Content Test (dry)

- *Class B Compost* - compost that fails to meet the standards for Class A Compost (FGS-Japan 7-3.15(b)).

- *Collection* - the act of consolidating solid wastes (or materials that have been separated for the purpose of recycling) from various locations (FGS-Japan 7-2).

- *Collection Frequency* - the number of times collection is provided in a given period of time (FGS-Japan 7-2).

- *Commercial Solid Waste* - all types of solid wastes generated by stores, offices, restaurants, warehouses, and other nonmanufacturing activities, excluding residential and industrial wastes (FGS-Japan 7-2).

- *Compactor Collection Vehicle* - a vehicle with an enclosed body, containing mechanical devices, that conveys solid waste into the main compartment of the body and compresses it into a smaller volume of greater density (FGS-Japan 7-2).

- *Construction and Demolition Waste* - the waste building materials, packaging, and rubble resulting from construction, remodeling, repair, and demolition operations on pavement, houses, commercial buildings, and other structures (FGS-Japan 7-2).

- *Cover Material* - material used to cover compacted solid wastes in a land disposal site (FGS-Japan 7-2).

- *Curb Collection* - collection of solid waste placed adjacent to a street (FGS-Japan 7-2).

- *Daily Cover* - cover material that is spread and compacted on the top and side slopes of compacted solid wastes at least at the end of each operating day in order to control vectors, fire, moisture, and erosion and to assure an aesthetic appearance (40 CFR 241.101 as adopted by DODD 4165.60, para V(A)).

  (NOTE: In addition to the above definition, solid material that is spread and compacted or synthetic material that is placed on the top and side slopes of compacted solid waste at least at the end of each operating day in order to control vectors, fire, moisture, and erosion and to assure an aesthetic appearance (FGS-Japan 7-2).)

- *Final Cover* - cover materials that serve the same function as daily cover but, in addition, may be permanently exposed on the surface (FGS-Japan 7-2).

- *Fly Ash* - suspended particles, charred paper, dust, soot, and other partially oxidized matter carried in the products of combustion (40 CFR 240.101 as adopted by DODD 4165.60, para V(A)).

- *Food Waste* - the organic residues generated by the handling, storage, sale, preparation, cooking, and serving of foods, commonly called garbage (FGS-Japan 7-2).

- *Generation* - the act or process of producing solid waste (FGS-Japan 7-2).

- *Groundwater* - water present in the unsaturated zone of an aquifer (40 CFR 241.101 as adopted by DODD 4165.60, para V(A)).

- *Hazardous Waste* - a discarded material that may be solid, semi-solid, liquid, or gaseous and exhibits a characteristic of hazardous waste. It may exhibit more of the following characteristics: ignitability, corrosivity, reactivity, or toxicity. See also Section 4, *Hazardous Waste Management* (FGS-Japan 7-2).

- *Human Blood and Blood Products* - (includes serum, plasma, and other blood components) items contaminated with liquid or semiliquid blood or blood products, items saturated or dripping with blood or blood products, or items caked with blood or blood products, that are capable of releasing these materials during handling (FGS-Japan 8-2).

- *Industrial Solid Waste* - non-hazardous solid waste generated by industrial processes and manufacturing. It can include cinder, sludge, used oil, used plastics, waste paper, wood residue, waste fibers, organic residue, waste rubber, waste metals, waste glass and china, slag, animal wastes, dead animals, soot, and processed products of the items listed here (FGS-Japan 7-2).

- *Infectious Agent* - any organism (such as a virus or bacteria) that is capable of being communicated by invasion and multiplication in body tissues and capable of causing disease or adverse health impacts in humans (FGS-Japan 8-2).

- *Infectious Medical Waste* - solid waste, produced by medical and dental treatment facilities that is specially managed because it has the potential for causing disease in humans and may pose a risk to both individuals or community health if not managed properly. The term includes microbiology waste, pathology waste, human blood and blood products, potentially infectious materials, sharps, and infection wastes from isolation rooms (including only those items that are contaminated, with infectious agents or pathogens, and excretion exudates and discarded material contaminated with blood) (FGS-Japan 8-2).

- *Institutional Solid Waste* - solid waste generated by educational, health care, correctional, and other institutional facilities (FGS-Japan 7-2).

- *Intermediate Cover* - cover material that serves the same function as daily cover but must resist erosion for a longer period of time because it is applied in areas where additional cells are not to be constructed for extended periods of time (40 CFR 241.101 as adopted by DODD 4165.60, para V(A)).

- *Land Application Unit* - an area where wastes are applied onto or incorporated into the soil surface for agricultural purposes or for treatment or disposal (FGS-Japan 7-2).

- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *Microbiology Waste* - includes cultures and stocks of etiologic agents that, due to their species, type, virulence, or concentration, are known to cause disease in humans (FGS-Japan 8-2).

- *Municipal Solid Waste (MSW)* - residential and commercial solid waste generated within a community. It can include paper, garbage, fibers, wood, plastics, rubber, metals, and glass (FGS-Japan 7-2).

- *Municipal Solid Waste Landfill Unit (MSWLF)* - a discrete area of land or an excavation, on a DOD installation, that receives residential waste and that is not a land application unit, surface impoundment, injection well, or waste pile. An MSWLF unit also may receive other types of wastes, such as commercial solid waste and industrial solid waste (FGS-Japan 7-2).

- *Noninfectious Medical Waste* - solid waste created in medical and dental treatment facilities that does not require special management because it has been determined to be incapable of causing disease in humans or it has been treated to render it noninfectious (FGS-Japan 8-2).

- *Open Burning* - burning of solid wastes in the open, such as in an open dump (FGS-Japan 7-2).

- *Open Dump* - a land disposal site at which solid wastes are disposed of in a manner that does not protect the environment, are susceptible to open burning, and are exposed to the elements, vectors, and scavengers (FGS-Japan 7-2).

- *Pathology Waste* - includes human tissues and organs, amputated limbs or other body parts, fetuses, placentas, and similar tissues from surgery, delivery, or autopsy procedures. Animal carcasses, body parts, blood, and bedding are also included (FGS-Japan 8-2).

- *Potentially Infectious Materials* - include human body fluids such as semen, vaginal secretions, cerebrospinal fluid, pericardial fluid, pleural fluid, peritoneal fluid, amniotic fluid, saliva in dental procedures, any body fluid that is visibly contaminated with blood, and all body fluids in situations where it is difficult or impossible to differentiate between body fluids (FGS-Japan 8-2).

- *Residential Solid Waste* - the wastes generated by the normal activities of households, including, but not limited to, food wastes, rubbish, ashes, and bulky wastes (FGS-Japan 7-2).

- *Resource Recovery Facility* - Any physical plant that processes residential, commercial or institutional solid waste, biologically, chemically, or physically, and recovers useful products, such as shredded fuel, combustible oil or gas, steam, metal, glass, etc., for resale or reuse (DODD 4165.60, Enclosure 2, J).

- *Rubbish* - a general term for solid waste, excluding food wastes and ashes, taken from residences, commercial establishments, and institutions (FGS-Japan 7-2).

- *Sanitary Landfill* - a land disposal site employing an engineered method of disposing of solid wastes on land in a manner that minimizes environmental hazards by spreading the solid wastes in thin layers, compacting the solid wastes to the smallest practical volume, and applying and compacting cover material at the end of each operating day (FGS-Japan 7-2).

- *Satellite Vehicle* - a small collection vehicle that transfers its load into a larger vehicle operating in conjunction with it (FGS-Japan 7-2).

- *Scavenging* - the uncontrolled and unauthorized removal of materials at any point in the solid waste management system (FGS-Japan 7-2).

- *Sharps* - includes hypodermic needles, syringes, biopsy needles and other types of needles used to obtain tissue or fluid specimens, needles used to deliver intravenous solutions, scalpel blades, pasteur pipettes, specimen slides, cover slips, glass petri plates, and broken glass potentially contaminated with infectious waste (FGS-Japan 8-2).

- *Sludge* - the accumulated semiliquid suspension of settled solids deposited from wastewaters or other fluids in tanks or basins. It does not include solids or dissolved material in domestic sewage or other significant pollutants in water resources, such as silt, dissolved or suspended solids in industrial wastewater effluent, dissolved materials in irrigation return flows, or other common water pollutants (FGS-Japan 7-2).

- *Solid Waste* - garbage, refuse, sludge, and other discarded materials, including solid, semisolid, liquid, and contained gaseous materials resulting from industrial and commercial operations and from community activities. It does not include solids or dissolved material in domestic sewage or other significant pollutants in water resources, such as silt, dissolved or suspended solids in industrial

wastewater effluent, dissolved materials in irrigation return flows or other common water pollutants (FGS-Japan 7-2).

- *Solid Waste Storage Container* - a receptacle used for the temporary storage of solid waste while awaiting collection (FGS-Japan 7-2).

- *Stationary Compactor* - a powered machine that is designed to compact solid waste or recyclable materials, and which remains stationary when in operation (FGS-Japan 7-2).

- *Storage* - the interim containment of solid waste after generation and prior to collection for ultimate recovery or disposal (FGS-Japan 7-2).

- *Street Wastes* - material picked up by manual or mechanical sweepings of alleys, streets, and sidewalks; wastes from public waste receptacles, and material removed from catch basins (FGS-Japan 7-2).

- *Thermal Processing* - processing of waste material by means of heat (40 CFR 240.101 as adopted by DODD 4165.60, para V(A)).

- *Transfer Station* - a site at which solid wastes are concentrated for transport to a processing facility or land disposal site. A transfer station may be fixed or mobile (FGS-Japan 7-2).

- *Treatment* - any method, technique, or process designed to render infectious medical waste non-infectious (FGS-Japan 8-2).

- *Vector* - any organism that carries pathogens from one organism to another. These are most commonly such organisms as mice, rats, insects, and small animals (FGS-Japan 7-2).

- *Vector Control* - methods used to control vectors. Control methods can be covers, traps, chemical spraying, or any combination thereof that will reduce or eliminate vectors from an area (FGS-Japan 7-2).

- *Working Face* - that portion of the land disposal site where solid wastes are discharged and are spread and compacted prior to the placement of cover material (40 CFR 241.101 as adopted by DODD 4165.60, para V(A)).

- *Yard Waste* - grass and shrubbery clippings, tree limbs, leaves, and similar organic materials commonly generated in residential yard maintenance (also known as green waste) (FGS-Japan 7-2).

SOLID WASTE MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS: (a)
All Installations	JA.9-1 through JA.9-6	(1)(2)(4)
Recycling	JA.9-7 through JA.9-12	(1)(2)(3)
Solid Waste Storage and Collection	JA.9-13 through JA.9-23	(1)(2)(3)
Land Disposal Sites		
Specific Wastes	JA.9-24 through JA.9-28	(1)(2)(3)
Operations	JA.9-29 through JA.9-44	(1)(2)(3)
Closure and Postclosure	JA.9-45 through JA.9-49	(1)(2)(3)
New Landfills	JA.9-50 through JA.9-55	(1)(2)(3)
Thermal Processing Facilities	JA.9-56 through JA.9-69	(1)(2)(3)
Resource Recovery Facilities	JA.9-70 and JA.9-71	(1)(2)(3)
Composting Facilities	JA.9-72 through JA.9-74	(1)(2)(3)
Medical Waste		
General	JA.9-75 and JA.9-76	(1)(3)
Infectious Medical Waste	JA.9-77 through JA.9-88	(1)(3)
Disposal	JA.9-89 through JA.9-94	(1)(3)

(a) CONTACT/LOCATION CODE:

(1) BEC (Base Environmental Coordinator)
(2) BCE (Base Civil Engineer)
(3) BES (Bioenvironmental Engineering Services)
(4) Base Staff Judge Advocate

SOLID WASTE MANAGEMENT

Records To Review

- Record of current nonhazardous solid waste management practices
- Documentation of locations (map) and descriptions of all nonhazardous waste treatment, storage, and disposal facilities (TSDFs)
- Records of operational history of all active and inactive TSDFs
- Environmental monitoring procedures or plans
- Records of resource recovery practices, including the sale of materials for the purpose of recycling
- Solid waste removal contracts and inspection records

Physical Features To Inspect

- Resource recovery facilities
- Incineration and land disposal facilities (active and inactive)
- Areas where hazardous and nonhazardous wastes are disposed of
- Construction debris areas
- Waste receptacles
- Solid waste vehicle storage and washing areas

Sources To Interview

- BEC (Base Environmental Coordinator)
- BCE (Base Civil Engineer)
- BES (Bioenvironmental Engineering Services)
- Base Staff Judge Advocate

COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
JA.9-1. Determine actions or changes since previous review (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (1)(2)
JA.9-2. Copies of all relevant DOD directives/ instructions, USAF directives, and guidance documents should be maintained at the installation (MP).	Verify that copies of the following regulations are maintained and kept current at the installation: (1)(2)(4) - *USFJ Final Governing Standards* (FGS-Japan), January 1995 - DODD 4165.60, *Solid Waste Management--Collection, Disposal, Resource Recovery, and Recycling Program,* 4 October 1976. Verify that the Base Staff Judge Advocate (SJA) reviews the documents annually for currency and completeness and submits the findings of the review to the Base Environmental Protection Committee.
JA.9-3. Installations must meet regulatory requirements issued since the finalization of the manual (A finding under this checklist item will have the citation of the new regulation as the basis of the finding).	Determine whether any new regulations concerning solid waste management have been issued since the finalization of the manual. (1)(2) Verify that the installation is in compliance with newly issued regulations.
JA.9-4. Installations that use off-base disposal facilities must ensure that the operator has appropriate Japanese permits and licenses (FGS-Japan 7-3.3).	Determine whether the installation uses off-base disposal facilities. (1)(2) Verify that the installation ensures that the operator has appropriate Japanese permits and licenses. (NOTE: Installations are not required to inspect these facilities.)
JA.9-5. Installations that use Japanese contractors for the transportation of solid waste must ensure that such contractors are properly licensed (FGS-Japan 7-3.3).	Determine whether the installation uses Japanese contractors for the transportation of solid waste. (1)(2) Verify that the installation's contractors are properly licensed by the appropriate Japanese authorities.

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-6. Installations must develop and implement a solid waste management strategy (FGS-Japan 7-3.4).	Verify that the installation has developed and implemented a strategy for reducing solid waste disposal. (1)(2) (NOTE: This strategy could include recycling, composting, and waste minimization efforts.)
RECYCLING	
JA.9-7. AF installations must institute recycling programs, where cost effective, and must reduce the volume of solid waste materials at the source (FGS-Japan 7-3.4; DODD 4165.60, para V(A), V(C), and V(D)).	Verify that a solid waste reduction/resource recovery program exists. (1)(3) Verify that efforts are made to reduce the volume of solid waste materials at the source.
JA.9-8. Reusable and marketable materials should be collected at regular intervals (MP).	Verify that reusable or marketable materials are collected at regular intervals. (1)(3)
JA.9-9. Installations with office facilities of over 100 office workers must recover high-grade paper (DODD 4165.60, para V(L)).	Determine whether the installation has over 100 office workers. (1)(3) Verify that high-grade paper is separated at the source of generation. Verify that high-grade paper is separately collected. Verify that high-grade paper is sold for recycling.
JA.9-10. Installations where more than 500 families reside must recycle newspapers (DODD 4165.60, para V(J)).	Determine whether the installation has more than 500 families residing on it. (1)(3) Verify that used newspapers are separated at the source of generation. Verify that used newspapers are separately collected. Verify that used newspapers are sold for recycling.

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-11. Installations that generate 10,160 kg (10 tons) or more of waste corrugated containers per month must sell this material for recycling (DODD 4165.60, para V(K)).	Determine whether the installation generates 10,160 kg (10 tons) or more of waste corrugated containers per month. (1)(2)(3) Verify that waste corrugated containers are collected separately. Verify that waste corrugated containers are sold for recycling. (NOTE: Alternatively, waste corrugated containers may be used as an energy resource.)
JA.9-12. Installations that recycle lead acid batteries must manage them as hazardous materials (FGS-Japan 6-3.9(c) and 7-3.5).	Verify that lead acid batteries that are awaiting recycling are handled as hazardous materials. (1)(3)
SOLID WASTE STORAGE AND COLLECTION	
JA.9-13. Installations must collect, treat, store, and dispose of DOD solid wastes in facilities that have been evaluated against the criteria of FGS-Japan, Chapter 7, *Solid Waste Management* (FGS-Japan 7-3.1).	Verify that the installation collects, treats, stores, and disposes of DOD solid wastes in facilities that have been evaluated against the criteria of FGS-Japan, Chapter 7, *Solid Waste Management.* (2)(3) Verify that evaluated facilities are used to the maximum extent practical.
JA.9-14. Installations must use solid waste storage containers that meet specific design standards (FGS-Japan 7-3.7).	Verify that storage containers are leakproof, waterproof, and vermin-proof, including sides, seams, and bottoms. (2)(3) Verify that storage containers are durable enough to withstand anticipated usage. Verify that storage containers have functional lids. Verify that containers are stored on a firm, level, well-drained surface that is large enough to accommodate all of the containers. Verify that the storage area is clean and free of spills.

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-14. (continued)	Verify that reusable containers are capable of being serviced without the collector coming into contact with the waste.
JA.9-15. Installations must store all solid wastes and materials separated for recycling according to specific guidelines (FGS-Japan 7-3.5 and 7-3.6; DODD 4165.60, para V(A)).	Verify that all solid wastes and materials separated for recycling are stored so as not to constitute a fire, health, or safety hazard or provide food or harborage for vectors. (1)(2)(3) Verify that such materials are contained or bundled to prevent spillage. Verify that all solid waste containing food wastes is stored in covered or closed containers that are nonabsorbent, leakproof, durable, easily cleaned, and designed for safe handling. Verify that solid waste containers are of an adequate size and number to contain all waste generated between collections.
JA.9-16. Installation personnel must be periodically informed about materials that may not be put in solid waste receptacles (FGS-Japan 7-3.8).	Verify that a program exists at the installation to keep personnel informed about proper waste disposal practices. (1)(2)(3)
JA.9-17. All installations must operate their collection systems in such a way as to protect the health and safety of personnel associated with the operation (FGS-Japan 7-3.9 and DODD 4165.60, para V(A)).	Verify that the collection system is operated safely. (1)(2)(3)
JA.9-18. Installations must maintain collection equipment according to certain standards if such equipment is considered to be operating in interstate or foreign commerce (DODD 4165.60, para V(A)).	Verify that all such vehicles used for the collection and transportation of solid waste meet all applicable standards established by the Federal Government, including: (1)(2)(3) - Motor Carrier Safety Standards (49 CFR 390 through 396) - Noise Emission Standards for Motor Carriers Engaged in Interstate Commerce (40 CFR 202) - Federal Motor Vehicle Safety Standards (49 CFR 500 through 580) (Federally owned collection equipment only).

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-19. Solid waste collection equipment must meet specific standards (FGS-Japan 7-3.10 and DODD 4165.60, para V(A)).	Verify that all vehicles used for collection and transportation of solid wastes or materials separated for recycling are enclosed and have suitable covers to prevent spillage. (2)(3) Verify that equipment used in the compaction, collection, and transportation of solid waste or materials separated for recycling is constructed, operated, and maintained adequately. Verify that the following types of equipment meet the standards established by the American National Standards Institute: - rear-loading compaction equipment - side-loading compaction equipment - front-loading compaction equipment - tilt-frame equipment - hoist-type equipment - satellite vehicles - special collection compaction equipment - stationary compaction equipment.
JA.9-20. All installations must collect solid wastes or materials separated for recycling according to a certain schedule (FGS- Japan 7-3.11 and DODD 4165.60, para V(A)).	Verify that solid wastes that contain food wastes are collected at a minimum of once a week. (1)(2)(3) Verify that bulky wastes are collected at a minimum of once every 3 mo. Verify that all wastes are collected with sufficient frequency to inhibit the propagation or attraction of vectors and the creation of noise, odors, or other nuisances.
JA.9-21. Installations must collect solid waste in a safe and efficient manner (DODD 4165.60, para V(A)).	Verify that solid wastes or materials separated for recycling are collected in a safe, efficient manner. (2)(3) Verify that the operator of the collection vehicle immediately cleans up any spillage caused by his or her operations.
JA.9-22. Installations should inspect receptacles for industrial shop waste quarterly to verify that hazardous wastes are not being deposited in them (MP).	Verify that receptacles are inspected quarterly. (2)(3) Verify that corrective actions are taken where indicated.

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-23. Installations must meet specific requirements with regard to the management of bulky wastes (FGS-Japan 7-3.12).	Verify that bulky wastes are stored so as not to create an attractive nuisance and to avoid the accumulation of solid waste and water in and around the bulky items by removing all doors from large household appliances and covering the items. (1)(2)(3) (NOTE: The requirement to remove all doors from large household appliances does not apply if such appliances are stored in a secure area.) Verify that bulky wastes are screened for the presence of hazardous constituents and ozone depleting substances. Verify that readily detachable or removable hazardous waste is segregated, collected, stored, and disposed of properly. (NOTE: See Section 4, *Hazardous Waste Management*, and Section 11, *Toxic Substances Management.*)
LAND DISPOSAL SITES **Specific Wastes**	(NOTE: The requirements of this section of the manual apply only to those installations that operate a MSWLF.)
JA.9-24. Bulky wastes must be disposed of in a specific fashion (DODD 4165.60, para V(A)).	Verify that automobile bodies, furniture, and appliances are either salvaged or crushed and pushed onto the working face near the bottom of the cell. (1)(2)(3) Verify that demolition and construction debris, tree stumps, and large timbers are pushed onto the working face near the bottom of the cell.
JA.9-25. Water treatment plant sludges must be covered with soil or MSW (DODD 4165.60, para V(A)).	Verify that water treatment plant sludges are covered with soil or MSW. (1)(2)(3)
JA.9-26. Incinerator and air pollution control residues must be disposed of in a specific fashion (DODD 4165.60, para V(A)).	Verify that incinerator and air pollution control residues are incorporated into the face and covered as necessary to prevent them from becoming airborne. (1)(3)

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-27. Installations must develop procedures for dealing with yard waste and construction debris (OEBGD, Chapter 7, Criterion 12(f)).	Verify that the installation has developed procedures for dealing with yard waste and construction debris that keep it out of MSWLF units to the maximum extent possible (e.g., composting, recycling). (1)(3)
JA.9-28. Installations must investigate options for composting MSW (OEBGD, Chapter 7, Criterion 12(d)).	Verify that the installation has investigated options for composting MSW as an alternative to landfilling or treatment prior to landfilling. (1)(2)
Operations	(NOTE: FGS-Japan 7-3.2(e) gives installations a period of two yr from the date on which FGS-Japan was promulgated (i.e., 31 January 1995) to bring their facilities into compliance with its provisions.)
JA.9-29. Installations must post signs at the entrance to their MSWLFs (FGS-Japan 7-3.2(d)(2)).	Verify that a sign is posted at the entrance of the facility that lists the operating hours and any other information deemed necessary for the operation. (2)(3) Verify that the sign is in both English and Japanese.
JA.9-30. Installations must implement programs to detect and prevent the disposal of certain wastes in their MSWLFs (FGS-Japan 7-3.2(b) and OEBGD, Chapter 7, Criterion 12(m)).	Verify that the installation has a program that effectively prevents the disposal in the MSWLF of hazardous waste, infectious waste, PCB waste, and other waste determined to be unsuitable for the specific landfill. (1)(2)(3) Verify that the installation prohibits the disposal of bulk or non-containerized liquids in the MSWLF, if possible.

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-31. Installations that operate land disposal sites must provide a list of excluded materials to regular users and develop criteria for unacceptable materials (OEBGD, Chapter 7, Criterion 12(b) and DODD 4165.60, para V(A)).	Verify that a list of excluded materials is displayed prominently at the entrance to the site. (1)(2) Verify that a list of excluded materials is given to all regular users of the site. Verify that the installation has established criteria for unacceptable wastes based on site-specific factors. (NOTE: Examples of site-specific factors are: - hydrology - chemical and biological characteristics of the waste - available alternative disposal methods - environmental and health effects - safety of personnel.)
JA.9-32. Installations must use certain standard sanitary landfill techniques as part of their operations (FGS-Japan 7-3.2(a) and DODD 4165.60, para V(A)).	Verify that standard techniques of spreading and compacting solid wastes are used. (1)(2)(3) Verify that, on any operating day, MSW handling equipment is capable of: - spreading solid waste in layers no more than 0.6 m (2 ft) thick while confining it to the smallest practicable area - compacting the spread solid wastes to the smallest practicable volume. Verify that daily cover is placed over disposed solid waste at the end of each operating day, regardless of weather.
JA.9-33. Specific requirements as to cover material must be met at land disposal sites (DODD 4165.60, para V(A)).	Verify that cover material is applied as necessary to: (1)(2)(3) - minimize fire hazards - minimize infiltration of precipitation - minimize odors - minimize blowing litter - control gas venting - control vectors - discourage scavenging - provide a pleasing appearance. Verify that intermediate cover is applied on areas where additional cells are not to be constructed for extended periods of time. Verify that final cover is applied on each area as it is completed or if the area is to remain idle for over 1 yr.

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-34. Land disposal sites that accept special wastes must have approval of the responsible agency (DODD 4165.60, para V(A)).	Determine whether the land disposal site accepts special wastes. (1)(2) Verify that the land disposal site has agency approval to accept special wastes.
JA.9-35. Installations must operate land disposal sites in such a way as to protect water quality (FGS-Japan 7-3.2(d)(3), 7-3.2(d)(4), and DODD 4165.60, para V(A)).	Verify that cover material is graded and sloped in order to provide good drainage of surface water off the site, without excessive erosion. (1)(2) Verify that excess surface water is drained off the site through the use of pipes or dikes. Verify that, if the site does not have a leachate collection system, excess surface water is collected in a surface water drainage collection system. Verify that surface watercourses and runoff are diverted from the land disposal site. Verify that the site is regraded as necessary to avoid ponding of precipitation and to maintain the integrity of cover material. Verify that leachate collection and treatment systems are used where necessary to protect groundwater and surface water resources. Verify that MSW and leachate are not in contact with groundwater or surface water.
JA.9-36. Installations must meet specific groundwater monitoring requirements (FGS-Japan 7-3.2(d)(9)).	Verify that the installation monitors groundwater for hazardous constituents at least semi-annually. (1)(2) (NOTE: Table 9-1 contains a list of hazardous constituents for which monitoring must be conducted.) Verify that, as a minimum, the groundwater monitoring system consists of three wells drilled to the principal aquifer, with one well upgradient of the site and two wells downgradient of the site.
JA.9-37. Installations with leachate collection systems must meet specific requirements (FGS-Japan 7-3.2(d)(10)).	Determine whether the MSWLF has a leachate collection system. Verify that the effluent from that system conforms to the wastewater point sources standards of FGS-Japan, Chapter 4. (NOTE: See Section 12, *Wastewater Management.*) Verify that the leachate collection system is checked periodically to ensure that there are no operational problems.

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-38. Installations must operate land disposal sites in such a way as to protect air quality (FGS-Japan 7-3.2(c) and 7-3.2(d)(6); DODD 4165.60 para V(A)).	Verify that there is no open burning of MSW. (1)(2)(3) (NOTE: Infrequent burning of agricultural wastes, silvicultural wastes, land-clearing debris, diseased trees, or debris from emergency cleanup operations is allowed.) Verify that dust control measures are initiated as necessary. Verify that odor control is provided as necessary.
JA.9-39. Installations must control decomposition gases at land disposal sites (FGS-Japan 7-3.2(d)(11) and DODD 4165.60, para V(A)).	Verify that decomposition gases are not allowed to migrate laterally from the land disposal site. (1)(2)(3) Verify that decomposition gases do not pose an explosion or toxicity hazard. Verify that methane generated by the MSWLF unit does not exceed 25 percent of the lower explosive limit for methane in facility structures. (NOTE: The lower explosive limit for methane is 5.0 percent by volume.)
JA.9-40. Installations must control vectors at land disposal sites (FGS-Japan 7-3.2(d)(8) and DODD 4165.60, para V(A)).	Verify that conditions at the land disposal site are unfavorable for the harboring, feeding, and breeding of disease vectors. (1)(2)(3) Verify that the techniques of vector control are appropriate for the protection of human health and the environment. Verify that vector control contingency programs are implemented when necessary to prevent or rectify vector problems.
JA.9-41. Land disposal sites must be designed and operated in an aesthetically acceptable manner (FGS-Japan 7-3.2(d)(5) and DODD 4165.60, para V(A)).	Verify that blowing litter is controlled through portable litter fences or other devices. (1)(2)(3) Verify that scattering and spillage of waste is minimized. Verify that wastes that are easily moved by wind are covered as necessary to prevent their becoming airborne. Verify that onsite vegetation is cleared only as necessary. Verify that natural windbreaks are maintained. Verify that buffer strips and/or berms are used to screen the site from nearby residences and major roadways. Verify that salvage material is removed from the site frequently.

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-42. Installations must control public access to landfill facilities (FGS-Japan 7-3.2(d)(1)).	Verify that the site is fenced or otherwise restricted to keep out unauthorized persons. (1)(2)(3)
JA.9-43. Land disposal sites must be designed, constructed, and operated in such a way as to protect the health and safety of personnel (OEBGD, Chapter 7, Criterion 12(g), FGS-Japan 7-3.2(d)(7), and DODD 4165.60, para V(A)).	Verify that a safety manual is available to personnel. (1)(2)(3) Verify that personal safety devices are provided to facility personnel. Verify that equipment is provided with safety devices. Verify that fire fighting equipment is readily available on the MSWLF. Verify that communications equipment is available on site. Verify that scavenging is prohibited. Verify that traffic signs or markers are provided to promote an orderly traffic pattern to and from the discharge area.
JA.9-44. Operators of land disposal sites must maintain records of their operations that meet specific requirements (FGS-Japan 7-3.2(d)(12) and DODD 4165.60, para V(A)).	Verify that records on the operations of the landfill are maintained. (1)(2)(3) Verify that records include at least the following: - major operational problems, complaints, or difficulties - results of leachate sampling and analyses - results of gas sampling and analyses - results of groundwater and surface water quality sampling and analyses upgradient and downgradient of the MSWLF - vector control efforts - dust and litter control efforts - quantitative measurements of the solid wastes handled - description of solid waste materials received. Verify that operational data on the MSWLF are kept for a minimum of 5yr.
Closure and Postclosure	
JA.9-45. Installations should survey for and be aware of old disposal sites (MP).	Verify that the installation has conducted a survey for old disposal sites. (1)(2)

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-46. Installations must take specific actions in the course of closure and postclosure operations (FGS-Japan 7-3.2(g)(2)).	Verify that a final cover is installed that is designed to minimize infiltration and erosion. (1)(2)(3) Verify that the infiltration layer is made up of a minimum of 46 cm (18 in.) of earthen material, geotextiles, or combination thereof, that have a permeability less than or equal to the permeability of any bottom liner system or natural subsoils present or a permeability no greater than 0.00005 cm/s, whichever is less. Verify that the erosion layer is a minimum of 21 cm (8 in.) of earth material that can sustain native plant growth. Verify that the top cover is properly graded, sloped, and seeded to promote plant growth. (NOTE: No permitting requirements are required for submittal to Japanese authorities.)
JA.9-47. Installations must prepare a written closure plan that meets specific requirements (FGS-Japan 7-3.2(g)).	Verify that the installation has a written closure plan. (1)(2)(3) Verify that the plan is prepared in accordance with service criteria. Verify that the plan is submitted to the Executive Agent (EA) at least 6 mo prior to anticipated closure. Verify that the closure plan is kept on file at the installation indefinitely. Verify that the closure plan includes the following, at a minimum: - a description of the monitoring and maintenance activities required to ensure the integrity of the final cover - a survey plot showing the exact site location - a description of planned uses during the postclosure period - the duration of the postclosure care period, to be a minimum of 5 yr.
JA.9-48. Installations should, upon closure of a site, record a detailed description with the area's land recording authority (MP).	Verify that, upon closure of a site, a detailed description is recorded with the area's land recording authority. (1)(2)(3)

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-49. Installations must coordinate with the agent prior to the movement or closure of any landfill (FGS-Japan 13-5.1(d)).	Verify that the installation coordinates with the agent prior to the movement or closure of any landfill in order that a Natural Resource Site Review is assessed. (1)(2)(3) (NOTE: For details on a Natural Resource Site Review, see Section 5, *Natural Resources Management.*) Verify that a formal designation of the permissible fill materials, site size, and other requirements is on file with the agent.
New Landfills	
JA.9-50. Installations must submit notification of new landfills to the EA at least 6 mo in advance of construction (FGS-Japan 7-3.2(f)).	Verify that the installation submits notification of new landfills to the EA at least 6 mo in advance of construction. (1)(2)(3) (NOTE: There are no additional permitting requirements from either Japanese national, prefectural, or local governments.)
JA.9-51. The design and operation of new MSWLF units must incorporate certain broad factors (OEBGD, Chapter 7, Criterion 11 and DODD 4165.60, para V(A)).	Verify that the following broad factors are taken into account in the design and operation of the new MSWLF: (1)(2)(3) - location restrictions in regard to airport safety (i.e., bird hazards), floodplains, wetlands, aquifers, seismic zones, and unstable areas - procedures for excluding hazardous waste - cover material criteria (e.g., daily cover) - disease vector control - explosive gas control - air quality standards (e.g., no open burning) - access requirements - liquids restrictions - recordkeeping requirements - inspection program. Verify that the following have been evaluated: - the onsite soil characteristics - climatic conditions - socioeconomic factors.

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-52. New MSWLFs must be designed as impervious sanitary landfills (FGS-Japan 7-3.2(f)).	Verify that the new MSWLF is designed as an impervious sanitary landfill. (1)(2)(3) Verify that the design of the new MSWLF incorporates the following features: - bottom and side linings - leachate collection and treatment system - groundwater monitoring systems.
JA.9-53. The groundwater monitoring system at a new MSWLF must meet specific standards (FGS-Japan 7-3.2(f)).	Verify that, as a minimum, the groundwater monitoring system consists of three wells drilled to the principal aquifer, with one well upgradient of the site and two wells downgradient of the site. (1)(2)(3) Verify that the wells are sampled semiannually for the hazardous constituents listed in Table 9-1.
JA.9-54. Installations must meet the requirements of AF design/construction manuals for sanitary landfills (FGS-Japan 7-3.2(f)).	Verify that the new MSWLF is designed and constructed in accordance with the criteria in the AF manual for the design/construction of sanitary landfills. (1)(2)(3)
JA.9-55. Plans for the design, construction, and operation of new sites or modifications to existing sites must be prepared or approved by a professional engineer (DODD 4165.60, para V(A)).	Verify that a professional engineer has prepared or approved plans. (1)(2)

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
THERMAL PROCESSING FACILITIES	
JA.9-56. Installations with thermal processing facilities designed to process or that are processing 50,800 kg (50 tons) or more per day of MSW must provide special areas for certain wastes while they await processing (DODD 4165.60, para V(A)).	Verify that storage areas for bulky wastes, digested and dewatered sludges from wastewater treatment facilities, raw sewage sludges, and septic tank pumpings are clearly marked. (1)(2)(3) (NOTE: This does not apply to hazardous, agricultural, or mining wastes.)
JA.9-57. Installations with thermal processing facilities designed to process or that are processing 50,800 kg (50 tons) or more per day of MSW must train personnel in any unusual handling requirements for accepting certain wastes (DODD 4165.60, para V(A)).	Verify that personnel are thoroughly trained to handle bulky wastes, digested and dewatered sludges from wastewater treatment facilities, raw sewage sludges, and septic tank pumpings. (1)(2)(3) (NOTE: This does not apply to hazardous, agricultural, or mining wastes.)
JA.9-58. Installations with thermal processing facilities designed to process or that are processing 50,800 kg (50 tons) or more per day of MSW must inform regular users about materials that are excluded (DODD 4165.60, para V(A)).	Verify that regular users are given a list of excluded materials. (1)(2)(3) Verify that a list of excluded materials is posted prominently at the facility. (NOTE: This does not apply to hazardous, agricultural, or mining wastes.)

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-59. Installations with thermal processing facilities designed to process or that are processing 50,800 kg (50 tons) or more per day of MSW must have certain procedures and precautions to deal with unacceptable wastes that are delivered to or left at the facility (DODD 4165.60, para V(A)).	Verify that there is an operating plan that specifies procedures and precautions to be taken if unacceptable wastes are delivered to or left at the facility. (1)(2)(3) Verify that operating personnel are thoroughly trained in such procedures. (NOTE: This does not apply to hazardous, agricultural, or mining wastes.)
JA.9-60. Installations with thermal processing facilities designed to process or that are processing 50,800 kg (50 tons) or more per day of MSW must meet certain site selection criteria (DODD 4165.60, para V(A)).	Verify that the facility is located in an area zoned for industrial use and has adequate utilities to serve it. (1)(2)(3) Verify that the site is accessible by permanent roads leading from the public road system. (NOTE: This does not apply to hazardous, agricultural, or mining wastes.)
JA.9-61. Installations with thermal processing facilities designed to process or that are processing 50,800 kg (50 tons) or more per day of MSW must have plans for the design of new facilities or modification of existing facilities prepared or approved by a professional engineer (DODD 4165.60, para V(A)).	Verify that a professional engineer prepares or approves plans for the design of new facilities or modification of existing facilities. (1)(2)(3) (NOTE: This does not apply to hazardous, agricultural, or mining wastes.)

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-62. Installations with thermal processing facilities designed to process or that are processing 50,800 kg (50 tons) or more per day of MSW must operate in a manner that protects water quality (DODD 4165.60, para V(A)).	Verify that all waters discharged from the facility are treated to meet the most stringent of applicable water quality standards. (1)(2)(3) Verify that, when monitoring instrumentation indicates excessive discharge contamination, appropriate adjustments are made to lower the concentrations to acceptable levels. Verify that, in the event of an accidental spill, the local regulatory agency is notified immediately. (NOTE: This does not apply to hazardous, agricultural, or mining wastes.)
JA.9-63. Installations with thermal processing facilities designed to process or that are processing 50,800 kg (50 tons) or more per day of MSW must operate in a manner that protects air quality (DODD 4165.60, para V(A)).	Verify that emissions do not exceed applicable, existing emission standards. (1)(2)(3) Verify that all emissions, including dust from vents, are controlled. Verify that, when monitoring equipment indicates excessive emissions, appropriate adjustments are made to lower the emissions to acceptable levels. (NOTE: This does not apply to hazardous, agricultural, or mining wastes.)
JA.9-64. Installations with thermal processing facilities designed to process or that are processing 50,800 kg (50 tons) or more per day of MSW must control vectors (DODD 4165.60, para V(A)).	Verify that a housekeeping schedule is established and maintained. (1)(2)(3) Verify that solid waste and residue do not accumulate at the facility for more than 1 week. (NOTE: This does not apply to hazardous, agricultural, or mining wastes.)
JA.9-65. Installations with thermal processing facilities designed to process or that are processing 50,800 kg (50 tons) or more per day of MSW must operate in an aesthetically acceptable manner (DODD 4165.60, para V(A)).	Verify that a routine housekeeping and litter removal schedule is established and implemented. (1)(2)(3) Verify that solid wastes that cannot be processed by the facility are removed on a weekly basis. (NOTE: This does not apply to hazardous, agricultural, or mining wastes.)

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-66. Installations with thermal processing facilities designed to process or that are processing 50,800 kg (50 tons) or more per day of MSW must dispose of residue and other solid waste products resulting from the thermal process in an environmentally acceptable manner (DODD 4165.60, para V(A)).	Verify that the furnace operator records, in a log, the estimated percentage of unburned combustibles. (1)(2)(3) Verify that, if residue or fly ash is collected in a wet condition, it is drained of free moisture. Verify that residue and fly ash are transported by means that prevent the loads from shifting, falling, or blowing from the container. (NOTE: This does not apply to hazardous, agricultural, or mining wastes.)
JA.9-67. Installations with thermal processing facilities designed to process or that are processing 50,800 kg (50 tons) or more per day of MSW must be designed, operated, and maintained in a manner to protect the health and safety of personnel (DODD 4165.60, para V(A)).	Verify that procedures are developed for operation in emergency situations. (1)(2)(3) Verify that approved respirators or self-contained breathing apparatus are available at convenient locations. Verify that training in first aid practices and emergency procedures are given to all personnel. Verify that personal safety devices are provided to all personnel. Verify that any regular user or individual who poses a safety hazard is barred from the facility and reported to the responsible agency. (NOTE: This does not apply to hazardous, agricultural, or mining wastes.)
JA.9-68. Installations with thermal processing facilities designed to process or that are processing 50,800 kg (50 tons) or more per day of MSW must follow certain general operation criteria (DODD 4165.60, para V(A)).	Verify that the facility supervisor is experienced in the operation of the type of facility designed. (1)(2)(3) Verify that alternate and standby disposal and operating procedures are established for implementation during emergencies, air pollution episodes, and shutdown periods. Verify that a routine maintenance schedule is established. Verify that engineering drawings are updated as the facility is modified. Verify that key operational procedures are prominently posted. Verify that equipment manuals, catalogs, spare parts lists, and spare parts are readily available at the facility.

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-68. (continued)	Verify that training opportunities are available for personnel. (NOTE: This does not apply to hazardous, agricultural, or mining wastes.)
JA.9-69. Installations with thermal processing facilities designed to process or that are processing 50,800 kg (50 tons) or more per day of MSW must provide records and monitoring data (DODD 4165.60, para V(A)).	Verify that extensive monitoring and recordkeeping are practiced during: (1)(2)(3) - the first 12 to 18 mo of operation of a new or renovated facility - periods of high air pollution - periods of upset conditions at the facility. Verify that operating records are kept in a daily log and include as a minimum: - the total weight and volume of solid waste received during each shift, including the number of loads received, the ownership or specific identity of delivery vehicles, and the source and nature of the solid wastes accepted - furnace and combustion chamber temperatures recorded at least every 60 min and as changes are made, including explanations for abnormally high and low temperatures - rate of operation, such as grate speed - overfire and underfire air volumes and pressure and distribution recorded at least every 60 min and as changes are made - weights of bottom ash, grate siftings, and fly ash, individually or combined, recorded at intervals appropriate to normal facility operation - estimated percentages of unburned material in the bottom ash - water used on each shift for bottom ash quenching and scrubber operation - power produced and utilized during each shift - quality, production totals, and consumption rates if steam is produced - auxiliary fuel used for each shift - gross calorific value of daily representative samples of bottom ash, grate siftings, and fly ash - required emission measurements and laboratory analyses - complete records of monitoring instruments - problems encountered and methods of solution. (NOTE: Representative samples of process waters should be collected and analyzed as recommended by the responsible agency.) (NOTE: Sampling time should be varied so that all shifts are monitored on a weekly basis.)

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-69. (continued)	Verify that an annual report is prepared and that it includes the following information: - minimum, average, and maximum daily volume and weight of waste received and processed, summarized on a monthly basis - summary of the laboratory analyses, including at least monthly averages - number and qualifications of personnel in each job category - total work-hours per week - number of state certified or licensed personnel - staffing deficiencies - serious injuries, their cause, and preventive measures instituted - identification and brief discussion of major operational problems and solutions - adequacy of operation and performance with regard to environmental requirements, general level of housekeeping and maintenance, testing and reporting proficiency, and recommendations for corrective actions - copy of all significant correspondence, reports, inspection reports, and any other communications from enforcement agencies. Verify that a methodology for evaluating the facility's performance has been developed. (NOTE: This does not apply to hazardous, agricultural, or mining wastes.)
RESOURCE RECOVERY FACILITIES	
JA.9-70. Certain installations must establish and/or use resource recovery facilities to separate and recover materials, energy, or both, from solid waste (DODD 4165.60 (V)(F) and 4165.60(V)(H)).	Determine whether the installation generates 101,600 kg (100 tons) or more per day of residential, commercial, and institutional solid waste after complying with waste reduction and source separation policies. (1)(2)(3) Verify that the installation establishes and/or uses resource recovery facilities. Verify that joint or regional civilian community resource recovery facilities are utilized whenever possible.

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-71. Installations that establish or utilize a resource recovery facility must design such facilities to process a standard amount of solid waste (DODD 4165.60, para V(A)).	Verify that the facility is designed to process at least 65 percent (by wet weight) of the input solid waste into recycled material, fuel, or energy. (1)(2)(3)
COMPOSTING FACILITIES	
JA.9-72. Composting facilities that process 5000 tons [≈4540 metric tons] of sludge from a domestic wastewater treatment plant annually must meet specific standards (FGS-Japan 7-3.14).	Verify that a record is maintained for the characteristics of the waste, sewage sludge, and other materials, including the source and volume or weight of the material. (1)(2)(3) Verify that access to the facility is controlled. Verify that all access points are secured when the facility is not in operation. Verify that by-products (including residual, and materials that can be recycled) are stored to prevent vector intrusion and aesthetic degradation. Verify that materials that are not composted are removed periodically. Verify that runoff water that has come in contact with composted waste, materials stored for composting, or residual waste is diverted to a leachate collection and treatment system. Verify that the temperature and retention time for material being composted is monitored and recorded. Verify that the compost is analyzed periodically for the following: - percentage of total solids - pH - ammonia - nitrate nitrogen - total phosphorus - cadmium - chromium - copper - lead - nickel - zinc - mercury - PCBs.

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-72. (continued)	Verify that compost is produced by a process that further reduces pathogens. (NOTE: Two acceptable methods of production are windrowing and the enclosed vessel method: - windrowing consists of an unconfined composting process involving periodic aeration and mixing such that aerobic conditions are maintained during the composting process - enclosed vessel method involves mechanically mixing compost under controlled environmental conditions - the retention time in the vessel must be at least 72 h with the temperature maintained at 55 °C [≈131 °F] - a stabilization period of at least 7 days must follow the decomposition period.)
JA.9-73. Compost produced at a facility that processes 5000 tons [≈4540 metric tons] of sludge from a domestic wastewater treatment plant annually must be distributed in accordance with the classification of the compost (FGS-Japan 7-3.15(a) and 7-3.15(c)).	Verify that compost distributed or marketed as commercial fertilizer, speciality fertilizer, soil amendment, or plant amendment is registered with the EA. (1)(2)(3) Verify that Class A compost is: - stabilized - stored until it has matured (a 60 percent decomposition). Verify that Class B compost is distributed on a restricted basis only. (NOTE: Class A compost may be distributed for unrestricted use, including agricultural applications.)
JA.9-74. Yard waste composting facilities must meet specific criteria (FGS-Japan 7-3.13)	Determine whether the installation makes use of a yard waste composting facility. (1)(2) Verify that a record is maintained of the characteristics of the waste, including source and volume. Verify that access to the facility is controlled. Verify that by-products are stored in such a was as to prevent the intrusion of vectors and aesthetic degradation. Verify that materials that are not composted are removed periodically. Verify that one of the following steps has been taken: - run-off water that has been in contact with waste materials is diverted to a leachate collection system - the materials are properly covered.

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-74. (continued)	Verify that the temperature and retention time for material being composted is monitored and recorded.
MEDICAL WASTE	(NOTE: The requirements of this protocol do not apply to what would otherwise be household waste.)
General	
JA.9-75. All required signs must appear in both English and Japanese (FGS-Japan 8-3.2(i)).	Verify that all required signs appear in both English and Japanese. (1)(3)
JA.9-76. Radioactive medical waste must be managed in accordance with service directives (FGS-Japan 8-3.5).	Determine whether the installation disposes of radioactive medical waste. (1)(3) Verify that such waste is disposed of in accordance with AF guidance.
Infectious Medical Waste	
JA.9-77. All personnel who handle infectious medical waste must wear protective apparel or equipment (FGS-Japan 8-3.1).	Verify that all personnel who handle infectious medical waste wear protective equipment such as gloves, coveralls, masks, and goggles, sufficient to prevent risk of exposure to infectious agents or pathogens. (1)(3)
JA.9-78. Infectious medical waste must be separated from noninfectious medical waste at the point of origin (FGS-Japan 8-3.2(a)).	Verify that infectious medical waste is separated from noninfectious medical waste at the point of origin. (1)(3)

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-79. Mixtures of infectious medical waste and other types of waste must be handled in accordance with specific criteria (FGS-Japan 8-3.3).	Verify that mixtures of infectious medical waste and hazardous wastes are handled as infectious hazardous waste. (1)(3) (NOTE: Priority is given to the hazard that presents the greatest risk.) (NOTE: Mixtures of infectious medical wastes and hazardous wastes are the responsibility of the generating DOD component, not the Defense Reutilization and Marketing Office (DRMO).) Verify that mixtures of solid waste and infectious medical waste are handled as infectious medical waste.
JA.9-80. Infectious medical waste must be handled in accordance with specific requirements (FGS-Japan 8-3.2(b), 8-3.2(c), 8-3.2(e), and 8-3.2(f)).	Verify that infectious medical waste is not compacted unless it has been converted to noninfectious medical waste by treatment. (1)(3) Verify that infectious medical waste is transported and stored in such a way as to minimize human exposure to the extent possible. Verify that infectious medical waste is not placed in chutes or dumbwaiters. Verify that infectious medical waste is segregated, transported, and stored in bags or receptacles that are a minimum of 3 mils thick, durable, puncture resistant, and have sufficient burst strength to prevent rupture or leaks during ordinary use. Verify that all bags or receptacles used to segregate, transport, or store infectious medical waste are clearly marked with the universal biohazard symbol and the legend BIOHAZARD. Verify that all bags or receptacles used to segregate, transport, or store infectious medical waste include marking that identifies the generator, date of generation, and the contents.
JA.9-81. Infectious medical waste must be treated in accordance with specific standards (FGS-Japan 8-3.8(a), 8-3.8(b), and 8-3.8(e)).	Verify that medical waste is treated prior to disposal in accordance with Table 9-2. (1)(3) Verify that, if sterilization is required, sterilizers are maintained at a temperature of 121 °C (250 °F) for at least 90 min. Verify that, if sterilization is required, the effectiveness of sterilizers is checked at least weekly using *Bacillus stearo thermophilus* spore strips or an equivalent biological performance test.

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-81. (continued)	Verify that, if chemical disinfection is required, such disinfection is conducted using procedures and compounds approved by DOD medical personnel for use on any pathogen or infectious agent suspected to be present in the waste.
JA.9-82. Infectious medical waste that cannot be treated onsite must be managed during storage in accordance with specific requirements (FGS-Japan 8-3.6).	Verify that infectious medical waste is maintained in a nonputrescent state, using refrigeration as necessary. (1)(3) Verify that storage sites: - are specifically designated - are constructed to prevent the entry of insects, rodents, and other pests - do not allow access by unauthorized personnel - marked on the outside with the universal biohazard symbol and the word BIOHAZARD in English and Japanese.
JA.9-83. Bags and receptacles that contain infectious medical waste must be placed into rigid or semi-rigid leakproof containers before being transported offsite (FGS-Japan 8-3.7).	Verify that bags and receptacles that contain infectious medical waste are placed into rigid or semirigid leakproof containers before being transported offsite. (1)(3)
JA.9-84. Installations must develop contingency plans for the treatment or disposal of infectious medical waste in case the primary means becomes inoperable (FGS-Japan 8-3.9).	Verify that the installation has such a contingency plan. (1)(3)
JA.9-85. Spills of infectious medical waste must be cleaned up in accordance with specific requirements (FGS-Japan 8-3.10).	Verify that spills of infectious medical waste are cleaned up as soon as possible. (1)(3) Verify that response personnel wear PPE that is sufficient to prevent risk of exposure to infectious agents or pathogens. Verify that spills of blood or body fluids are removed with absorbent material. Verify that such absorbent material is then managed as infectious medical waste.

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-85. (continued)	Verify that surfaces contacted by infectious medical waste are washed with soap and water and chemically decontaminated using procedures and compounds approved by DOD medical personnel for use on any pathogen or infectious agent suspected to be present.
JA.9-86. The handling of anatomical pathology waste is subject to specific requirements (FGS-Japan 8-3.2(g) and OEBGD, Chapter 8, Criterion 11).	Verify that all anatomical pathology waste is placed in containers lined with plastic bags that are a minimum of 3 mils thick, durable, puncture resistant, and have sufficient burst strength to prevent rupture or leaks during ordinary use. (1)(3)
JA.9-87. Noninfectious medical waste that is classified as hazardous must be managed as hazardous waste (FGS-Japan 8-3.4).	Verify that noninfectious medical waste that is classified as hazardous is managed as hazardous waste. (1)(3) (NOTE: See Section 4, *Hazardous Waste Management.*)
JA.9-88. Sharps must be managed in accordance with specific criteria (FGS-Japan 8-3.2(d) and 8-3.2(f)).	Verify that sharps are discarded into rigid receptacles only. (1)(3) Verify that needles are not clipped, cut, bent, or recapped before treatment or disposal. Verify that containers holding sharps are not compacted.
Disposal	
JA.9-89. Installations that use contractors for off-base disposal of infectious medical waste must meet specific requirements (FGS-Japan 8-3.8(f)).	Determine whether the installation uses contractor(s) for off-base disposal of infectious medical waste. (1)(3) Verify that such contractors are licensed/permitted by appropriate local city or prefectural authorities.
JA.9-90. Anatomical pathology waste must be either incinerated or buried (FGS-Japan 8-3.2(g)).	Verify that pathological waste is disposed of by incineration or burial only. (1)(3)

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COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.9-91. Blood and other liquid infectious wastes must be handled in accordance with specific criteria (FGS-Japan 8-3.2(h)).	Verify that suction canister waste from operating rooms is either decanted into a clinical sink or sealed into leak-proof containers and incinerated. (1)(3) Verify that bulk blood or blood products are only decanted into clinical sinks. Verify that emptied containers that used to hold bulk blood or blood products are managed as infectious medical waste.
JA.9-92. Incinerators used to treat medical waste must meet specific requirements (FGS-Japan 8-3.8(c)).	Verify that such incinerators are designed and operated to maintain the following temperatures: (1)(3) - primary chamber temperature between 1400 and 1600 °F [760 and 871 °C] - secondary chamber temperature between 1800 and 2000 °F [982 and 1093 °C]. Verify that the minimum residence time in the secondary chamber is 2.0 s. Verify that such incinerators meet applicable air emissions criteria in Chapter 2 of the FGS-Japan. (NOTE: See Section 1, *Air Quality Management.*)
JA.9-93. Ash or residue from the incineration of infectious medical waste must be assessed for hazardous characteristics (FGS-Japan 8-3.8(d)).	Verify that ash or residue from the incineration of infectious medical waste is assessed for hazardous characteristics. (1)(3) Verify that ash that is determined to be hazardous waste is managed as hazardous waste. (NOTE: See Section 4, *Hazardous Waste Management.*) Verify that all other residue that is not determined to be hazardous is disposed of in accordance with the requirements of Chapter 7 of the FGS-Japan as presented in this section of the manual.
JA.9-94. Installations must keep records concerning infectious medical waste (FGS-Japan 8-3.11).	Verify that records concerning infectious medical waste are kept for at least 5 yr after the date of disposal. (1)(3) Verify that such records include the following information: - type of waste - amount of waste (by volume or weight) - treatment (if any), including date of treatment - disposition, including date of disposition, and, if the waste is transferred to host nation facilities, receipts acknowledging the above three items.

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Table 9-1

Maximum Contaminant Levels for Groundwater Monitoring Systems at MSWLF Facilities

(FGS-Japan Table 7-1)

Constituent	MCL (mg/L)
Arsenic	0.05
Barium	1.0
Cadmium	0.01
Chromium	0.05
Lead	0.05
Mercury	0.002
Selenium	0.01
Silver	0.05
Endrin	0.0002
Lindane	0.004
Methoxychlor	0.1
Toxaphene	0.005
2,4-D	0.1
2,4,5-TP Silvex	0.01

Table 9-2

Treatment and Disposal Methods for Infectious Medical Waste

(FGS-Japan Table 8-1)

Type of Medical Waste	Method of Treatment	Method of Disposal
Microbiological	Steam sterilization Chemical disinfection Incineration	Municipal Solid Waste Landfill (MSWLF)[1]
Pathological	Incineration[2] Cremation	MSWLF Burial Cremation
Bulk blood	NOTE[3]	Domestic wastewater treatment plant
Suction canister waste	Incineration	Domestic wastewater treatment plant
Sharps in sharps containers	Steam sterilization Incineration	MSWLF

1 Consult the relevant requirements of this section for standards for solid waste landfills.

2 Placentas may also be ground and discharged to a domestic wastewater treatment plant that complies with the standards of Section 13, *Water Quality Management.*

3 Bulk blood known to be infectious must be treated by incineration or steam sterilization before disposal.

INSTALLATION:	COMPLIANCE CATEGORY: SOLID WASTE MANAGEMENT Japan ECAMP	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 10

STORAGE TANK MANAGEMENT

Japan ECAMP

SECTION 10

STORAGE TANK MANAGEMENT

A. Applicability of this Section

This section applies to U.S. Air Force (USAF) installations that have aboveground storage tanks (ASTs) and/or underground storage tanks (USTs), whether or not those tanks are organizational tanks and regardless of the nature of their contents; that is, it addresses the management of ASTs and USTs, whether they are used to store hazardous substances, hazardous waste, or POL.

The regulatory requirements in this section are based on Department of Defense (DOD) regulations and Air Force Instructions (AFIs) that apply at overseas installations. Management Practices (MPs) are derived from U.S. Environmental Protection Agency (USEPA) regulations that are not mandatory overseas but are important to follow to preserve the health and safety of Air Force (AF) employees and protect the environment.

B. DOD Directives/Instructions

- *United States Forces-Japan (USFJ) Final Governing Standards* (FGS-Japan), January 1995, Chapter 9, outlines the criteria for the control and abatement of pollution from the storage, transfer, and distribution of petroleum products. Chapter 6 of that document addresses hazardous waste tank systems, and Chapter 19 details requirements for USTs in general.

C. U.S. Air Force Documents

- AFI 23-201, *Fuels Management*, 28 July 1994, provides managers at all AF activities with policy and procedures for fuels operations.

- Air Force Manual (AFM) 85-16, *Maintenance of Petroleum Systems*, governs the maintenance of permanently installed storage and dispensing systems for petroleum and unconventional fuels.

D. Responsibility for Compliance

- The Safety Manager is responsible for conducting workplace safety evaluations and inspections of the handling and storage of hazardous materials and waste. The Safety Manager will provide the appropriate manager with a report of his or her findings and recommended corrective actions. The Safety Manager is also responsible for ensuring the prompt and accurate investigation of any hazardous material mishaps that result in injury or property damage.

- The Base Fuels Management Officer (BFMO) is responsible for the safe and efficient receipt, storage, handling, issuing, and accounting of all petroleum products and for all general operations and inspections.

- The Base Civil Engineer (BCE) is responsible for the maintenance of all installed petroleum storage and dispensing systems. This responsibility often is discharged by the Liquid Fuels Maintenance (LFM) shop. The BCE also is responsible for the calibration of permanently installed meters.

- The Base Environmental Coordinator (BEC) monitors all POL activities that may affect the environment and usually is responsible for the coordination of the EPC review and updates of the spill plan. The BEC often coordinates notification of reportable spills on behalf of the IOSC.

- The Bioenvironmental Engineering Services (BES) takes samples to determine the chemical nature, pollutant concentration, and extent of each reportable-quantity spill as required for response actions and documentation.

E. Definitions

- *Aboveground Storage Tank (AST)* - any tank, including aboveground piping connected thereto, larger than 415 L (110 gal), used to contain POL products or hazardous substances, the volume of which tank, including the volume of connected pipes, is more than 90 percent above the surface of the ground (FGS-Japan 9-2).

- *Bulk Storage Tanks* - field-erected tanks, usually having a capacity greater than 190,000 L (50,000 gal), and constructed aboveground or belowground (FGS-Japan 9-2).

- *Hazardous Substance* - any substance having the potential to do serious harm to human health or the environment if spilled or released in a reportable quantity. A listing of these substances and corresponding reportable quantity is contained in Table 4-1, Chart A.4. The term does not include (FGS-Japan 18-2):
  1. petroleum, including crude POL or any fraction thereof, that is not otherwise specifically listed or designated as a hazardous substance above
  2. natural gas, natural gas liquids, liquefied natural gas, or synthetic gas usable for fuel (or mixtures of natural gas and such synthetic gas).

- *Hazardous Substance UST* - a UST that contains a hazardous substance (but not including hazardous waste as defined in Section 4, *Hazardous Waste Management*) or any mixture of such hazardous substances and petroleum, and that is not a petroleum UST system (FGS-Japan 19-2).

- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *New Underground Storage Tank* - any UST installed on or after 1 October 1995 (FGS-Japan 19-2).

- *Oil* - POL of any kind or in any form, including, but not limited to, petroleum, fuel POL, sludge, POL refuse, and POL mixed with wastes other than dredged spoil (FGS-Japan 18-2).

- *Organizational Fuel Tank* - any tank, other than integral vehicle tanks or hand-carried safety cans, not under exclusive fuels management control. (AFI 23-201, Attachment 5, Section B).

- *POL* - includes, but is not limited to, petroleum and petroleum-based substances comprised of complex blends of hydrocarbons derived from crude oil, such as motor fuels, residual fuel oils, lubricants, petroleum solvents, and used oils (FGS-Japan 9-2 and 18-2).

- *POL Facility* - an installation with any individual aboveground tank of 2500 L (660 gal) or grea aggregate aboveground storage of 5000 L (1320 gal) or greater, UST storage of greater than 15,9 L (4200 gal) or a pipeline facility as defined in Section 8, *POL Management* (FGS-Japan 9-2).

- *Reportable Quantity (RQ)* - a released quantity of POL or quantities of hazardous substances that exceeds those identified in the definition of "significant spill or release" (FGS-Japan 18-2).

- *Significant Spill or Release* - an uncontained release to the land or water in excess of any of the following quantities (FGS-Japan 18-2):
    1. for hazardous waste or hazardous substance identified as a result of inclusion in Table 4-1, Chart A.4, any quantity in excess of the reportable quantity listed therein
    2. for POL or liquid or semi-liquid hazardous material, hazardous waste or hazardous substance, in excess of 415 L (110 gal)
    3. for other solid hazardous material, in excess of 225 kg (500 lb)
    4. for combinations of POL and liquid, semi-liquid and solid hazardous materials, hazardous waste or hazardous substance, in excess of 340 kg (750 lb).

- *Storage Tank* - a fixed container designed to store POL (FGS-Japan 9-2).

- *Underground Storage Tank (UST)* - any tank, including underground piping connected thereto, larger than 415 L (110 gal) that is used to contain POL products or hazardous substances and the volume of which, including the volume of connected pipes, is 10 percent or more beneath the surface of the ground, but does not include (FGS-Japan 9-2 and 19-2):
    1. tanks containing heating oil used for consumptive use on the premises where it is stored
    2. septic tanks
    3. stormwater or wastewater collection systems
    4. flow through process tanks
    5. surface impoundments, pits, ponds, or lagoons
    6. field constructed tanks
    7. hydrant fueling systems.

STORAGE TANK MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS: (a)
All Installations	JA.10-1 through JA.10-4	(1)(2)(12)
ASTs	JA.10-5 through JA.10-16	(1)(3)(4)(5)(7)
USTs		
General	JA.10-17 through JA.10-23	(1)(2)(3)(4)(5)(7)(9)(13)
New USTs	JA.10-24 through JA.10-26	(1)(3)(4)(7)(8)(13)
Existing USTs	JA.10-27 through JA.10-29	(1)(3)(4)(7)(13)
Leaking USTs	JA.10-30 through JA.10-32	(1)(3)(4)(13)
Additional Requirements for Hazardous Substance USTs	JA.10-33 through JA.10-35	(2)(5)(11)(13)
Hazardous Waste Tank Systems	JA.10-36 through JA.10-44	(1)(2)(5)(13)

(a) CONTACT/LOCATION CODE:

(1) BEC (Base Environmental Coordinator)
(2) BCE (Base Civil Engineer)
(3) BFMO (Base Fuels Management Office)
(4) LFM (Liquid Fuels Maintenance)
(5) BES (Bioenvironmental Engineering Services)
(6) Base Fire Department
(7) Power Production
(8) AAFES (Army/Air Force Exchange Service) Service Station Manager
(9) Generating Activities
(10) Vehicle Maintenance Shop
(11) Safety Officer
(12) Base Staff Judge Advocate
(13) Hazardous Waste Storage Area Manager

STORAGE TANK MANAGEMENT

Records To Review

- UST inventory
- Records of all spills, leaks, and associated site assessment/cleanup activities

Physical Features To Inspect

- Aboveground storage tanks and dikes
- UST areas

People To Interview

- BEC (Base Environmental Coordinator)
- BCE (Base Civil Engineer)
- BFMO (Base Fuels Management Office)
- LFM (Liquid Fuels Maintenance)
- BES (Bioenvironmental Engineering Services)
- Base Fire Department
- Power Production
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COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
ALL INSTALLATIONS	
JA.10-1. Determine actions or changes since previous review (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (1)(2)
JA.10-2. Copies of all relevant DOD directives/ instructions, U.S. Air Force (USAF) directives, and guidance documents should be maintained at the installation (MP).	Verify that copies of the following regulations are maintained and kept current at the installation: (1)(12) - *USFJ Final Governing Standards* (FGS-Japan), January 1995 - AFI 23-201, *Fuels Management,* 28 July 1994 - AFM 85-16, *Maintenance of Petroleum Systems.* Verify that the Base Staff Judge Advocate reviews the documents annually for currency and completeness and submits the findings of the review to the Base Environmental Protection Committee.
JA.10-3. Installations must meet regulatory requirements issued since the finalization of the manual (a finding under this checklist item will have the citation of the new regulation as a basis of finding).	Determine whether any new regulations concerning storage tank management have been issued since the finalization of the manual. (1)(2)(12) Verify that the installation is in compliance with newly issued regulations.
JA.10-4. Certain fuel tanks must be equipped with high-level alarms and automatic high-level shut-off valves (AFI 23-201, para A11.1).	Verify that the following tanks have high-level alarms and automatic high-level shut-off valves: (3) - BFMO fuel tanks that have the capacity to receive fuel by pipeline - BFMO fuel tanks that have the capacity to receive fuel by tank truck installed with off-loading pumps and headers. Verify that BFMO has established safe fill levels below the high-level alarm level.

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COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ASTs	
JA.10-5. All ASTs must have secondary containment that is impermeable to petroleum products (AFI 23-201, para A11.1).	Verify that all ASTs have secondary containment that is impermeable to petroleum products. (3)(4)
JA.10-6. Dikes around bulk ASTs should be inspected daily (MP).	Verify that dikes are inspected daily. (3) Verify that any deficiencies noted on AFTO Form 39 have been corrected. (NOTE: This MP also applies to diking around tanks that are not under exclusive fuels management control.)
JA.10-7. Drainage of stormwater from diked areas around bulk ASTs must be controlled by a valve (FGS-Japan 9-3.2(c)).	Verify that drainage of stormwater from diked areas around bulk ASTs is controlled by a valve. (3)(4) Verify that such valves are locked closed when not in active use.
JA.10-8. Certain good management practices should be followed when tending diked areas around bulk ASTs (MP).	Verify that drainage valves are attended when open. (3)(4) Verify that drainage water is tested to determine whether it represents a harmful discharge. Verify that water drained from diked areas does not cause a harmful discharge. Verify that personnel draining the diked area know how to identify a discharge.

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COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.10-9. Drainage water from diked areas around bulk ASTs that is determined to contain petroleum products in harmful quantities must be treated before discharge (FGS-Japan 9-3.2(d) and AFI 23-201, para A11.1).	Verify that, prior to draining stormwater from diked areas, the water is inspected for petroleum sheen. (3)(4) Verify that any sheen is collected with adsorbent material prior to drainage, or treated using an oil-water separator. Verify that the adsorbent material is disposed of according to any hazardous characteristics it exhibits. Verify that drainage water that contains residual petroleum products or hazardous chemicals is not discharged.
JA.10-10. All bulk ASTs must be provided with a secondary means of containment for the entire contents plus sufficient free board to allow for precipitation and expansion of product (FGS-Japan 9-3.2(a)).	Verify that all bulk ASTs are provided with a secondary means of containment. (3)(4) Verify that the secondary means of containment has sufficient capacity for the entire contents plus sufficient free board to allow for precipitation and expansion of product.
JA.10-11. The maximum permeability for diked areas around bulk ASTs must be 10^{-7} cm/s [$\approx 4 \times 10^{-8}$ in./s] (FGS-Japan 9-3.2 (b)).	Verify that the permeability of diked areas does not exceed 10^{-7} cm/s [$\approx 4 \times 10^{-8}$ in./s]. (1)(3)(4)(7)
JA.10-12. The BCE, LFM, and BFMO should have a memorandum of agreement (MOA) pertaining to draining of floating roof tanks and interior dike basins (MP).	Verify that a MOA has been prepared and signed or coordinated through the BES and the BEC. (1)(3)(4)(5) Verify that copies of the MOA are on file at BFMO, the Service Call Desk, LFM, BEC, BCE, and BES. (NOTE: This MP is based on guidelines found in AFM 85-16, Attachment 5.)

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COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.10-13. Washwater and sludge resulting from periodic tank cleaning must be tested for hazardous characteristics (FGS-Japan 9-3.3).	Verify that tank cleaning wastes are tested for hazardous characteristics as defined in Table 4-1, Section A-2. (1)(3)(4) Verify that tank bottom waters that are periodically drained from bulk storage tanks are collected and tested for hazardous characteristics. Verify that wastes that test positive for hazardous characteristics are handled as hazardous waste.
JA.10-14. ASTs should undergo periodic integrity testing (MP).	Verify that periodic leak tests have been conducted. (1)(3)(4)(7) (NOTE: A decrease in converted fuel volume equal to or greater than 0.65 cm [0.25 in.] constitutes a suspected leak). (NOTE: Such techniques as the following may be employed to test tank integrity: - hydrostatic testing - visual inspection - a system of nondestructive shell thickness testing.) Verify, that the BCE, Environmental Coordinator, and Safety Officer have been notified of all confirmed leaks. Verify that leaking tanks have been repaired or replaced.
JA.10-15. Installations should inspect MOGAS, diesel, kerosene, and aviation fuel test cell storage tanks periodically (MP).	Verify that inspections have been conducted as required. (1)(3)(4)(7) Verify that leaking or deteriorated tanks have been repaired or replaced. Verify that leaks were reported to the BCE, Environmental Coordinator, and Safety Officer.
JA.10-16. Installations must meet specific requirements with regard to signs on ASTs (FGS-Japan 9-3.7)	Verify that ASTs have a sign board larger than 0.3 x 0.6 m (larger than 12 x 24 in.) that is visible from 16 m (50 ft.). Verify that the sign bears the following information in English and Japanese: - identification number - maximum storage capacity - the name, title, and telephone number of the point of contact.

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COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
USTs **General**	
JA.10-17. Installations must maintain a UST inventory (FGS-Japan 19-3.1).	Verify that the installation has an inventory of USTs (including hazardous substance USTs). (1)(2)(13)
JA.10-18. Fuels personnel must be properly trained on UST leak detection equipment (AFI 23-201, para A11.3).	Verify that fuels personnel are trained on leak detection equipment associated with USTs and on proper data collection and recording procedures. (3)(13)
JA.10-19. Installations should use UST systems made of or lined with materials compatible with the substance stored (MP).	Verify that the substances stored in UST systems are compatible with the system. (1)(7)(13)
JA.10-20. The filling of a UST should include the prevention of overfilling and spilling of the substance (MP).	Verify that controls are in use that prevent overfilling and spilling. (1)(3)(4)(13) (NOTE: It is useful to observe the filling operations, to review records for reports, and to check surrounding grounds for visible or odorous indications of contaminated soil.) Verify that the level of the UST is checked before a transfer is made. Verify that fill lines are capped and locked.
JA.10-21. UST systems with corrosion protection should meet specific requirements (MP).	Determine which UST systems at the installation have corrosion protection. (1)(3)(4)(7)(13) Verify that the corrosion protection system operates continuously to provide corrosion protection to the metal components that routinely contain regulated substances and are in contact with the ground. Verify that all cathodic protection systems are tested within 6 mo after installation and every 3 yr thereafter. Verify that UST systems with impressed current cathodic protection are inspected every 60 days.

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COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.10-21. (continued)	Verify that inspection records are maintained of the last three inspections for systems with impressed current cathodic protection and of the last two inspections for all other cathodic protection systems. Verify that new USTs are appropriately protected from corrosion. Verify that the voltage is greater than -0.85 V, but not more than -3.0 V (monthly), for impressed current systems. Verify that the voltage is greater than -0.85 V, but not more than -3.0 V (biannually), for sacrificial anode systems. Verify that leak detection and failure are reported.
JA.10-22. Repairs to USTs should be performed according to industry standards (MP).	Verify that the following procedures are used to repair USTs: (1)(3)(4)(7)(13) - fiberglass reinforced tanks are repaired by the manufacturer's authorized representative or according to industry standards - metal pipe fittings and sections that have leaked because of corrosion are replaced, whereas fiberglass may be repaired according to manufacturer's specifications. Verify that tanks and piping that have been replaced or repaired are tested for tightness within 30 days. (NOTE: Tanks and piping need not be tested if: - repairs are internally inspected - repaired portion is already monitored monthly - an equally protective test is used.) Verify that, within 6 mo of repair, tanks with cathodic protection systems are tested as follows: - every 3 yr thereafter for all cathodic protection systems - every 60 days for impressed current cathodic protection systems. Verify that records of repairs are maintained for the life of the tank.
JA.10-23. Installations must meet specific requirements with regard to signs on USTs and UST fill pipes (FGS-Japan 19-3.6)	Verify that USTs have a white sign board larger than 0.3 x 0.6 m (larger than 12 x 24 in.) that is visible from 16 m (50 ft.). Verify that the sign bears the following information in English and Japanese: - identification number - maximum storage capacity - the name, title, and telephone number of the point of contact.

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COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.10-23. (continued)	Verify that UST fill pipes have a white sign board larger than 0.3 x 0.6 m (larger than 12 x 24 in.), as necessary to be readily identified. Verify that the sign bears the following information in English and Japanese: - the legend: FILL PIPE FOR UNDERGROUND STORAGE TANK - identification of contents - the legend: DANGER: NO FLAMMABLE OR IGNITION SOURCES WITHIN 50 FEET OR 16 METERS.

New USTs
 	
JA.10-24. New tanks and piping must have corrosion protection (FGS-Japan 19-3.2(a) and OEBGD, Chapter 19, Criterion 2(a)).
	(NOTE: These requirements apply to USTs for POL and to those for hazardous substances.)
	
	Verify that new tanks and piping have corrosion protection. (1)(3)
	
	(NOTE: This requirement does not apply if all of the following conditions are met:
	- the tank and/or piping is constructed of fiberglass-reinforced plastic
	- the tank is constructed of a steel-fiberglass-reinforced-plastic composite
	- the tank and/or piping is constructed of steel and cathodically protected as follows:
	  - the tank and/or piping is coated with a suitable dielectric material
	  - field-installed cathodic protection systems are designed by a corrosion expert
	  - impressed current systems are designed to allow determination of current operating status
	  - cathodic protection systems are operated and maintained in accordance with approved guidelines.)
	
	Verify that the corrosion protection system is certified by a competent authority.

JA.10-25. New USTs must be fitted with spill and overfill prevention equipment (FGS-Japan 19-3.2(b)).	Verify that new USTs have spill and overflow prevention equipment. (1)(3)(4)(7)(8)(13) (NOTE: This equipment is not required if the UST system is filled by transfers of no more than 95 L (25 gal) at one time.) Verify that, where spill and overfill prevention are required, a spill containment box is installed around the fill pipe. Verify that USTs are fitted with one of the following methods of overfill prevention: - an automatic shut-off device set at 95 percent of tank capacity - a high level alarm set at 90 percent of tank capacity.

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COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.10-26. Leak detection systems on new USTs must meet specific operating requirements (FGS-Japan 19-3.2(c)).	Verify that leak detection systems are capable of detecting a 0.375 L (0.1 gal) per hour leak rate or a release of 460 L (150 gal) (or 1 percent tank volume, whichever is greater) within 30 days with a probability of detection of 0.95 and a probability of false alarm of not more than 0.05. (1)(3)(13) Verify that USTs installed on or after 1 October 1995 use one of the following leak detection methods: - automatic tank gauging - vapor monitoring - groundwater monitoring - interstitial monitoring. Verify that new pressurized piping is equipped with automatic line leak detectors. Verify that new pressurized piping is subject to either an annual tightness test or monthly monitoring. Verify that suction piping is subject to either a line tightness (leak) test conducted every 3 yr or to monthly monitoring.
Existing USTs	(NOTE: These requirements apply to USTs for POL and to those for hazardous substances.)
JA.10-27. Existing USTs and piping must be properly closed if not needed or be upgraded to meet new UST standards by 1 October 2004 (FGS-Japan 19-3.3(a)).	Verify that existing USTs and piping without leak detection are tightness tested annually according to recognized U.S. standards and inventoried monthly to verify system tightness. (1)(3)(4)(7)(13) Verify that a replacement and upgrading program is in place.
JA.10-28. USTs that are put out of service temporarily should have continued maintenance (MP).	Verify that proper maintenance is being performed for corrosion protection and release detection. (1)(3)(4)(13)

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COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
JA.10-29. If an existing UST has not been used for 1 yr, all of the product and sludges must be removed and the tank either cleaned and filled with an inert substance or removed (FGS-Japan 19-3.3(c)).	Determine whether there are USTs at the installation that have not been used for 1 yr or more. (1)(3)(4)(13) Verify that they were either cleaned and filled with an inert substance or removed. (NOTE: Water is not an inert substance.) Verify that tank wastes are tested for hazardous characteristics. (NOTE: See Section 4, *Hazardous Waste Management.*)
Leaking USTs	(NOTE: These requirements apply to USTs for POL and to those for hazardous substances.)
JA.10-30. Leaking USTs must be removed from service immediately (FGS-Japan 19-3.3(b)).	Verify that leaking USTs are removed from service immediately. (1)(3)(4)(13) Verify that contaminated groundwater and/or soil are remediated, if there is an immediate and substantial threat to human health or safety. Verify that, if the USTs are no longer needed, they are removed from the ground. Verify that, if the USTs are still needed, they are repaired or replaced.

JA.10-31. Installations with a confirmed release from a petroleum or hazardous substance UST should assemble information about the site and nature of the release (MP).	Verify that the following information is collected: (1)(3)(4)(13)
	
	- data on the nature and estimated quantities of the release
	- data from available sources and/or site investigations concerning:
	  - surrounding population
	  - water quality
	  - use and approximate locations of wells potentially affected
	  - subsurface soil conditions
	  - locations of subsurface sewers
	  - climatological conditions
	  - land use
	- results of site check
	- results of free product investigation.

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COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.10-32. Installations with a confirmed release from a petroleum or hazardous substance UST, where site investigations have indicated free product, should, to the maximum extent possible, remove the free product (MP).	Determine whether there are release sites where the presence of free product has been confirmed. (1)(3)(4)(13) Verify that free product is removed in such a way that the spread of contamination is minimized.
Additional Requirements for Hazardous Substance USTs	
JA.10-33. Existing hazardous substance USTs must meet specific standards (FGS-Japan 19-3.5).	Verify that existing hazardous substance tanks and piping are either upgraded or replaced to meet the requirements for new hazardous substance tanks and piping by 1 January 1999. (2)(13) Verify that existing tanks and piping that do not incorporate leak detection are tightness tested annually and inventoried monthly.
JA.10-34. New hazardous substance USTs and piping must have secondary containment (FGS-Japan 19-3.2 and 19-3.4(a)).	Verify that new hazardous substance USTs and their associated piping have secondary containment. (2)(13) (NOTE: The standards for secondary containment can be met by using double-walled tanks and piping, liners, or vaults.)
JA.10-35. Installations must monitor the interstitial space between the primary and secondary containment of new hazardous substance USTs monthly (FGS-Japan 19-3.4(b)).	Verify that the interstitial space for tanks and piping is monitored monthly for liquids or vapors. (2)(13) Verify that the liquid level is gauged daily.

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COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
HAZARDOUS WASTE TANK SYSTEMS	(NOTE: The checklist items in this section apply to all tanks that contain hazardous waste.)

JA.10-36. Secondary containment must be in place for tank systems used to store or treat hazardous waste (FGS-Japan 6-3.8(a) and 6-3.8(d)).	(NOTE: This requirement applies to:
	- all new tank systems or components, prior to being put into service
	- existing tank systems when an annual leak test detects leakage
	- tanks systems constructed before 31 January 1995 that store or treat hazardous wastes by 1 January 1999.)
	
	Verify that such tank systems have secondary containment that is: (2)(13)
	
	- designed, installed, and operated to prevent the migration of wastes or accumulated liquid out of the system
	- capable of detecting and collecting releases and accumulated liquids until removal is possible
	- constructed to include one or more of the following:
	  - a liner external to the tank
	  - a vault
	  - a double-walled tank.
	
	(NOTE: The provisions of this checklist item do not apply to:
	- tank systems used to store or treat hazardous wastes that contain no free liquids and are situated inside a building with an impermeable floor
	- tank systems, including sumps, that serve as part of a secondary containment system to collect or contain releases of hazardous wastes.)

JA.10-37. Tank ancillary equipment should also be provided with secondary containment (MP).	Verify that ancillary equipment has secondary containment. (2)(13) (NOTE: The following equipment is exempted from this MP: - aboveground piping that is visually inspected for leaks on a daily basis - welded flanges, welded joints, and welded connections that are visually inspected for leaks on a daily basis - sealless or magnetic coupling pumps and sealless valves that are visually inspected for leaks on a daily basis - pressurized aboveground piping systems with automatic shutoff valves that are visually inspected for leaks on a daily basis.)
JA.10-38. Existing tank systems without proper secondary containment must meet specific standards (FGS-Japan 6-3.8(b)).	Verify that, for tank systems without proper secondary containment, an annual determination is made as to whether the tank system is leaking or is fit for use. (2)(13) Verify that the installation obtains, and keeps on file at the Hazardous Waste Storage Area (HWSA), a written assessment of tank system integrity reviewed and certified by a competent authority.

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COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.10-39. When new tank systems or components are installed, HWSA managers must obtain an assessment certifying that the tank system is acceptable (FGS-Japan 6-3.8(c)).	Verify that the HWSA manager has received a written assessment that the tank system has sufficient structural integrity and is acceptable for the storage and treatment of hazardous waste. (2)(13) Verify that the assessment indicates: - that the foundation, structural support, seams, connections, and pressure controls (if applicable) are adequately designed - that the tank system has sufficient structural strength, compatibility with the waste(s), and corrosion protection to ensure that it will not collapse, rupture, or fail. Verify that the written assessment has been reviewed and certified by a competent authority.
JA.10-40. Tanks used for hazardous waste treatment or storage must be operated in accordance with specific procedures (FGS-Japan 6-3.8(e)(1)).	Verify that hazardous wastes or treatment reagents are not placed in tanks if they could cause the tank system (including ancillary equipment or containment system) to corrode or otherwise fail. (2)(13)
JA.10-41. Tank systems for ignitable, reactive, or incompatible wastes should meet specific requirements (MP).	Verify that ignitable or reactive wastes are not placed in a tank system unless one of the following conditions is met: (2)(13) - the waste is treated, rendered, or mixed before or immediately after placement in the tank system so that it is no longer reactive or ignitable, and the minimum requirements for reactive and ignitable wastes are met - the waste is treated or stored in such a way that it is protected from any material or conditions that may cause the waste to ignite or react - the tank system is used solely for emergencies. Verify that the installation maintains minimum protective distances between waste management areas and any public ways, streets, alleys, or an adjoining property line that can be built upon, as required in Tables 2-1 through 2-6 of the National Fire Protection Association's (NFPA) *Flammable and Combustible Liquids Code*. Verify that, unless minimum safety requirements are met, incompatible wastes, or incompatible wastes and materials, are not placed in the same tank system. Verify that, unless minimum safety requirements are met, hazardous waste is not placed in a tank system that: - previously held an incompatible waste or material - has not been decontaminated.

(1) BEC (Base Environmental Coordinator) (2) BCE (Base Civil Engineer) (3) BFMO (Base Fuels Management Office) (4) LFM (Liquid Fuels Maintenance) (5) BES (Bioenvironmental Engineering Services) (6) Base Fire Department (7) Power Production (8) AAFES (Army/Air Force Exchange Service) Service Station Manager (9) Generating Activities (10) Vehicle Maintenance Shop (11) Safety Officer (12) Base Staff Judge Advocate (13) HWSA (Hazardous Waste Storage Area) Manager

COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.10-42. Installations must conduct inspections of tank systems and associated equipment (FGS-Japan 6-3.8(e)(2) and 6-3.8(e)(3)).	Verify that the installation conducts and logs inspections of the following at least once each operating day: (2)(13) - aboveground portions of the tank system, to detect corrosion or releases - data gathered from monitoring and leak detection equipment (e.g., pressure and temperature gauges, monitoring wells) - the construction materials and the area surrounding the tank, including the secondary containment system, for signs of leakage (wet spots and dead vegetation). Verify that the proper operation of cathodic protection systems is confirmed within 6 mo after initial installation and annually thereafter. Verify that all sources of impressed current are inspected and/or tested every other month. Verify that the installation manager documents all tank system inspections.
JA.10-43. Installations must meet specific requirements with regard to tank systems or secondary containment systems from which there has been a leak or spill, or that are unfit for use (FGS-Japan 6-3.8(f)).	Verify that such systems are immediately removed from service and repaired or closed. (1)(2)(5)(13) Verify that the installation also takes the following steps: - stops the flow or addition of hazardous wastes to the tank - inspects systems to determine the cause of the release - contains the visible release and prevents further migration of the leak or spill to soils or surface water - removes and properly disposes of any contamination of the soil and surface water - completes required notifications and reports.
JA.10-44. Installations must follow specific procedures when closing a tank system (FGS-Japan 6-3.8(g)).	Determine whether the installation has closed any tank systems. (1)(2)(5)(13) Verify that all waste residues and contaminated containment system components, soils, structures, and equipment have been removed or decontaminated to the greatest extent practicable.

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INSTALLATION:	COMPLIANCE CATEGORY: STORAGE TANK MANAGEMENT Japan ECAMP	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 11

TOXIC SUBSTANCES MANAGEMENT

Japan ECAMP

SECTION 11

TOXIC SUBSTANCES MANAGEMENT

A. Applicability of this Section

This section applies to all U.S. Air Force (USAF) installations overseas; it is written in response to regulations and policy that are applicable to the conduct of activities that involve these programs and is used to determine the compliance status of the management activities associated with:

- Polychlorinated Biphenyls (PCBs) and in-service and out-of-service PCB Items
- asbestos in schools and on the installation
- the AF Radon Assessment and Mitigation Program (RAMP)
- Lead Based Paint (LBP).

The regulatory requirements in this section are based on the *United States Forces-Japan (USFJ) Final Governing Standards* (FGS-Japan), Department of Defense (DOD) regulations, and Air Force Instructions (AFIs) that apply at overseas installations. Management practices (MPs) are derived from U.S. Environmental Protection Agency (USEPA) regulations that are not mandatory overseas but are important to follow to preserve the health and safety of AF employees and protect the environment.

B. DOD Directives/Instructions

- *United States Forces-Japan (USFJ) Final Governing Standards*, January 1995, Chapter 14, discusses the actions and controls needed to abate threats to human health and the environment from the handling, use, storage, and disposal of PCBs. Chapter 15 addresses similar issues for asbestos, and Chapter 16 outlines the criteria for assessing and mitigating radon.

C. U.S. Air Force Documents

PCBs

- There are no AFIs on PCBs; FGS-Japan addresses issues previously covered by various policy letters.

- HQ USAF/CE Letter, *Air Force Policy on Measuring Air Force PCB-Free Status - Action Memorandum*, 21 March 1994, revises how the Air Force's PCB-free status is measured. Instead of measuring the number of PCB items rendered PCB-free, the new metric is the number of installations that are PCB-free based on data in the PCB Module of the Work Information Management System - Environmental Subsystem (WIMS-ES).

Asbestos

- AFI 32-1052, *Facility Asbestos Management*, 22 March 1994, establishes requirements and assigns responsibilities to incorporate facility asbestos management principles and practices into all AF programs.

- Air Force Occupational Safety and Health (AFOSH) Standard 161-4, *Exposure to Asbestos*, January 1980, also contains information on asbestos requirements and control.

Radon

- There are no AFIs on radon; FGS-Japan is the source for all radon-related checklist items in this manual.

LBP

- HQ USAF Policy Letter, *Air Force Policy and Guidance on Lead-Based Paint (LBP) in Facilities*, 24 May 1993, specifies actions necessary to protect facility occupants and workers and the environment from hazardous exposure to lead in LBPs. Table 11-1 summarizes the likelihood of LBP being present and the regulations/guidelines that normally must be followed.

D. Responsibility for Compliance

PCBs

- The Base Civil Engineer (BCE), through the Exterior Electrical Shop or the Base Environmental Coordinator, is responsible for identifying, inspecting, marking (labeling), and properly servicing PCB electrical equipment (transformers and capacitors).

- The Base Environmental Coordinator (BEC) is responsible for ensuring that out-of-service items are located in a technically adequate PCB storage facility. Normally, such facilities are located at a Defense Reutilization and Marketing Office (DRMO), and the DRMO is responsible for storage, disposal transportation, and contracting for disposal.

- The Bioenvironmental Engineering Services (BES) is responsible for arranging chemical analytical support in screening electrical equipment for PCBs and for cleanup verification.

Asbestos

- The BCE appoints an Asbestos Program Officer to prepare the Asbestos Management Plan and an Asbestos Operations Officer to prepare the Asbestos Operating Plan. The BCE ensures a sufficient number of in-house technicians and supervisors are trained and equipped to remove, repair, and control asbestos-containing materials (ACMs).

- The Asbestos Program Officer prepares the Asbestos Management Plan, that contains documentation on all asbestos management efforts and the mechanism for oversight of the program.

- The Asbestos Operations Officer prepares and implements the Asbestos Operating Plan.

- The BES takes air samples, evaluates friable materials for the preservation of asbestos, and assigns Risk Assessment Codes (RACs).

Radon

- The BCE is responsible for reviewing radon assessments planning and programming and for instituting radon mitigation for existing and future facility projects.

- The BES is responsible for sampling radon gas levels at installation offices, housing, day care facilities, etc. The BES provides these sample results to the BCE. The BES is also responsible for mitigation.

LBP

- The BCE participates in developing and implementing the management plan for identifying, evaluating, managing, and abating LBP. Additionally, the BCE trains personnel and maintains records of activities.

- The Chief, Aerospace Medicine ensures a coordinated epidemiological analysis of facility lead sampling results and sees to it that positive pediatric lead analysis is accomplished.

- The BES conducts testing and sampling of paint to determine the lead content. The BES participates in inspections and training activities as well.

E. Definitions

- *Asbestos* - a generic term used to describe six distinctive varieties of fibrous mineral silicates, including chrysotile, amosite, crocidolite, tremolite asbestos, anthophylite asbestos, actinolite asbestos, and any other of these materials that have been chemically treated and/or altered (FGS-Japan 15-2).

- *Asbestos-Containing Material (ACM)* - any material containing more than 1 percent asbestos by weight as determined by the polarized light microscopy/dispersion staining method (FGS-Japan 15-2).

- *Assessment* - a process conducted for each occurrence of asbestos that determines the potential for environmental release and the associated risks to human health and the environment (FGS-Japan 15-2).

- *Capacitor* - a device for accumulating and holding a charge of electricity and consisting of conducting surfaces separated by a dielectric (FGS-Japan 14-2).

- *Chemical Waste Landfill* - a landfill at which a high level of protection against risk of injury to human health or the environment from migration of deposited PCBs to land, water, or the atmosphere is provided by incorporating special methods for locating, engineering, and operating the landfill (FGS-Japan 14-2).

- *Detailed Radon Testing* - a comprehensive testing program for radon (FGS-Japan 16-2).

- *Friable Asbestos* - any ACM that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure (FGS-Japan 15-2).

- *High-Priority Facilities* - with respect to LBP, facilities or portions of facilities that are or may be frequented/used by children under age seven, which are further prioritized as follows (USAF/CC Policy Letter, 24 May 1993, *AF Guidance on LBP in Facilities*, Section 5a):
  1. child development centers, annexes, and playground equipment
  2. on-base AF licensed family day care homes
  3. youth centers, recreational facilities, and playgrounds

4. waiting areas in medical and dental treatment centers
5. AF-maintained DOD schools
6. military family housing (MFH) currently occupied by families with children under age 7
7. remaining MFH.

- *In or Near Commercial Buildings* - within the interior of, on the roof of, attached to the exterior wall of, in the parking area serving, or within 30 m [approximately 98 ft] of a nonindustrial, nonsubstation building (FGS-Japan 14-2).

- *Incinerator* - an engineered device using controlled flame combustion to thermally degrade PCBs and PCB Items. Examples include rotary kilns, liquid injection incinerators, cement kilns, and high temperature boilers (FGS-Japan 14-2).

- *Initial Radon Screening* - short-term radon testing in a statistically-representative sample of selected high priority facilities (family housing, child development centers, schools, dormitories, etc.). The purpose of initial screening is to identify installations having high radon levels (FGS-Japan 16-2).

- *Leak or Leaking* - any instance in which a PCB article, PCB container, or PCB equipment has any PCBs on any portion of its external surface (FGS-Japan 14-2).

- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *Mark* - the descriptive name, instructions, cautions, or other information applied to PCBs and PCB items, or other objects subject to FGS-Japan (FGS-Japan 14-2).

- *Marking* - the marking of PCB Items and PCB storage areas and transport vehicles by means of applying a legible mark by painting, fixation of an adhesive label, or by any other method that meets the criteria of FGS-Japan (FGS-Japan 14-2).

- *Mitigation* - actions taken to reduce radon levels in facilities having radon levels higher than 4 pCi/L [148 Bq/m^3] as identified during detailed radon testing (FGS-Japan 16-2).

- *Non-PCB Transformer* - any transformer that does not contain detectable concentrations of PCB (any monomer of mono- through deca-chlorinated biphenyl, or mixture of any two or more monomers of mono- through deca-chlorinated biphenyl) (FGS-Japan 14-2).

- *PCB Article* - any manufactured article, other than a PCB container, that contains PCBs and whose surface(s) has been in direct contact with PCB. This includes capacitors, transformers, electric motors, pumps and pipes (FGS-Japan 14-2).

- *PCB Article Container* - any package, can, bottle, bag, barrel, drum, tank, or other device used to contain PCB articles or PCB equipment, and whose surface(s) has not been in direct contact with PCBs (FGS-Japan 14-2).

- *PCB Container* - any package, can, bottle, bag, barrel, drum, tank, or other device that contains PCBs or PCB articles, and whose surface(s) has been in direct contact with PCBs (FGS-Japan 14-

- *PCB Containing* - PCBs are designated as a first class specified chemical substance. PCB-containing parts and products, removed from air conditioners, TVs, or microwave ranges disposed of as general wastes are regulated as specially controlled general wastes (SCGW). Waste oils containing PCBs are regulated as a specific hazardous industrial waste (SHIW) as a class of the specially controlled industrial waste (SCIW). PCB contaminated wastes, such as waste paper, waste plastics, or waste metals are also SHIW as a class of SCIW. PCBs are designated as specified chemical substances of the first kind. In Japan, PCB contamination is not defined quantitatively. Consequently, any amount of PCB contamination is subject to Japanese PCB regulation. Transformers and capacitors made in Japan must be analyzed for PCB content at some time prior to disposal (FGS-Japan 14-2).

- *PCB-Containing Electrical Equipment* - any electrical equipment including, but not limited to, transformers, capacitors, circuit breakers, reclosers, voltage regulators, switches, electromagnets, and cable that contains or is contaminated with PCBs in detectable concentrations (FGS-Japan 14-2).

- *PCB-Contaminated Equipment* - any manufactured item, other than a PCB container or a PCB article container, that contains a PCB article or other PCB equipment, and includes microwave ovens, electronic equipment, and fluorescent light ballasts and fixtures (FGS-Japan 14-2).

- *PCB Item* - any PCB article, PCB article container, PCB container, or PCB equipment that deliberately or unintentionally contains, or has as a part of it, any PCB or PCBs at a detectable concentration using the analytical methods specified in FGS-Japan (FGS-Japan 14-2).

- *PCB Transformer* - any transformer that contains detectable concentrations of PCB (FGS-Japan 14-2).

- *Permissible Exposure Limit (PEL)* - an airborne concentration of 0.1 of any single asbestos fiber or combination of asbestos fibers per cubic centimeter (f/cc) as an 8-h time-weighted average and/or 1.0 f/cc averaged over a 30-min. sampling period (FGS-Japan 15-2).

- *Post Mitigation Monitoring* - follow-up radon testing in facilities where mitigation has been completed. The purpose of post-mitigation monitoring is to ensure that mitigation actions were effective in reducing radon levels below 4 pCi/L [148 Bq/ m^3] (FGS-Japan 16-2).

- *Radon* - a naturally occurring, odorless, colorless, tasteless, inert radioactive gas that is formed from the radioactive decay of uranium. Radon gas becomes a health hazard when it accumulates in an enclosed area or poorly ventilated spaces, and occupants breathe the high levels of radon over a prolonged period of time. The gas can move through small spaces in the soil and rock on which the house is built. It can seep into a structure through dirt floors, cracks in concrete floors and walls, floor drains and sumps, joints, and tiny cracks or pores in hollow-block walls (FGS-Japan 16-2).

- *Removed from Service* - for operational and maintenance purposes, PCB equipment is removed from service when it is physically removed from one location to another, or the equipment is substantially disassembled during servicing. For disposal purposes, the date a piece of equipment is out of service is the date on which the equipment enters the U.S. for disposal. This will be labeled on the equipment by the receiving CONUS DRMO (FGS-Japan 14-2).

- *Restricted Access Area* - areas where access by unauthorized personnel is controlled by fences, other man-made structures, or naturally occurring barriers such as mountains, cliffs, or rough terrain (FGS-Japan 14-2).

- *Substantial Contact Area* - an area that is subject to public access on a routine basis or which could result in substantial dermal contact by employees (FGS-Japan 14-2).

TOXIC SUBSTANCES MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS: (a)
PCB Management		
All Installations	JA.11-1 through JA.11-3	(1)(2)(11)
General	JA.11-4 and JA.11-7	(1)(2)(3)(4)
PCB Records	JA.11-8 through JA.11-11	(1)(2)(3)
PCB Transformers	JA.11-12 through JA.11-20	(1)(2)(3)
Other PCB Items	JA.11-21 through JA.11-24	(1)(3)
PCB Spills	JA.11-25 through JA.11-27	(1)(2)(3)
PCB Storage	JA.11-28 through JA.11-32	(1)(3)
PCB Disposal	JA.11-33 through JA.11-37	(1)(3)(4)(5)(6)
Import of PCBs	JA.11-38	(1)(3)(5)(6)(7)
Analytical Methods	JA.11-39 through JA.11-43	(1)(2)

(a) **CONTACT/LOCATION CODE:**

(1) BCE (Environmental Planning)
(2) BES (Bioenvironmental Engineering Services)
(3) BCE (Exterior Electric Shop)
(4) DRMO (Defense Reutilization and Marketing Office)
(5) BCE (Contract Programmer)
(6) BCE (Contract Management)
(7) BCE (Chief of Operations and Maintenance)
(8) School Principal
(9) Asbestos Program Officer
(10) Asbestos Operating Officer
(11) SJA (Staff Judge Advocate)
(12) Base Safety Officer
(13) PAO (Public Affairs Officer)

(continued)

GUIDANCE FOR CHECKLIST USERS (continued)

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS: (a)
Asbestos Management		
All Installations	JA.11-44 through JA.11-46	(1)(2)(11)
General	JA.11-47 through JA.11-53	(1)(9)(10)
Personnel Safety	JA.11-54 and JA.11-55	(1)(9)(10)
Renovation and Demolition	JA.11-56 through JA.11-61	(1)(2)(7)(9)(10)
Training	JA.11-62	(9)(10)
Asbestos Disposal	JA.11-63 through JA.11-66	(1)(2)(9)(10)
Asbestos in Schools	JA.11-67	(8)(9)
Radon Management		
All Installations	JA.11-68 through JA.11-79	(1)(2)(11)
Lead-Based Paint (LBP)		
All Installations	JA.11-80 through JA.11-90	(1)(2)(11)

(a) CONTACT/LOCATION CODE:

(1) BCE (Environmental Planning)
(2) BES (Bioenvironmental Engineering Services)
(3) BCE (Exterior Electric Shop)
(4) DRMO (Defense Reutilization and Marketing Office)
(5) BCE (Contract Programmer)
(6) BCE (Contract Management)
(7) BCE (Chief of Operations and Maintenance)
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(10) Asbestos Operating Officer
(11) SJA (Staff Judge Advocate)
(12) Base Safety Officer
(13) PAO (Public Affairs Officer)

TOXIC SUBSTANCES MANAGEMENT

Records To Review

- Inspection, storage, maintenance, and disposal records for PCBs/PCB Items
- PCB Equipment inventory and sampling results
- Asbestos management plan
- Asbestos survey documentation
- Documentation of asbestos sampling and analytical results
- Documentation of preventive measure or action
- Results of air sampling at the conclusion of response action
- Records of asbestos training program
- List of buildings insulated with asbestos or housing ACMs
- Record of demolition or renovation projects completed in the past 5 yr that involve friable asbestos
- Records of radon tests
- LBP Hazard Abatement Plan

Physical Features To Inspect

- PCB storage areas
- Equipment, fluids, and other items, used or stored at the facility, that contain PCBs
- Pipe, spray-on, duct, and troweled cementitious insulation, and boiler lagging
- Ceiling and floor pipes

People To Interview

- BCE (Environmental Planning)
- BES (Bioenvironmental Engineering Services)
- BCE (Exterior Electric Shop)
- DRMO (Defense Reutilization and Marketing Office)
- BCE (Contract Programmer)
- BCE (Contract Management)
- BCE (Chief of Operations and Maintenance)
- School Principal
- Asbestos Program Officer
- Asbestos Operating Officer
- (SJA) Staff Judge Advocate
- Base Safety Officer
- (PAO) Public Affairs Officer

COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
PCB MANAGEMENT **All Installations**	
JA.11-1. Determine actions or changes since previous review (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (1)(2)
JA.11-2. Copies of all relevant DOD directives/ instructions, USAF directives, and guidance documents should be maintained at the installation (MP).	Verify that copies of the following regulations are maintained and kept current at the installation: (1)(11) - *USFJ Final Governing Standards* (FGS-Japan), January 1995 - HQ USAF/CE Letter, *Air Force Policy on Measuring Air Force PCB-Free Status - Action Memorandum,* 21 March 1994. Verify that the Base SJA reviews the documents annually for currency and completeness and submits the findings of the review to the Base Environmental Protection Committee.
JA.11-3. Installations must meet regulatory requirements issued since the finalization of the manual (a finding under this checklist item will have the citation of the new regulation as a basis of finding).	Determine whether new regulations concerning PCBs have been issued since the finalization of the manual. (1)(2)(11) Verify that the installation is in compliance with newly issued regulations.
General	
JA.11-4. PCB-containing electrical equipment must not be installed in new or existing electrical systems (FGS-Japan 14-3.1(e)).	Verify that no PCB-containing electrical equipment is installed in new or existing electrical systems. (1)(2)

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-5. A responsible manager must be appointed in writing for each activity or work center that carries out tasks that involve working with PCBs (FGS-Japan 14-3.1(i)).	Verify that a responsible manager has been appointed in writing for each activity or work center that carries out tasks that involve working with PCBs. (1)(3)(4) Verify that the responsible manager ensures that work involving PCBs is performed in accordance with the provisions of FGS-Japan and other applicable health, safety, and environmental guidance. Verify that the responsible manager ensures that: - appropriate inventory control is maintained - labeling and signage are accurate and appropriate - measures for spill containment and control are in accordance with FGS-Japan, Chapter 14 and other chapters as appropriate.
JA.11-6. PCB equipment (see definition) and rooms, vaults, or storage areas that contain it must be marked in English and Japanese (FGS-Japan 14-3.1(d)).	Verify that PCB equipment and rooms, vaults, or storage areas that contain it are prominently marked in English and Japanese. (1)(3) Verify that the equipment or areas are identified as containing PCBs. Verify that there is a warning against improper handling and disposal. Verify that a phone number is provided for use in the event of spills or questions about disposal. (NOTE: Equipment other than large transformers and capacitors need not be marked until it is taken out of service and processed for disposal.)
JA.11-7. Installations must repair or replace leaking PCB Transformers within 48 h or as soon as possible (FGS-Japan 14-3.1(h)).	Verify that the installation repairs or replaces leaking PCB Transformers within 48 h. (1)(2)(3) Verify that leaking PCB fluids are containerized and disposed of properly.
PCB Records	
JA.11-8. Certain installations should prepare written annual document logs by 1 July of each calendar year (MP).	Determine whether at any time the installation uses or stores any of the following: (1)(2)(3) - more than 45 kg [99.4 lb] of PCBs in PCB Containers - PCB Transformers with concentrations of 50 ppm or greater - one or more large PCB capacitors of high or low-voltage.

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

JA.11-8. (continued)	Verify that, by 1 January of each calendar year, the installation prepares a written annual log that covers the previous year.
	
	Verify that the written annual document log addresses the following:
	
	- identification of facility
	- calendar year covered
	- manifest number for every manifest generated
	- total number (by type) of PCB Articles, PCB Article Containers, and PCB Containers placed into storage for disposal or disposed of during the calendar year
	- total weight placed into storage for disposal or disposed of during the calendar year of:
	  - PCBs in PCB Articles
	  - contents of PCB Article Container
	  - contents of PCB Containers
	  - bulk PCB waste
	- a list of PCBs and PCB Items remaining in service at the end of the calendar year
	- the total weight of any PCBs and PCB Items in containers including identification of container contents and the total number of PCB Transformers, PCB large capacitors of high- and low-voltage, and the total weight of PCBs in PCB Transformers
	- a record of each telephone call or other form of verification to confirm the receipt of PCB waste transported by independent transport.
	
	Verify that the annual document log contains the following for each manifest, for each unmanifested waste, and for any PCBs or PCB Items received from or shipped from another facility owned or operated by the generator:
	
	- date removed from service for disposal (first date material placed in PCB Container)
	- date placed into transport for offsite storage/disposal
	- date of disposal (if known)
	- weight of PCB wastes
	  - total bulk PCB wastes
	  - total in each article (PCB Transformers or capacitors)
	  - total in each container (PCB Containers)
	  - total weight of contents and of the PCB Article (in kilograms) in each PCB Article Container
	- serial number or other unique identification number (except for bulk wastes)
	- description of the contents of PCB Containers and article containers.

(1) BCE (Environmental Planning) (2) BES (Bioenvironmental Engineering Services) (3) BCE (Exterior Electric Shop) (4) DRMO (Defense Reutilization and Marketing Office) (5) BCE (Contract Programmer) (6) BCE (Contract Management) (7) BCE (Chief of Operations and Maintenance) (8) School Principal (9) Asbestos Program Officer (10) Asbestos Operating Officer (11) Base Staff Judge Advocate (12) Base Safety Officer (13) PAO (Public Affairs Officer)

COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-8. (continued)	Verify that the following information is provided in the annual record: - all signed manifests generated or received at the facility during the calendar year - all certificates of disposal that have been generated or received during the calendar year. Verify that the annual document log and annual records (manifests, certificates of disposal) are kept for at least 5 yr after the facility stops using or storing PCBs and PCB Items in the listed quantities.
JA.11-9. Installations with PCB equipment must maintain a written inventory of that PCB equipment (FGS-Japan 14-3.1(e)).	Verify that the installation maintains a written inventory of PCB equipment. (1)(3) Verify that the inventory contains a current list, by type, of all PCB equipment in use, placed into storage for disposal, or disposed of for that year. (NOTE: Equipment other than large transformers and capacitors need not be on the inventory.)
JA.11-10. All required periodic inspections must be documented at the installation (FGS-Japan 14-3.1(g)).	Verify that all required periodic inspections are documented at the installation. (1)(3)
JA.11-11. Installations must retain records of inspections and maintenance histories for 3 yr after disposal of the inventoried equipment (FGS-Japan 14-3.1(g)).	Determine whether the installation has disposed of any inventoried PCB equipment. (1)(3) Verify that records of inspections and maintenance histories are retained for at least 3 yr after the disposal of any inventoried PCB equipment.
PCB Transformers	(NOTE: See definition.)
JA.11-12. The reuse or reutilization of PCB transformers that have been removed from service is prohibited (FGS-Japan 14-3.2(d)).	Verify that PCB transformers that have been removed from service are not reused or reutilized. (1)(3)

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-13. PCB transformers may not be used in any application that poses a risk of contamination to food or feed (FGS-Japan 14-3.2(a)).	Verify that no PCB transformer is used in any application that poses a risk of contamination to food or feed. (1)(3)
JA.11-14. Certain PCB transformers must be equipped with electrical protection (FGS-Japan 14-3.2(c)).	Verify that PCB transformers that are used in or near commercial buildings or located in sidewalk vaults have electrical protection to minimize transformer failure that would result in the release of PCBs. (1)(3)
JA.11-15. PCB transformers must be registered with the fire department (FGS-Japan 14-3.2(b)).	Verify that all PCB transformers, including those in storage for reuse, are registered with the fire department. (1)(3) (NOTE: It would be useful to provide the following information: - physical location of PCB transformer(s) - principle constituent of dielectric fluid (i.e., PCBs, mineral oil, silicone oil, etc.) - name and telephone number of contact person knowledgeable of PCB transformer(s).)
JA.11-16. Combustible materials should not be stored near PCB transformers (MP).	Verify that all combustible materials have been removed from areas within PCB transformer enclosures (i.e., vaults or partitioned areas) and from areas within 5 m (16 ft) of a PCB transformers or their enclosures. (1)(3) (NOTE: Combustible materials include, but are not limited to, paints, solvents, plastics, paper, and scrap wood.)
JA.11-17. PCB transformers must be serviced properly (FGS-Japan 14-3.2(e)).	Verify that servicing activities are properly conducted as follows: (1)(3) - transformers are serviced only with dielectric fluid that contains no PCBs - the transformer coil is not removed during servicing - PCBs removed during servicing are captured and disposed of properly as PCB-contaminated waste oil - dielectric fluids contain that contain detectable concentrations of PCBs are not used or added to any electrical equipment. (NOTE: In the event that a dielectric fluid containing a detectable concentration of PCBs is mixed with a non-PCB dielectric fluid, the resultant mixture is treated as PCB-contaminated.)

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-18. Installations must inspect certain PCB transformers (FGS-Japan 14-3.2(f) and 14-3.1(h)).	Verify that leaking PCB transformers that have not been repaired or replaced are inspected daily. (1)(3) Verify that in-service PCB transformers are inspected at least once every 3 mo. Verify that the following are inspected at least every 12 mo: - PCB transformers with impervious, undrained secondary containment capacities of 100 percent of dielectric fluid - PCB transformers that have been tested and found to contain less than 60,000 ppm PCBs. (NOTE: It would be useful to record the following information as part of each PCB transformer inspection: - location of transformer - dates of each visual inspection - date when any leak was discovered - name of person conducting inspection - location and estimate of the quantity of any leaks - data and description of any cleanup, containment, or repair performed - results of any daily inspections of transformers with uncorrected active leaks.)
JA.11-19. Personnel who discover leaking PCB transformers should follow proper reporting procedures (MP).	Verify that personnel who discover leaking PCB transformers follow proper reporting procedures. (1)(3)
JA.11-20. Installations must take specific actions if a PCB transformer is involved in a fire (FGS-Japan 14-3.2(g)).	Verify that, if a PCB transformer is involved in a fire and subjected to sufficient heat and/or pressure that might result in violent or nonviolent rupture, measures are taken to control water runoff. (1)(2)(3) Verify that runoff water is tested and treated if required. (NOTE: Blocking floor drains is one way to control water runoff.)

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Other PCB Items	
JA.11-21. Installations must service electromagnets, switches, and voltage regulators that may contain PCBs at any concentration in accordance with specific standards (FGS-Japan 14-3.3(a)).	Verify that PCB equipment is serviced only with dielectric fluid that contains no PCBs. (3) Verify that the installation does not service any electromagnets, switches, or voltage regulators that contain PCB concentrations of 500 ppm or greater. (NOTE: This restriction applies only if it is necessary to remove and rework any internal components as part of service.) Verify that PCBs removed during servicing are captured and disposed of properly. Verify that PCBs from electromagnets, switches, and voltage regulators with a detectable PCB concentration are not mixed with or added to dielectric fluid from non-PCB-contaminated electrical equipment. Verify that dielectric fluids that contain detectable concentrations of PCBs are not used as dielectric fluid in any electromagnets, switches, and voltage regulators classified as PCB-contaminated electrical equipment.
JA.11-22. Installations must not reuse or reutilize capacitors that contain PCBs at any concentration if they are physically removed from service (FGS-Japan 14-3.3(b)).	Verify that no capacitors that contain PCBs at any concentration and that have been physically removed from service are reused or reutilized. (1)(3)
JA.11-23. Installations must meet specific requirements with regard to the use and storage of PCB large capacitors (FGS-Japan 14-3.3(b)(1) and 14-3.3(b)(2)).	Verify that the installation does not use or store PCB large capacitors (whether of high or low voltage) that pose an exposure risk to food or feed. (3) Verify that the installation does not store such capacitors for use. Verify that the installation uses PCB large capacitors (whether of high or low voltage) only in restricted-access electrical substations or in contained and restricted-access indoor areas. Verify that there is no public access to such capacitors that have been installed indoors. Verify that such capacitors have been installed indoors only where the roof, walls, and floor are adequate to contain any release of PCBs.

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-24. No PCB item that has been removed from service may be reused or reutilized (FGS-Japan 14-3.3(c)).	Verify that no PCB item that has been removed from service is reused or reutilized. (3)
PCB Spills	
JA.11-25. Installations must address PCBs in their spill contingency plan (FGS-Japan 14-3.1(b) and 14-3.4(a)(5)).	Verify that PCB items are addressed in the spill contingency plan. (1)(2)(3) (NOTE: This requirement also applies to temporary storage items.) Determine whether PCB storage facilities are located where they are at risk from seismic activity, floods, or other natural events. Verify that the installation's spill contingency plan addresses such storage facilities directly. (NOTE: See Section 8, *Petroleum, Oil, and Lubricant (POL) Management,* for further details on the contents of the spill contingency plan).
JA.11-26. Spills of PCB liquids must be responded to immediately and cleaned up according to specific standards (FGS-Japan 14-3.1(c)).	Verify that the installation responds immediately to spills of PCB liquids. (1)(2)(3) Verify that surfaces located in substantial contact areas are cleaned to 10 µg per 100 cm^2 [15.5 $in.^2$]. Verify that surfaces in all other contact areas are cleaned to 100 µg per 100 cm^2 [15.5 $in.^2$]. Verify that contaminated soil is removed until the soil tests indicate no detectable concentration of PCBs. Verify that the area is then backfilled with clean soil. (NOTE: Clean soil is soil that has no detectable concentration of PCB.)
JA.11-27. Installations should clean up spills in accordance with good practice (MP).	Determine whether any of the following types of spills have occurred: (1)(2)(3) - high-concentration spills - low-concentration spills involving 0.45 kg [1 lb] or more of PCBs by weight - spills of 1023 L [270 gal] or more of untested mineral oil.

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-27. (continued)	Verify that the following actions are taken within 24 h of discovering the spill: - the area of the spill is cordoned off or otherwise identified to include the area with visible traces of the spill and a 2-ft [≈61 cm] buffer zone - clearly visible signs are placed advising people to avoid the area - the area of visible contamination is recorded and documented, identifying the extent and center of the spill - cleanup of visible traces of the fluid from hard surfaces is initiated - removal of all visible traces of the spill on soil and other media, such as gravel, sand, etc., is started. (NOTE: If there are no visible traces, the area of the spill may be estimated.) Verify that, if the spill occurs in an outdoor substation: - contaminated solid surfaces are cleaned to a PCB concentration of 100 μg/cm^2 [≈0.16 in.^{2}] (as measured by standard wipe tests) - soil contaminated by the spill is cleaned to either 25 ppm PCB by weight or 50 ppm PCB - postcleanup sampling is done. (NOTE: The installation may choose the level to which cleanup is conducted if notice is placed in the area to indicate the level of cleanup.) Verify that, if the spill occurs in a restricted access area other than an outdoor substation: - high-contact solid surfaces are cleaned to 10 μg per 100 cm^2 [≈15 in.^{2}] (as measured by standard wipe tests) - low-contact, indoor, impervious solid surfaces are decontaminated to 10 μg per 100 cm^2 [≈15 in.^{2}] - low-contact, indoor, nonimpervious surfaces are cleaned to either 10 or 100 μg per 100 cm^2 [≈15 in.^{2}] and encapsulated at the option of the installation - low-contact, outdoor surfaces (both impervious and nonimpervious) are cleaned to 100 μg per 100 cm^2 [≈15 in.^{2}] - soil contaminated by the spill is cleaned to 25 ppm PCB by weight - postcleanup samples are collected.

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-27. (continued)	Verify that spills in nonrestricted access locations are decontaminated as follows: - furnishings, toys, and other easily replaceable household items are disposed of and replaced - indoor solid surfaces and high-contact, outdoor solid surfaces are cleaned to 10 μg per 100 cm^2 [≈15 $in.^2$] (as measured by standard wipe tests) - indoor vault areas and low-contact, outdoor, impervious solid surfaces are decontaminated to 10 μg per 100 cm^2 [≈15 $in.^2$] - at the option of the installation, low-contact, outdoor, nonimpervious solid surfaces are cleaned to either 10 or 100 μg per 100 cm^2 [≈15 $in.^2$] and encapsulated - soil is decontaminated to 10 ppm PCB by weight provided that the soil is excavated to a minimum depth of 25 cm or 10 in. [≈25 cm] and replaced with clean soil - postcleanup samples are taken. Verify that records documenting all cleanup and decontamination are maintained for 5 yr. (NOTE: Neither the occurrence/discovery of the spill on the weekend nor overtime costs are considered acceptable reasons for delaying response.) (NOTE: The final numerical cleanup standards do not apply to spills directly into surface waters, drinking water, sewers, grazing lands, and vegetable gardens.)
PCB Storage **JA.11-28.** PCBs and PCB items at any detectable concentration that are to be stored before disposal must be stored in a facility that will ensure the containment of PCBs (FGS-Japan 14-3.4(a), 14-3.4(b)(1) through (b)(4), and 14-3.4(c)).	Verify that PCB storage areas meet the following requirements: (1)(3) - the roof and walls of the building in which the PCBs are stored are constructed so as to prevent rainfall from contacting PCBs and PCB Items - the building and the containers in it are clearly marked with signs in both English and Japanese that they contain PCBs - a 15 cm (6 in.) containment berm surrounds the entire area in which PCBs or PCB items are stored. - berming provides effective containment for twice the internal volume of the largest PCB article or 100 percent of the total internal volume of all PCB articles or containers stored, whichever is greater - drains, valves, floor drains, expansion joints, sewer lines, or other openings that would allow liquids to flow from the bermed area are not present - floors are constructed of continuous, smooth, and impervious material. Verify that, as far as possible, new storage areas are located to minimize the risk of release because of seismic activity, floods, or other natural events.

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-28. (continued)	(NOTE: The following items may be stored for up to 30 days from the date of removal from service in areas that do not meet the above requirements: - nonleaking PCB items, marked to indicate whether it is a PCB article or PCB equipment - leaking PCB articles and PCB equipment placed in a nonleaking PCB container that contains sufficient absorbent material to absorb liquid contained on the PCB article or equipment - PCB containers in which nonliquid PCBs have been placed - PCB containers in which liquid PCBs at detectable concentrations have been placed and containers are marked to indicate less than 500 ppm PCB.) Verify that the above items are inspected weekly while in temporary storage. (NOTE: Nonleaking and structurally undamaged Large, High-Voltage PCB capacitors and PCB-contaminated electric equipment that have not been drained of free-flowing dielectric fluid may be stored on pallets next to a storage area that meets the requirements above.) Verify that the above nonleaking items are inspected weekly. Verify that such nonleaking items have secondary containment with a capacity of greater than 100 percent of the free-flowing dielectric fluid. Verify that a method is provided to exclude rainfall from contacting such nonleaking items.
JA.11-29. Installations must meet specific requirements on containers used for PCBs in temporary storage (FGS-Japan 14-3.4(b)(5)).	Verify that the containers for PCBs in temporary storage are of sturdy construction. (1)(3)(4) Verify that such containers are not conducive to spills or overflow. Verify that such containers bear handling instructions. Verify that such containers are appropriately labeled in both Japanese and English.
JA.11-30. Installations must inspect all other storage areas than the above at least monthly (FGS-Japan 14-3.4(d)).	Verify that all storage areas other than those covered by FGS-Japan 14-3.4(a) through (c) (see checklist items JA.11-28 and JA.11-29) are inspected monthly. (3)

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-31. Installations that store PCB waste classified as SCGW or SCIW must meet specific criteria (FGS-Japan 14-3.4(e)).	Determine whether the installation is storing PCB waste that is classified as SCGW or SCIW. (1)(3) Verify that the storage location is completely fenced, with signs on the fence that indicate the items stored within and the name and telephone number of the facility manager. Verify that appropriate measures have been taken to control the following: - scattering - overflow - seepage - unacceptable odors - the breeding of vermin (rats, flies, mosquitoes, etc.). Verify that partitions are in place to separate PCB wastes from other wastes. Verify that these partitions are designed so as to prevent the mixing of wastes in the event of a spill. Verify that metallic parts that contain or are contaminated with PCBs are protected from corrosion.
JA.11-32. Containers used for the storage of PCBs must meet security requirements (FGS-Japan 14-3.4(f)).	Verify that containers used for the storage of PCBs are at least as secure as those that conform to the International Maritime Dangerous Goods Code or the rules of the International Airline Transport Association, as applicable. (3)
PCB Disposal	
JA.11-33. Installations must dispose of PCB containing substances through the DRMO only (FGS-Japan 14-3.1(f)).	Verify that all PCB-containing substances are disposed of through the DRMO. (1)(3)(4)(5)(6)
JA.11-34. Installations must return all PCBs to the Continental United States (CONUS) for disposal (FGS-Japan 14-3.5(b)).	Verify that all PCBs are retrograded to CONUS for disposal in a properly designed and operated permitted waste incinerator. (1)(3)(5) (NOTE: Installations may also send PCBs to a third country for disposal in a properly designed and operated permitted waste incinerator.) (NOTE: This requirement does not apply to equipment provided by the GOJ.)

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-35. Installations must meet specific disposal requirements for equipment provided by the GOJ (FGS-Japan 14-3.5(b)).	Verify that, when feasible, equipment provided by the GOJ is returned to GOJ for deposition. (1)(3) Verify that, if return to GOJ is not feasible or possible, the equipment is retrograded to CONUS or to a third country for disposal in a properly designed and operated permitted waste incinerator. (NOTE: PCB-free equipment provided by GOJ under the Facilities Improvement Program may be disposed of as PCB-free in Japan.)
JA.11-36. Installations that generate PCB wastes must maintain an audit trail for the waste (FGS-Japan 14-3.5(a)).	Verify that the installation maintains an audit trail at least as stringent as the audit trail required for hazardous waste. (1)(3)(5)(6)
JA.11-37. Items or waste that contain PCBs must not be disposed of in landfills or by ocean dumping (FGS-Japan 14-3.5(a)).	Verify that no items or waste that contain PCBs at any detectable concentration are disposed of in landfills or by ocean dumping. (1)(3)
Import of PCBs	
JA.11-38. The importation of industrial or commercial articles that contain PCBs is prohibited (FGS-Japan 14-3.6).	Verify that the installation does not import industrial or commercial articles that contain PCBs. (1)(3)(5)(6)(7) (NOTE: This prohibition applies in particular to the following: - lubricating oils, cutting oils, mobile (sic) oils [= motor oils?] - adhesive, putty, and sealing pigments - paint, printing ink, pressure-sensitive copying machines - heating equipment and cooling equipment - transformers that contain oil, paper capacitors, capacitors that contain oil, organic skin (sic) capacitors - air conditioners, televisions sets, microwave ovens.) (NOTE: The terms 'the same' and 'internationally standardized' as used in the following exemptions to the prohibition on importation are defined as material identified by the DOD item manager in technical orders or other guidance as authorized replacements for originally supplied materials.)

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-38. (continued)	(NOTE: The prohibition on importation does not apply to the following items: - the same lubricating oils to be used for changing and replenishing gas turbine engines on naval vessels - the same foreign-made lubricants, hydraulic oils, adhesives (excluding animal- and plant-product adhesives), putty, sealing fillers, paints (excluding water type), heating or cooling equipment that uses liquid heat transfer media, transformers that contain oil, paper capacitors, capacitors that contain oil, organic skin (sic) capacitors, or air conditioners used for changing and replenishing aircraft equipment - the same foreign-made lubricants, hydraulic oils, adhesives, putty, sealing fillers used for changing or replenishing aircraft fuselage or wing structures - internationally standardized lubricants, hydraulic oils, adhesives, putty, sealing fillers, paints, heating or cooling equipment that uses liquid heat transfer media, transformers that contain oil, paper capacitors, capacitors that contain oil, organic skin (sic) capacitors, or air conditioners used for aircraft and/or related equipment - internationally standardized lubricants, hydraulic oils, adhesives, putty, sealing fillers, paints, heating or cooling equipment that uses liquid heat transfer media, transformers that contain oil, paper capacitors, capacitors that contain oil, organic skin (sic) capacitors, or air-conditioners used for guided missiles, automatic warning control equipment, three-dimensional radar, and related equipment.)
Analytical Methods	(NOTE: FGS-Japan 14-3.1(a)(6) contains a list of references to specific methods that may be employed in the analysis of PCBs in a variety of matrices.)
JA.11-39. Installations must meet certain requirements with regard to analytical methods in general (FGS-Japan 14-3.1(a)(5)).	Verify that the analytical method is capable of detecting and quantifying all PCB monomers in the definition of PCBs. (1)(2) Verify that, for disposal purposes, analytical results identify and quantify the following, as a minimum: - any of the Arochlors listed in USEPA Method SW-8080 or E608 - all of the PCBs in the sample. Verify that, for disposal purposes, analytical results provide a single concentration of total PCBs in the sample, expressed as follows: - in mg/kg in soil - mg/L in water - mg/L (ppm) in oil - mg/L in inorganic sludges and bottom sediments. Verify that analytical laboratories are instructed to report results as greater or less than the method detection limits specified in FGS-Japan (see checklist items JA.11-40 through JA.11-43).

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-39. (continued)	(NOTE: Instrument detection limits need not be reported if they are lower than the method detection limits specified below.)
JA.11-40. Installations must meet specific requirements with regard to the analytical methods used for soils and other bulk materials that are suspected of being PCB-contaminated (FGS-Japan 14-3.1(a)(1)).	Verify that soils and other bulk materials that are suspected of being PCB-contaminated are analyzed for PCBs using an aqueous leaching procedure. (1)(2) Verify that the method detection limit is no greater than 0.003 mg/L in the extraction fluid. (NOTE: The recommended analytical methodology is to employ USEPA method SW-1311, the Toxicity Characteristic Leachate Procedure, followed by USEPA method SW-8080 for Gas Chromatography with Electron Capture Detection (GC/ECD) analysis of the PCB content in the leachate.) (NOTE: Other generally accepted methods may be used, provided that they are substantially similar to the recommended analytical methodology.) (NOTE: For screening purposes, field kits such as the *Chlor-N-Soil* kit may be used, but for disposal and clearance purposes laboratory analysis of samples is required.)
JA.11-41. Installations must meet specific requirements with regard to the analytical methods used for wastewater suspected of being PCB-contaminated (FGS-Japan 14-3.1(a)(2)).	Verify that an extraction procedure such as USEPA Method 608 is used for analyzing such wastewater. (1)(2) Verify that the method detection limit is no greater than 0.001 mg/L (1 ppb) with a standard variation less than 40 percent. (NOTE: The Japan Industrial Standards Method K0093-1974 is an acceptable alternate method of analysis.)
JA.11-42. Installations must meet specific requirements with regard to the analytical methods used for oils (FGS-Japan 14-3.1(a)(3)).	Verify that oils are analyzed using a solvent extraction method with hexane as the solvent. (1)(2) Verify that the method includes whatever sample cleanup and preparation steps are necessary to prepare the sample for analysis of PCB content using GC/ECD. Verify that method used conforms substantially to the method for PCB oils analysis as published by the Japan Electrical Association (JEAC 1201-1991). Verify that the method utilized has a method detection limit no higher than 2 mg/L (2 ppm) with a coefficient of variation less than 40 percent.

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-43. Installations must meet specific requirements with regard to the analytical methods used for organic and inorganic sludges and bottom sediments that contain PCBs (FGS-Japan 14-3.1(a)(4)).	Verify that organic and inorganic sludges and bottom sediments that contain PCBs are analyzed using a hexane extraction method with GC/ECD analysis. (1)(2) Verify that the method detection limit is no greater than 0.0005 mg/L (0.5 ppb).
ASBESTOS MANAGEMENT **All Installations**	
JA.11-44. Determine actions or changes since previous review (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (1)(2)
JA.11-45. Copies of all relevant DOD directives/ instructions, USAF directives, and guidance documents should be maintained at the installation (MP).	Verify that copies of the following regulations are maintained and kept current at the installation: (1)(11) - *USFJ Final Governing Standards* (FGS-Japan), January 1995 - AFI 32-1052, *Facility Asbestos Management,* 22 March 1994 - AFOSH Standard 161-4, *Exposure to Asbestos,* January 1980. Verify that the Base SJA reviews the documents annually for currency and completeness and submits the findings of the review to the Base Environmental Protection Committee.
JA.11-46. Installations must meet regulatory requirements issued since the finalization of the manual (a finding under this checklist item will have the citation of the new regulation as a basis of finding).	Determine whether new regulations concerning asbestos management have been issued since the finalization of the manual. (1)(2)(11) Verify that the installation is in compliance with newly issued regulations.

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
General	
JA.11-47. Installations must appoint an asbestos program manager (Japan 15-3.1).	Verify that the installation has an asbestos program manager who serves as the single point of contact for all asbestos-related activities. (1)(9)
JA.11-48. Installations must prepare and implement a written asbestos management plan that meets specific minimum requirements (FGS-Japan 15-3.2 and AFI 32-1052, paras 2.4 and 5).	Verify that the installation has prepared and implemented a written asbestos management plan. (1)(9)(10) Verify that, at a minimum, the plan addresses the following: - an installation-wide survey of all structures to determine the location, extent, and condition of all ACM - a notification and education program to tell workers, tenants, and building occupants where potentially friable ACM is located and how and why to avoid disturbing it - regular ACM surveillance to note, assess, and document any changes in the ACM's condition - work control/permit systems to control activities which might disturb ACM - operations and maintenance (O&M) work practices to avoid or minimize fiber release during activities affecting ACM - record keeping to document O&M activities related to asbestos identification, management, and abatement - medical and respiratory protection programs, as applicable - training for the asbestos program manager and custodial and maintenance staff - procedures to assess and prioritize identified hazards for abatement.
JA.11-49. Installations must have a written asbestos operating plan that meets specific minimum requirements (AFI 32-1052, paras 2.4 and 6).	Verify that the installation has prepared and implemented an asbestos operating plan. (1)(9)(10) Verify that the operating plan: - assigns responsibilities - establishes inspection and repair capabilities - provides repair procedures and personnel protection instructions - explains applicable USEPA and Occupational Safety and Health Administration (OSHA) rules, Air Force Policy Directive (AFPD) 32-70, and AFI 91-301.

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-49. (continued)	Verify that the operating plan addresses: - the organizational structure for carrying out asbestos-related work - personnel training programs - equipment and supply requirements - identification of worker manuals or other written procedures - yearly budget estimates - procedures for interim control measures and extraordinary precautions - procedures for asbestos certification and asbestos disposition statements on programming documents - requirements for a special response team and in-house inspection capability - contractor requirements to perform analytical work and asbestos abatement.
JA.11-50. Installations must repair or remove damaged ACM and monitor friable ACM (AFI 32-1052, para 2.1 and 2.3).	Verify that damaged ACM is removed or repaired. (1)(9)(10) Verify that friable asbestos is routinely inspected by reviewing inspection logs. (NOTE: Damaged ACM is presumed to be hazardous because of its potential to release airborne asbestos fibers.)
JA.11-51. Friable materials that may be contaminated with asbestos should be tested (MP).	Verify that friable materials that are suspected of being contaminated are tested when located in areas where workers might be exposed. (1)(9)(10)
JA.11-52. Installations must include complete removal of ACM in planning operations and maintenance and military construction program facility projects (AFI 32-1052, para 2.2.3).	Verify that the installation includes complete removal of ACM in planning operations and maintenance and military construction program facility projects, when safety and budgetary considerations permit. (1)(9)(10)
JA.11-53. Installations must remove existing ACM at opportune times during minor construction or repairs (AFI 32-1052, para 2.2.4).	Verify that the installation removes existing ACM at opportune times during minor construction or repairs. (1)(9)(10) (NOTE: This can be verified by reviewing written documentation in the installation's Asbestos Management Plan.)

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Personnel Safety	
JA.11-54. Installations should provide personnel working with asbestos with proper education and training (MP).	Verify that workers are provided with appropriate training. (1)(9)(10) Verify that a procedure exists to notify individuals occupationally exposed to asbestos.
JA.11-55. The installation must not expose employees, visitors, or contractors to airborne asbestos concentrations above the PEL without appropriate personal protective equipment (PPE) (FGS-Japan 15-3.3).	Verify that individuals are not exposed to airborne asbestos concentrations above the PEL unless they wear PPE. (1)(9)(10)
Renovation and Demolition	
JA.11-56. Prior to renovation or demolition, the installation must determine whether ACM will be removed or disturbed and record the determination in the project authorization document (work order) (FGS-Japan 15-3.4).	Verify that facilities are surveyed for ACM prior to renovation and/or demolition and that the determination of action is noted on the work order. (1)(7)(9)(10)
JA.11-57. A written assessment must be prepared and furnished to the asbestos program manager prior to certain actions (FGS-Japan 15-3.5).	Verify that a written assessment is produced prior to the demolition or renovation of a facility that involves removing or disturbing ACM. (9)(10) Verify that a copy of the written assessment is kept on file permanently.

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-58. Installations must remove all ACM prior to any renovation or demolition (FGS-Japan 15-3.7).	Verify that, before renovating or demolishing any facility or any part of a facility in which ACM is found, the installation removes all ACM. (9)(10)
JA.11-59. Installations must remove ACM when it poses a threat to release airborne asbestos fibers and cannot be reliably repaired or isolated (FGS-Japan 15-3.6).	Verify that asbestos that poses a threat has been removed. (9)(10)
JA.11-60. Installations must meet specific criteria before and during the removal of asbestos (FGS-Japan 15-3.8 and 15-3.10).	Verify that all workers are trained prior to the removal. (1)(7)(9)(10) Verify that signs are posted and visible at all approaches to asbestos work areas. Verify that signs are bilingual and read as follows: DANGER ASBESTOS CANCER AND LUNG DISEASE HAZARD AUTHORIZED PERSONNEL ONLY RESPIRATORS AND PROTECTIVE CLOTHING ARE REQUIRED IN THIS AREA. Verify that air monitoring programs are in place during asbestos removal to document exposure levels. Verify that air quality is maintained at satisfactory levels throughout the entire operation. Verify that all workers involved in the removal are medically qualified and use properly fitted respiratory protection and PPE. Verify that appropriate engineering controls and work practices are used to contain and control asbestos fiber releases for all asbestos removal that has the potential to release airborne asbestos fibers in concentrations greater than the PEL. (NOTE: Small-scale, short-duration maintenance or renovation activities that use glove bags to enclose the work area do not require air monitoring programs during the performance of work unless the installation deems it necessary.)

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
JA.11-61. Final clearance air sampling must be conducted following completion of clean-up operations but before removal of the enclosure of the asbestos control area (FGS-Japan 15-3.9).	Verify that final clearance air sampling is conducted following completion of clean-up operations but before removal of the enclosure of the asbestos control area. (2)(9)(10) Verify that all final clearance samples at all locations indicate concentrations of airborne fibers less than 0.01 f/cc.
Training	
JA.11-62. Certain individuals must meet training and certification requirements (FGS-Japan 15-3.11).	Verify that the following individuals involved are trained and certified in accordance with U.S. regulatory standards: (9)(10) - project designers - inspectors - management planners - workers - supervisors. (NOTE: This training requirement applies only if the above persons are involved in the repair, removal, maintenance, and/or disposal of ACM.)
Asbestos Disposal	
JA.11-63. Installations must dispose of asbestos waste in accordance with specific standards (FGS-Japan 15-3.12(a) and (b)).	Verify that the installation disposes of its asbestos waste through DRMO or in accordance with Japanese regulatory laws. (1)(9)(10) (NOTE: In Japan, asbestos waste can be melted and disposed of in a municipal solid waste landfill.) Verify that asbestos waste that is not melted is handled as follows: - pretreated by wetting and contained in double high-strength plastic bags or solidified in cement - labeled with the following in English and Japanese: DANGER CONTAINS ASBESTOS FIBERS AVOID CREATING DUST CANCER AND LUNG DISEASE HAZARD - disposed of in a GOJ-approved vault or impervious type landfill.

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-64. Installations must keep permanent records regarding disposal actions (FGS-Japan 15-3.12(c)).	Verify that permanent records are maintained that document the disposal action and site. (9)(10) (NOTE: FGS-Japan is written such that this requirement appears to apply only to unmelted asbestos that is disposed of in GOJ-approved vault or impervious type landfills. This checklist item is written with the broader recordkeeping requirements of the OEBGD in mind.)
JA.11-65. Active waste disposal sites where ACM is being disposed of should meet specific standards (MP).	Determine whether the installation operates a landfill where asbestos is being disposed of. (1)(2) Verify that there are no visible emissions from active asbestos-containing waste disposal sites, or that: - at the end of each operating day, or once in a 24-h period, the waste material is covered with either at least 15 cm (6 in.) of compacted non-ACM - a resinous or petroleum based dust suppression agent is applied (waste crankcase oil is not suitable for this purpose) - an approved alternative method of control is used. Verify that the waste is either properly covered daily by non-ACM or that proper warning signs and fences are installed and maintained as follows: - warning signs are displayed at all entrances at intervals of 100 m (330 ft) or less along the property line of the site or the perimeter of the section of the site where ACMs are disposed of and the signs state that the site contains asbestos and warn against creating dust - the area is adequately fenced. (NOTE: This requirement does not apply if a natural barrier exists that deters access by the general public.) Verify that a record is kept of the location, depth, and area of asbestos-containing waste on a map or diagram of the disposal area.
JA.11-66. Inactive waste disposal sites should meet specific standards (MP).	Verify that inactive waste disposal sites meet one of the following criteria: (1)(2) - no visible emissions are discharged - asbestos-containing waste material (ACWM) is covered with at least 15 cm (6 in.) of compacted non-ACM, and a vegetation cover is grown and maintained (in desert areas where vegetation is difficult to maintain, at least 8 cm (3 in.) of additional, well-graded, nonasbestos-containing crushed rock may be used instead) - the ACWM is covered with at least 60 cm (2 ft) of non-ACM, and the cover is maintained to prevent exposure.

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-66. (continued)	Verify that warning signs and a fence are installed to deter public access. (NOTE: This requirement does not apply if a natural barrier to public access exists.) Verify that easily legible warning signs are displayed at all entrances and at intervals of 100 m (330 ft) or less that indicate that the area is an asbestos waste disposal site. Verify that a procedure is in place to notify the administrator in writing at least 45 days prior to excavating or disturbing any ACWM at an inactive waste disposal site.
Asbestos in Schools	

JA.11-67. DOD Schools must meet specific requirements with regard to ACM (FGS-Japan 15-3.13).	Verify that both friable and nonfriable ACM have been identified in elementary and secondary schools. (8)(9)
	
	Verify that all suspect materials that are not confirmed to be ACM have been sampled.
	
	Verify that samples are analyzed using appropriate techniques.
	
	Verify that bilingual warning labels are attached immediately adjacent to any ACM in routine maintenance areas such as boiler rooms.
	
	Verify that an accredited DOD inspector has provided a written analysis of all friable, known, or assumed ACM in school buildings.
	
	Verify that appropriate response actions are selected and implemented in a timely manner to protect human health and the environment.
	
	Verify that all maintenance and custodial persons who may work in buildings that contain ACM receive awareness training regarding asbestos, its uses and forms, location in school buildings, and recognition of ACM.
	
	Verify that a master registry of ACM has been developed and maintained.
	
	Verify that the master registry details the following information:
	
	- location, condition, and status of identified ACM
	- records of O&M activities related to:
	  - asbestos training
	  - asbestos identification
	  - asbestos management
	  - asbestos removal
	  - asbestos abatement.
	
	Verify that each school has an asbestos management plan that includes all leased or owned facilities.

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
RADON MANAGEMENT **All Installations**	
JA.11-68. Determine actions or changes since previous review (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (1)(2)
JA.11-69. Copies of all relevant DOD directives/ instructions, USAF directives, and guidance documents should be maintained at the installation (MP).	Verify that copies of the following regulations are maintained and kept current at the installation: (1)(11) - *USFJ Final Governing Standards* (FGS-Japan), January 1995. Verify that the Base SJA reviews the documents annually for currency and completeness and submits the findings of the review to the Base Environmental Protection Committee.
JA.11-70. Installations must meet regulatory requirements issued since the finalization of the manual (a finding under this checklist item will have the citation of the new regulation as a basis of finding).	Determine whether new regulations concerning radon management have been issued since the finalization of the manual. (1)(2)(11) Verify that the installation is in compliance with newly issued regulations.
JA.11-71. Installations must prioritize their facilities for radon assessment and mitigation properly (FGS-Japan 16-3.1).	Verify that the installation has prioritized its facilities in accordance with the following list: (1)(2) - Priority 1: military family housing, day care centers, hospitals, schools, unaccompanied officers/enlisted quarters, confinement facilities, visiting officer/ enlisted quarters, and dormitories/barracks - Priority 2: administrative areas having 24-h operations - Priority 3: all other structures routinely occupied over 4 h/day.

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-72. Initial screening samples must be collected from facilities in accordance with a specific schedule (FGS-Japan 16-3.2).	Verify that the installation has collected initial screening samples from selected priority 1 facilities before 1 June 1995. (1)(2) (NOTE: Priority 2 and 3 facilities are not involved in the initial screening program.) Verify that the samples are collected according to a protocol that yields a statistically representative sample.
JA.11-73. Installations that have only Priority 2 and 3 facilities must conduct radon screening to obtain a statistically representative sample by 1 January 1996 (FGS-Japan 16-3.3).	Determine whether the installation has only Priority 2 and 3 buildings. (1)(2) Verify that radon screening is being carried out so that a sample is ready by 1 January 1996.
JA.11-74. Detailed testing for radon is required if any initial screening sample results indicate a radon concentration greater than 4 pCi/L [148 Bq/m^3] (FGS-Japan 16-3.4).	Verify that, if any initial screening sample shows a radon level greater than 4 pCi/L [148 Bq/m^3], 12-mo radon samples are collected from all Priority 1, 2, and 3 facilities. (1)(2)
JA.11-75. Installations must have a QA/QC program to ensure the validity of test results (FGS-Japan 16-3.6).	Verify that the installation has a QA/QC program to ensure the validity of radon test results. (1)(2) Verify that a system to check and document the condition of the radon detectors periodically is part of this QA/QC program.
JA.11-76. Installations must mitigate certain facilities according to a specific schedule (FGS-Japan 16-3.5).	Verify that the installation mitigates facilities that have radon levels above 4 pCi/L [148 Bq/m^3]. (1)(2) Verify that the radon mitigation of such facilities proceeds according to the schedule in Table 11-2.

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
JA.11-77. Installations must have postmitigation monitoring programs (FGS-Japan 16-3.8).	Verify that the installation has a postmitigation monitoring program to confirm and document the effectiveness of mitigation. (1)(2)
JA.11-78. Installations should maintain or have access to a database that will permanently capture all the information derived from the assessment and mitigation of radon (MP).	Verify that the installation maintains or has access to such a database. (1)(2) Verify that all pertinent radon information is contained in such a database.
JA.11-79. Installations must develop an information package on the potential health effects of radon and provide the information along with the test results to facility occupants (FGS-Japan 16-3.7).	Verify that the installation has developed an information packet on radon. (1)(2) Verify that the packet and the radon monitoring results are given to facility occupants upon assignment. (NOTE: FGS-Japan is written such that this requirement to provide information applies only to "occupants when they initially occupy military quarters." This checklist item is written with the broader informational requirements of the OEBGD in mind.)
LEAD-BASED PAINT (LBP) **All Installations**	
JA.11-80. Determine actions or changes since previous review (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (1)

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
JA.11-81. Copies of all relevant DOD and AF directive, and guidance documents should be maintained at the installation (MP).	Verify that copies of the following regulations are maintained and kept current at the installation: (1)(11) - *USFJ Final Governing Standards* (FGS-Japan), January 1995 - HQ USAF/CC Policy Letter, *Air Force Policy and Guidance on Lead Based Paint in Facilities*, 24 May 1993. Verify that the Base SJA reviews the documents annually for currency and completeness and submits the findings of the review to the Base Environmental Protection Committee.
JA.11-82. Installations must meet regulatory requirements issued since the finalization of the manual (a finding under this checklist item will have the citation of the new regulation as a basis of finding).	Determine whether any new regulations concerning LBP have been issued since the finalization of the manual. (1)(2)(11) Verify that the installation is in compliance with newly issued regulations.
JA.11-83. Installations must develop and implement a plan for identifying, evaluating, managing, and abating LBP hazards (HQ USAF/CC Policy Letter 24 May 1993, para 6).	Verify that the installation has a management plan that includes a strategy for: (1) - identifying, evaluating, controlling, and eliminating existing LBP hazards and preventing new hazards from developing - protecting facility occupants, especially children, and workers from LBP hazards - ensuring compliance with all applicable environmental protection requirements and all laws and regulations pertaining to LBP activities.

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-83. (continued)	Verify that the plan: - is an integral part of the installation's overall plan for inspecting, constructing, upgrading, repairing, maintaining, and demolishing the facility inventory - is based on local conditions and an evaluation of the health risk from LBP onbase that considers available information on the conditions of the facilities, the results of facility inspections and evaluations, and incidents of lead toxicity resulting from LBP - gives priority to finding and reducing or eliminating the risk of existing hazardous conditions in high-priority facilities - emphasizes in-place management to control existing hazards and reduce the risk of hazardous exposure to acceptable levels - considers abatement of LBP as part of the normal facility renovation and upgrade programs when it is cost-effective - ensures precautions and procedures are incorporated into all maintenance, repair, renovation, and upgrade activities that are performed in-house, by contract, or self-help and that disturb painted surfaces known or likely to contain lead.
JA.11-84. Installations must identify existing and potential LBP hazards in accordance with specific procedures (USAF/CC Policy Letter 24 May 1993, para 7).	Verify that, depending on local circumstances, one of the following is used to identify and evaluate existing and potential LBP hazards: (1) - evaluations of observations from routine facility inspections and activities such as walk-throughs by Public Health (PH), fire and safety inspections, inspections for family day care home licensing, and occupant reports of deteriorated paint - inspections and evaluations specifically designed to locate existing and potential LBP hazards so that appropriate measures can be taken to avoid hazardous lead exposures - facility investigations to determine the source of documented lead exposure. Verify that facility personnel who conduct routine inspections have been instructed to report signs of paint deterioration or children chewing on painted surfaces in high-priority facilities. Verify that there are procedures in place to document and respond to information reported from inspections and occupants concerning potential LBP problems and the resulting evaluations and actions.

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-84. (continued)	Verify that facility inspections that are done specifically to identify LBP problems meet the following requirements: - they are focused on high-priority facilities and areas within those facilities with painted surfaces in deteriorated condition - the evaluations are performed by a team consisting of PH and BES representatives or by a qualified contractor - reports of the data results and resulting actions are collected, consolidated, and analyzed by the Chief, Aerospace Medicine for reporting through AF medical channels - permanent records of facility evaluations are maintained by the BCE and/or BES.
JA.11-85. Installations must determine whether LBP is present prior to the start of facility maintenance, repair, modification, and renovation activities (HQ USAF/CC Policy Letter 24 May 1993, para 11).	Verify that the installation determines whether LBP is present prior to the start of maintenance, modification, or renovation activities. (1)(2) (NOTE: This requirement applies to high priority facilities and other facilities likely to contain lead.)
JA.11-86. Installations must restrict the use of LBP (USAF/CC Policy Letter 24 May 1993, para 12)	Verify that the installation does not use paint with more than 0.06 percent lead by weight of the nonvolatile solids. (1) (NOTE: This restriction applies to all facilities, both industrial and nonindustrial.)
JA.11-87. AF personnel who perform tests for LBP and work on painted surfaces must be trained (USAF/CC Policy Letter 24 May 1993, para 13).	Verify that at least one person from BCE has received USEPA certification. (1) Verify that all training is conducted by persons who have been trained at a USEPA-approved Regional Lead Training Center or an equivalent in-house training program presented by a certified trainer. (NOTE: The person from BCE who received USEPA certification may train other installation personnel on potential hazards and proper precautions.)

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COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.11-87. (continued)	Verify that a minimum level of training that includes the following is provided for all workers who perform tasks that disturb painted surfaces: - potential hazards of LBP (hazard communication) - work practices to reduce and control dust and debris - handling of debris - hygiene - cleanup procedures.
JA.11-88. Certain personnel must receive training beyond the minimum level (USAF/CC Policy Letter 24 May 1993, para 13).	Verify that the following personnel receive additional training in the requirements of the *Occupational Safety and Health Act* and those of the Department of Housing and Urban Development: (1) - personnel who perform larger jobs in which simple work practices will not reliably reduce or control dust - personnel who assist in LBP evaluations.
JA.11-89. All training related to LBP must be documented (USAF/CC Policy Letter 24 May 1993, para 13).	Verify that all training is documented in official personnel folders. (1)
JA.11-90. Installations must perform a Lead Toxicity Investigation (LTI) when children with elevated blood lead levels have been identified at the installation (USAF/CC Policy Letter, 24 May 1993, para 14).	Determine whether the installation has ever had a case of elevated levels of lead in the blood. (2) Verify that the LTI team consists of representatives from BCE, BES, PH, PAO, and SJA as needed. Verify that the installation conducted an LTI.

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Table 11-1

Summary of Likelihood of Lead-Based Paint Being Present and Regulation/Guidelines Which Normally Must Be Followed

(USAF/CC Policy Letter 24 May 1993)

High-Priority Facilities

Facility Type	LBP Likely	HUD	OSHA	RCRA	AIR
MFH/Day Care Home, Before 1980	Yes	Yes	Yes	Yes	No
MFH/Day Care Home, During/After 1980	No	Yes	No	No	No
Other High Priority Facilities Before 1980	Yes	Yes	Yes	Yes	No
Other High Priority Facilities During/After 1980, Ferrous Metal Surface	Yes*	Yes	Yes	Yes	No
Other High Priority Facilities, During/After 1980, Other Surfaces	No**	Yes	No	No	No

Other Facilities (Not High-Priority)

Facility Type	LBP Likely	HUD	OSHA	RCRA	AIR
Steel Structures	Yes	No	Yes	Yes	Yes
Industrials	Yes	No	Yes	Yes	No
Painted Yellow Pavement Markings	Yes	No	Yes	Yes	No
Nonindustrials, Ferrous Metal Surfaces	Yes*	No	Yes	Yes	No
Nonindustrials, During/After 1980, Other Surfaces	No**	No	No	No	No

* *Consumer Product Safety Act* (CPSA) restrictions uncertain but common practices favor lead present.

** CPSA restriction uncertain but common practices favor lead absent.

HUD - Housing and Urban Development Interim Guidelines

OSHA - Occupational Safety and Health Administration

RCRA - *Resource Conservation and Recovery Act*

(continued)

Table 11-1 (continued)

AIR - National Primary and Secondary Ambient Air Quality Standards

CPSA - *Consumer Product Safety Act*

(NOTE: Likelihood of finding LBP on a particular surface in a facility is based on when it was constructed (before 1980 or during/after 1980), applicability of CPSA restrictions on use of LBP, and common painting practices.)

(NOTE: Although LBP may not be likely, some precautions described in the HUD guidelines will normally be considered in high priority facilities since children are potentially at risk and there is some possibility the LBP is present.)

Table 11-2

Radon Mitigation Schedule

(FGS-Japan Table 16-1)

Radon Level (pCi/L)	Mitigation (to levels below 4 pCi/L) Within:
Greater than 200	1 mo of sample results or move occupants
200 or less, but greater than 20	6 mo of sample results
20 or less, but greater than 8	4 yr
8 or less, but greater than 4	5 yr
4 or less	No action required

Examples of radon detection devices:

- short-term radon detection devices:
  - charcoal cannister radon detection device, normally exposed for 2 to 7 days
  - short-term electorate-passive environmental radon monitor (E-PERM)
  - short-term electorate ion chamber radon detector (ES-EC)
- long term radon detection devices:
  - alpha-track detector (ATD), normally exposed for at least 3 mo, but preferably for a year
  - long-term electorate ion chamber radon detector (EL-EC)
  - long-term E-PERM.

INSTALLATION:	COMPLIANCE CATEGORY: TOXIC SUBSTANCES MANAGEMENT Japan ECAMP	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 12

WASTEWATER MANAGEMENT

Japan ECAMP

SECTION 12

WASTEWATER MANAGEMENT

A. Applicability of this Section

This section identifies regulations, responsibilities, and compliance requirements applicable to all wastewater management and discharge on Air Force (AF) installations, including activities and procedures involved in the collection, treatment, and discharge of wastewater.

The regulations, responsibilities, and compliance requirements associated with wastewater discharge at AF installations include, but are not limited to, the following examples:

- sanitary or industrial wastewater discharged directly to a receiving stream or through an onbase treatment facility
- sanitary or industrial wastewater discharge to an offbase publicly owned treatment works (POTW) or to a treatment plant of another Department of Defense (DOD) activity
- stormwater runoff from industrialized areas of the installation to a receiving stream or water body.

Most AF installations have wastewater discharge of one type or another; therefore, this section will be applicable to most installations.

The regulatory requirements in this section are based on DOD regulations and Air Force Instructions (AFIs) that apply at overseas installations. Management Practices (MPs) are derived from U.S. Environmental Protection Agency (USEPA) regulations that are not mandatory overseas but are important to preserve the health and safety of AF employees and protect the environment.

B. DOD Directives/Instructions

- *United States Forces-Japan (USFJ) Final Governing Standards* (FGS-Japan), January 199, Chapter 4 contains criteria to control and regulate discharges of wastewaters into surface waters. It also addresses domestic and industrial wastewater discharges and pollutants from indirect dischargers.

C. U.S. Air Force Documents

- AFI 32-1067, *Water Systems,* 25 March 1994, provides guidelines for managing water and wastewater systems at AF installations.

- AFI 48-119, *Medical Service Environmental Quality Program,* 25 July 1994, provides directive requirements for the Medical Service Environmental Quality Program and identifies responsibilities of participants in that program at AF installations.

- Air Force Manual (AFM) 91-32, *Operation and Maintenance of Domestic and Industrial Wastewater Systems,* specifies detailed operation and maintenance guidelines and requirements for treatment works on AF installations. In particular, requirements for maintenance of operating logs, maps, and records are specified in this AFM.

- HQ USAF/CE Letter, *Oil/Water Separators Operations, Maintenance, and Construction,* 21 October 1994, outlines requirements for the management of existing oil/water separators and the construction of new ones.

D. Responsibility for Compliance

- Training of operating personnel to meet proficiency levels consistent with the operator certification requirements that apply to their location is the responsibility of the BCE. The BCE is also responsible for monitoring compliance with, and reporting deviations from, minimum standards outlined in host nation wastewater discharge permits (or equivalents). The BCE's design departments are responsible for the design and construction of wastewater collection and treatment systems as needed on the installation.

- Bioenvironmental Engineering Services (BES) is responsible for monitoring wastewater discharge and streamwater quality at selected locations around the installation and for characterizing discharges.

- Individual Shop Supervisors and Superintendents are responsible for ensuring that the prohibited, unpermitted discharge of wastewater containing toxic or hazardous substances into sanitary or stormwater systems does not occur on the installation.

- The Water and Waste Shop within BCE is responsible for operating and maintaining sewer lines, pretreatment facilities, pump stations, oil/water separators, and other associated facilities around the installation and for taking timely and appropriate corrective actions when deficiencies are discovered.

E. Definitions

- *Average Daily Concentration* - the average of three measurements per day, including those at the start and the end of operation for the day. In the case of 24-h operation, three measurements, including one at night, are required (FGS-Japan 4-2).

- *Average Flow Rate* - wastewater flow rate measurements of once per day and more than three days per week are required to obtain an average flow rate. In the absence of flow meters at the wastewater treatment plant, average flow rate may be obtained from water intake rates of the water supply system (FGS-Japan 4-2 and 4-6).

- *Biological Oxygen Demand (BOD_5)* - the 5-day measure of the pollutant parameter biochemical oxygen demand, as measured in five days. It expresses the rate at which organisms use the oxygen in wastewater while stabilizing decomposable organic matter under aerobic conditions (FGS-Japan 4-2).

- *Chemical Oxygen Demand (COD)* - a measure of the oxygen consuming capacity of the organic matter present in wastewater (FGS-Japan 4-2).

- *Direct Discharge* - any discharge of pollutants to the public water areas from a domestic wastewater treatment plant (DWTP), an industrial wastewater treatment plant (IWTP), or from other than indirect discharges (FGS-Japan 4-2).

- *Discharge of a Pollutant* - the addition of any pollutant or combination of pollutants to the public water areas from any point source (FGS-Japan 4-2).

- *Domestic Wastewater Treatment Plant (DWTP)* - any DOD or host nation facility designed to treat wastewater before its discharge to the public water areas and in which the majority of such wastewater is made up of domestic sewage (FGS-Japan 4-2).

- *Effluent Limitation* - any restriction imposed on quantities, discharge rates, and concentrations of pollutants that are ultimately discharged from point sources into the public water areas (FGS-Japan 4-2).

- *Grab Sample* - a single sample taken from a specific point at a specific time (FGS-Japan 4-2).

- *Indirect Discharge* - the introduction of pollutants from specific facilities, process wastewater, or from other regulated facilities to a DWTP and associated collection system. There are two categories of indirect discharge: indirect discharge to a DOD DWTP and indirect discharge to a host nation DWTP (FGS-Japan 4-2).

- *Industrial Wastewater Treatment Plant (IWTP)* - any DOD facility designed to treat process wastewater before its discharge to the public water areas other than a DWTP (FGS-Japan 4-2).

- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *Maximum Daily Discharge Limitation* - the highest allowable daily discharge (FGS-Japan 4-2).

- *pH* - an abbreviation of the French term *pouvoir hydrogene*, literally 'hydrogen power.' It is a measure of the acidity or alkalinity of a solution. Mathematically, it is the negative log to the base 10 of the hydrogen ion concentration. In water, the pH values range from 0 (very acidic) to 14 (very alkaline) (FGS-Japan 4-2).

- *Point Source* - any discernible, confined, and discrete conveyance including, but not limited to, any pipe, ditch, channel, tunnel, conduit, well, discrete fissure, container, or rolling stock, but not including vessels, aircraft, or any conveyance that merely collects natural surface flows of precipitation (FGS-Japan 4-2).

- *Pollutant* - includes, but is not limited to, the following: dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal, and agricultural waste discharged into water (FGS-Japan 4-2).

- *Process Wastewater* - any water that, during manufacturing or processing, comes into direct contact with or results from the production or use of any raw material, intermediate product, finished product, by-product, or waste product (FGS-Japan 4-2).

- *Public Water Areas* - surface water areas, i.e., rivers, lakes, harbors, coastal areas, other water areas offered for public use, public water channels connected thereto, irrigation waterways and other public waterways, excluding municipal sewers and river basin sewers (FGS-Japan 4-2).

- *Regulated Facility* - a facility for which standards are established under FGS-Japan, Chapter 4, such as a DWTP, IWTP, or industrial discharges (FGS-Japan 4-2).

- *Stormwater Discharge* - discharge characterized by intermittent flow and due solely to a precipitation event (FGS-Japan 4-2).

- *Total Suspended Solids (TSS)* - the pollutant parameter for total filterable suspended solids (FGS-Japan 4-2).

WASTEWATER MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS: (a)
All Installations	JA.12-1 through JA.12-4	(1)(2)(5)
General	JA.12-5 through JA.12-18	(1)(2)(3)
Direct Discharges to Public Waters	JA.12-19 through JA.12-21	(2)(3)(4)
Discharges to DWTPs	JA.12-22 through JA.12-27	(1)(2)(3)(4)
Effluent Limitations	JA.12-28 through JA.12-31	(1)(2)
Oil/Water Separators	JA.12-32 through JA.12-34	(1)(4)
Training and Certification	JA.12-35 through JA.12-37	(3)

(a) CONTACT/LOCATION CODE:

(1) BCE (Environmental Planning)
(2) BES (Bioenvironmental Engineering Services)
(3) Wastewater Treatment Plant Superintendent
(4) BCE (Natural Resources Planner)
(5) Base Staff Judge Advocate

WASTEWATER MANAGEMENT

Records To Review

- Discharge monitoring reports for the past year
- Laboratory records and procedures
- Monthly operating reports for wastewater treatment facilities
- Flow monitoring calibration certification and supporting records
- Ash pond volume certification and supporting records
- Red water inspection records
- Spill Prevention, Control, and Countermeasures (SPCC) Plan
- All records required by SPCC
- Sewage treatment plant operator certification
- Sewer and storm drain layout
- Oil/water separator inventory
- Installation as-built drawings

Physical Features To Inspect

- Discharge outfall pipes
- Wastewater treatment facilities
- Industrial treatment facilities
- Streams, rivers, open waterways
- Floor and sink drains (especially in industrial areas)
- Stormwater collection points (especially in industrial areas)
- Oil storage tanks
- Oil/water separators

People To Interview

- BCE (Environmental Planning)
- BES (Bioenvironmental Engineering Services)
- Wastewater Treatment Plant Superintendent
- BCE (Natural Resources Planner)
- Base Staff Judge Advocate

COMPLIANCE CATEGORY: WASTEWATER MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
JA.12-1. Determine actions or changes since previous review (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (1)(2)
JA.12-2. Copies of all relevant DOD directives/ instructions, USAF directives, and guidance documents should be maintained at the installation (MP).	Verify that copies of the following regulations are maintained and kept current at the installation: (1)(5) - *USFJ Final Governing Standards* (FGS-Japan), January 1995 - AFI 48-119, *Medical Service Environmental Quality Program,* 25 July 1994 - AFI 32-1067, *Water Systems*, 25 March 1994 - AFM 91-32, *Operation and Maintenance of Domestic and Industrial Wastewater Systems,* 12 August 1988 - HQ USAF/CE Letter, *Oil/Water Separators Operations, Maintenance, and Construction,* 21 October 1994. Verify that the Base SJA reviews the documents annually for currency and completeness and submits the findings of the review to the Base Environmental Protection Committee.
JA.12-3. Installations must meet regulatory requirements issued since the finalization of the manual (a finding under this checklist item will have the citation of the new regulation as a basis of finding).	Determine whether any new regulations concerning water quality have been issued since the finalization of the manual. (1)(5) Verify that the installation is in compliance with newly issued regulations.
JA.12-4. Outside of the continental U.S. (OCONUS) installations must cooperate with foreign regulatory agencies (AFI 32-1067, para 14.1).	Verify that the installation cooperates with Japanese regulatory agencies, consistent with host nation agreements. (1)(2)

(1) BCE (Environmental Planning) (2) BES (Bioenvironmental Engineering Services) (3) Wastewater Treatment Plant Superintendent (4) BCE (Natural Resources Planner) (5) Base Staff Judge Advocate

COMPLIANCE CATEGORY: WASTEWATER MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
GENERAL	
JA.12-5. Flow measurements should be obtained from flow measurement devices. (MP)	Verify that flow measurement devices are used to obtain flow measurements. (1)(3) (NOTE: In the absence of flow meters, average flow rate may be obtained from water intake rates of the water supply system. The method of estimation should be documented.) (NOTE: This is MP suggested by FGS-Japan 4-6.)
JA.12-6. Installations must use USEPA analytical methodology to demonstrate compliance with wastewater criteria (FGS-Japan 4-1.2).	Verify that the installation uses USEPA analytical methodology to demonstrate compliance with wastewater criteria. (2)(3)
JA.12-7. Whenever possible the collection of samples from a point of entry into Japanese public waters should be coordinated with local host nation agencies (FGS-Japan 4-1.3).	Verify that, whenever possible, the installation coordinates the collection of samples from a point of entry into Japanese public waters with local host nation agencies to ensure that comparable samples are drawn. (2)(3)
JA.12-8. BES must conduct periodic evaluations of the treatment works' compliance with applicable standards (AFI 32-1067, para 4.4).	Verify that BES conducts periodic evaluations of compliance with applicable standards. (2)
JA.12-9. BES must characterize and monitor certain discharges for compliance (AFI 48-119, para 9.4.1).	Verify that BES performs stormwater, point and nonpoint ambient water discharge and injection well discharge (groundwater) characterization and compliance monitoring. (2)

(1) BCE (Environmental Planning) (2) BES (Bioenvironmental Engineering Services) (3) Wastewater Treatment Plant Superintendent (4) BCE (Natural Resources Planner) (5) Base Staff Judge Advocate

COMPLIANCE CATEGORY: WASTEWATER MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.12-10. BES must develop and maintain stream emission inventories (AFI 48-119, para 9.4.1).	Verify that BES develops and maintains stream emission inventories. (2)
JA.12-11. BES must permanently identify all environmental monitoring points and maintain a master record of all locations (AFI 48-119, para 9.4.1).	Verify that BES has permanently identified all environmental monitoring points. (3) Verify that BES maintains a master record of all locations.

JA.12-12. Major treatment works must have plant-specific O&M manuals (AFI 32-1067, para 7.3.1).	Verify that the installation's major treatment works have plant-specific O&M manuals. (3)
	
	(NOTE: Domestic and industrial wastewater treatment plants are the primary facilities covered by this instruction.)
	
	Verify that, if the facilities are present on the installation, plant-specific manuals address the following areas of concern:
	
	- metal finishing and electroplating
	- vehicle and aircraft wash facilities
	- aircraft maintenance
	  - paint stripping
	  - nondestructive inspection
	  - painting
	  - solvent cleaning
	- battery shops
	- photo labs
	- hospitals
	- aircraft deicing
	- fire training.
	
	Verify that plant-specific manuals address the proper operation and maintenance of oil/water separators and lift stations.

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COMPLIANCE CATEGORY: WASTEWATER MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.12-13. Specific physical facility information must be developed, maintained, and kept available at treatment facilities (AFI 32-1067, para 10.2).	Verify that the following information is developed, maintained, and kept available at the treatment facilities: (1)(3) - required plant-specific O&M manuals and applicable AF publications - system operating instructions with single-line drawings, including operational and compliance monitoring procedures - up-to-date system as-built drawings along with other system plans and blueprints, including hydraulic water elevation profiles and a drawing of the entire collection and distribution systems - shop drawings, catalogue cuts, and any other equipment information or literature.
JA.12-14. Installations must develop and maintain effective maintenance plans that address specific topics (AFI 32-1067, para 10.3).	Verify that the installation develops and maintains effective maintenance plans that include: (1) - a recurring work schedule - a maintenance history for each major piece of equipment - an essential spare parts list, with spare parts stocked at the treatment facility or other accessible location - a long-range maintenance and improvement plan.
JA.12-15. Installations must meet specific requirements with respect to water pollution complaints from local and national host nation authorities (FGS-Japan 4-1.4).	Verify that, whenever possible, the installation resolves water pollution complaints at the local level. (1)(3) (NOTE: COMUSJAPAN acts as the interface between the U.S. Government and the government of Japan (GOJ) for water pollution complaints from local and national host nation authorities.) Verify that COMUSJAPAN is informed of any complaint, regardless of whether or not it is resolved locally. Verify that COMUSJAPAN is informed of any significant incident involving violation of the standards listed in FGS-Japan, Chapter 4.

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COMPLIANCE CATEGORY: WASTEWATER MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**

JA.12-16. Activities or installations that have a significant potential for spills or batch discharges must develop a slug prevention plan (FGS-Japan 4-4.7).	Verify that the plan contains the following, at a minimum: (2)(3)
	
	- a description of discharge practices, including nonroutine batch discharges
	- a description of stored chemicals
	- a plan for immediately notifying the DWTP of slug discharges and discharges that would violate prohibitions under FGS-Japan, Chapter 4, including the contents and quantities of the slug and procedures for subsequent written notification to Headquarters/J42E within 5 days
	- necessary practices to prevent accidental spills, including:
	  - proper inspection and maintenance of storage areas
	  - handling and transfer of materials
	  - loading and unloading operations
	  - control of plant site runoff
	  - worker training
	- proper procedures for building containment structures or equipment
	- necessary measures to control toxic organic pollutants and solvents
	- proper procedures and equipment for emergency response and any subsequent plans needed to limit damage to the treatment plant or the environment.

JA.12-17. Operators of treatment works must prepare pollution control logs (AFI 32-1067, para 10.1.2).	Verify that operators prepare the following forms: (3) - AF Form 1462, *Water Pollution Control Utility Operating Log (General)* - AF Form 1463, *Water Pollution Control Plant Operating Log--Supplementary.*
JA.12-18. Installations must comply with specific requirements concerning the disposal of sludge produced during the treatment of wastewater (FGS-Japan 4-7).	Verify that all sludge produced during the treatment of wastewater is disposed properly in accordance with the requirements of FGS-Japan, Chapter 6, *Hazardous Waste*, or Chapter 7, *Solid Waste*, as appropriate. (3) (NOTE: See Sections 4 and 9 of this manual.)

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COMPLIANCE CATEGORY: WASTEWATER MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
DIRECT DISCHARGES TO PUBLIC WATERS	(NOTE: Stormwater discharge is not subject to these requirements.) (NOTE: The water pollution effluent standards are based on the discharge volume and the nature of the wastewater.)
JA.12-19. Installations must meet specific requirements with regard to direct discharges to public waters (FGS-Japan 4-3.1).	Verify that discharge from DWTPs is monitored quarterly for the items in Table 12-1. (2)(3) Verify that discharge from DWTPs is monitored for the parameters in Table 12-2 on variable time cycles based on the discharge volume in Table 12-3. Determine whether any portion of the total discharge volume is derived from non-domestic sources, from process wastewater, or from the wastewater from an IWTP. Verify that, in addition to the parameters in Tables 12-1 and 12-2, the parameters in Table 12-4 are monitored quarterly.
JA.12-20. Samples of wastewater discharges should be processed using proper collection, testing, and shipping procedures (MP).	Verify that, for wastewater sampling: (2)(3) - proper sample containers are used - samples are refrigerated during compositing - proper preservation techniques are used.
JA.12-21. Installations with live fire training facilities that are connected to onsite wastewater treatment plants should discharge the effluent gradually to avoid adverse impact on the wastewater treatment plants (MP).	Verify that there is an effective fuel and water separator. (4) Verify that the fuel and water separator are being properly maintained. Verify that there are self-monitoring reports on fuel and water separators. Verify that wastewater treatment plant discharge is in compliance with permit requirements. Verify that the fuel used for fire training is free from contaminants that can cause adverse environmental impact.

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COMPLIANCE CATEGORY: WASTEWATER MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
DISCHARGES TO DWTPs	(NOTE: These and the following effluent limitations apply to all discharges of pollutants to DWTPs and associated collection systems.) (NOTE: Monitoring requirements for indirect discharge into a DOD-operated DWTP or IWTP are determined by the individual services or at the discretion of the IC.)
JA.12-22. Installations must monitor indirect discharge into a Japanese DWTP or IWTP quarterly and comply with specific effluent limits (FGS-Japan 4-3.2(b)).	Determine whether the installation makes indirect discharges to a Japanese DWTP or IWTP. (1) Verify that the installation monitors its indirect discharges to a Japanese DWTP or IWTP quarterly. Verify that the installation complies with the effluent limits in Table 12-5.
JA.12-23. Installations must develop a base standard wastewater treatment procedure to govern the discharge of industrial and nondomestic waste to the sanitary system by generating activities (AFI 32-1067, para 7.3.2).	Verify that the installation has a base standard wastewater treatment procedure to govern the discharge of industrial and nondomestic waste to the sanitary system by generating activities. (1)(3) Verify that BCE outlines procedures for discharging industrial wastes to the sanitary system. Verify that the procedures describe the following: - pretreatment requirements - discharge procedures - effluent limitations for industrial waste. (NOTE: The base commander or the municipal wastewater authority can impose these requirements.) Verify that generators follow the instructions given by BCE.
JA.12-24. Generators must use pollution control techniques to minimize pollutant discharges (AFI 32-1067, para 7.3.2).	Verify that generators of discharges minimize the discharge of pollutants using the pollution control techniques in AFI 32-7080. (1)(3) (NOTE: See the pollution prevention subsection of Section 6, *Other Environmental Issues*.)
JA.12-25. Installations must not discharge certain materials into a treatment works (FGS-Japan 4-4.1 through 4-4.6 and 4-4.8).	Verify that there is no discharge of solid or viscous pollutants that would result in an obstruction to the DWTP flow. (1)(2)(3) Verify that the installation does not discharge oil or grease that can pass through or cause interference to a DWTP. Verify that trucked or hauled waste is not discharged into the DWTP.

(1) BCE (Environmental Planning) (2) BES (Bioenvironmental Engineering Services) (3) Wastewater Treatment Plant Superintendent (4) BCE (Natural Resources Planner) (5) Base Staff Judge Advocate

COMPLIANCE CATEGORY: WASTEWATER MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.12-25. (continued)	(NOTE: DWTPs may specify locations at which trucked and hauled waste may be discharged; the prohibition on discharge of such waste does not apply at such locations.) Verify that no pollutants with any of the following characteristics are discharged: (1)(3) - wastewater with a closed cup flashpoint of less than 60 °C (140 °F) - liquid waste solutions that contain more than 24 percent alcohol by volume with a flash point less than 60 °C (140 °F) - nonliquid wastes which, under standard temperature and pressure, can cause a fire through friction - ignitable compressed gases - oxidizers, such as peroxide. Verify that no pollutant that has the potential to be structurally corrosive is discharged to the DWTP. Verify that no wastewater with a pH lower than 5.0 is discharged to the DWTP. (NOTE: This prohibition does not apply if the treatment facilities and collecting systems are specifically designed to handle such wastewater.) Verify that the following types of waste are not discharged: - wastes that are normally unstable and readily undergo violent changes without detonating - wastes that react violently with water - wastes that form explosive mixtures with water or form toxic gases or fumes when mixed with water - cyanide or sulfide wastes that can generate potentially harmful toxic fumes, gases, or vapors - wastes capable of detonation or explosive decomposition or reaction at standard temperature and pressure - wastes that contain explosives with hazardous material characteristics - wastes that produce any toxic fumes, vapors, or gases with the potential to cause safety problems or harm to persons or animals.
JA.12-26. Hazardous waste must not be discharged to the collection system (AFI 32-1067, para 7.3.2).	Verify that no hazardous waste is discharged to the collection system. (1)(3)

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COMPLIANCE CATEGORY: WASTEWATER MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
JA.12-27. Installations should periodically survey stormwater discharge (MP).	Verify that the installation's stormwater discharges are uncontaminated. (1)(2)(4) (NOTE: The following sites or activities, and records related to them, may reveal problems with stormwater discharges: - the storm sewer system, its outfalls and discharge points - major industrial shops or areas, such as the following: - battery shop - corrosion control - engine shop - motor pool - paint shop - plating shop - petroleum, oil, and lubricant (POL) area.) (NOTE: Signs of contamination include oil sheen, discoloration, etc.) Verify that any oil/water separators connected to the storm sewer on the installation are operating properly.
EFFLUENT LIMITATIONS	
JA.12-28. New and existing electroplating facilities that directly or indirectly discharge less than 38,000 L/day (10,000 gal/day) must meet specific standards (OEBGD, Chapter 4, Criterion 1(a)(viii)).	Verify that the following standards are met: (1)(2)

Pollutant	Daily Maximum (mg/L)	4-day Average (mg/L)
Cyanide, amenable	5.0	2.7
Lead	0.6	0.4
Cadmium	1.2	0.7
TTO	4.57	---

(NOTE: See Table 12-6 for a list of components of TTOs.)

(1) BCE (Environmental Planning) (2) BES (Bioenvironmental Engineering Services) (3) Wastewater Treatment Plant Superintendent (4) BCE (Natural Resources Planner) (5) Base Staff Judge Advocate

COMPLIANCE CATEGORY: WASTEWATER MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
JA.12-29. New and existing electroplating facilities that directly or indirectly discharge more than 38,000 L/day (10,000 gal/day) must meet specific standards (OEBGD, Chapter 4, Criterion 1(a)(ix)).	Verify that the following standards are met: (1)(2) Pollutant — Daily Maximum (mg/L) — 4-day Average (mg/L) Cyanide, total — 1.9 — 1.0 Copper — 4.5 — 2.7 Nickel — 4.1 — 2.6 Chrome — 7.0 — 4.0 Zinc — 4.2 — 2.6 Lead — 0.6 — 0.4 Cadmium — 1.2 — 0.7 Total Metals — 10.5 — 6.8 TTO — 2.13 — ---
JA.12-30. New and existing facilities that electroplate precious metals and that directly or indirectly discharge 38,000 L/day (10,000 gal/day) or more must meet additional standards (OEBGD, Chapter 4, Criterion 1(a)(x)).	Verify that the following standards are met: (1)(2) Pollutant — Daily Maximum (mg/L) — 4-day Average (mg/L) Silver — 1.2 — 0.7
JA.12-31. Industrial dischargers must monitor effluents quarterly (OEBGD, Chapter 4, Criterion 1(b)).	Verify that monitoring is carried out quarterly and that all the appropriate parameters are analyzed. (1)(2) Verify that samples are collected at the point of discharge after treatment but prior to any mixing with the receiving water. (NOTE: Monitoring includes both sampling and analysis.) (NOTE: Sampling for TTO can be avoided if the commanding officer determines that no discharge of concentrated toxic organics into the wastewaters has occurred and the facility has implemented a TTO management plan.)

(1) BCE (Environmental Planning) (2) BES (Bioenvironmental Engineering Services) (3) Wastewater Treatment Plant Superintendent (4) BCE (Natural Resources Planner) (5) Base Staff Judge Advocate

COMPLIANCE CATEGORY: WASTEWATER MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
OIL/WATER SEPARATORS	
JA.12-32. Existing oil/water separators must be managed in accordance with specific requirements (HQ USAF/CE Oil/Water Separator Letter).	Verify that the installation has developed and implemented a plan to assess the need for and effectiveness of existing oil/water separators. (1)(4) (NOTE: The goal of the assessment/evaluation is to consolidate or eliminate ineffective units.) Verify that an inventory of all oil/water separators has been conducted that identifies: - all sources of pollutants being discharged from the individual shops connected to each separator - the mode of discharge (e.g., to storm sewer, sanitary sewer, septic tank, or direct discharge to the waters of the host nation). (NOTE: For the purposes of this inventory, oil/water separators include on-line oil and grease/fuel traps and small oil/water separators outside of hangers, corrosion control facilities, fuel transfer/storage operations, AGE equipment maintenance shops, wash racks, etc. Mode of discharge includes discharge to storm sewer, septic tank, or direct discharge to the waters of the host nation.) Verify that the separators are identified on the installation as-built drawings. Verify that the drawings are updated as changes occur.
JA.12-33. Installations must operate and maintain oil/water separators in accordance with specific requirements (HQ USAF/CE Letter of 21 October 1994).	Verify that oil/water separator sludge is removed and tested regularly prior to disposal to ensure compliance with sludge disposal requirements. (1) Verify that the discharge of wastewater that contains hazardous wastes and heavy metals from industrial operations is prohibited. Verify that, if sludge is hazardous, immediate action is taken to identify and eliminate sources of hazardous pollutants. Verify that, if sludge is disposed of as a hazardous waste, the wastewater is retested to ensure compliance. Verify that there is a primary office of responsibility that understands and has direct control over respective functions. (NOTE: This primary office of responsibility would be a functional organization for the management of pollutants discharged and CE for maintenance of oil/water separators.)

(1) BCE (Environmental Planning) (2) BES (Bioenvironmental Engineering Services) (3) Wastewater Treatment Plant Superintendent (4) BCE (Natural Resources Planner) (5) Base Staff Judge Advocate

COMPLIANCE CATEGORY: WASTEWATER MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.12-33. (continued)	Verify that sources discharging to oil/water separators take the following actions: - institute dry cleanup procedures - floor drains are used to carry only residual amounts of floating petroleum pollutants - plug floor drains to oil/water separators that carry industrial wastewater from shops.
JA.12-34. The construction of new oil/water separators is restricted (HQ USAF/CE Letter of 21 October 1994).	Verify that no new separators are built either through Real Property Maintenance or Military Construction projects until the effectiveness of existing separators has been evaluated and a consolidated program has been established. (1) Verify that new separators have a double liner with a leak detection system, including associated oil tanks. Verify that no gravity separators are built for wastewater that contains any of the following: - emulsified petroleum residuals - aqueous film forming foam releases - other nonfloating pollutants from industrial operations. Verify that waste streams that are discharged to sewer systems are not mixed.
TRAINING AND CERTIFICATION	
JA.12-35. Personnel engaged or employed in the operation and maintenance of wastewater facilities must meet the certification/training requirements developed by COMUSJAPAN (FGS-Japan 4-5).	Verify that all personnel engaged or employed in the operation and maintenance of wastewater facilities meet the certification/training requirements developed by COMUSJAPAN. (3)

(1) BCE (Environmental Planning) (2) BES (Bioenvironmental Engineering Services) (3) Wastewater Treatment Plant Superintendent (4) BCE (Natural Resources Planner) (5) Base Staff Judge Advocate

COMPLIANCE CATEGORY: WASTEWATER MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.12-36. Operators of wastewater treatment plants must meet training requirements (AFI 32-1067, para 8.1).	Verify that new operators receive classroom training and extensive supervised on-the-job training before being assigned to critical tasks. (3) Verify that experienced personnel receive technical refresher courses and upgrade training. (NOTE: Training requirements may be met by one of the following means: - AF training available through technical schools, career development correspondence courses, and on-the-job training - civilian training courses available at educational institutions, government agencies, and professional and technical associations - correspondence courses from accredited institutions for operators in areas that do not have local resident courses.)
JA.12-37. Supervisors at wastewater treatment plants must meet specific requirements with regard to safety training for all employees (AFI 32-1067, para 9).	Verify that all employees are familiar with the safety instructions in the following documents, as applicable: (3) - AFM 91-32, *Operation and Maintenance of Domestic and Industrial Wastewater Systems* - Air Force Occupational Safety and Health Standard (AFOSH STD) 127-10, *Civil Engineering* - AFOSH STD 127-25, *Confined Spaces* - AFOSH STD 161-21, *AF Hazard Communication Standard.* Verify that the supervisor maintains current BES baseline and annual industrial hygiene survey reports. (NOTE: The supervisor should use these reports to train workers on occupational health hazards.) Verify that supervisors make safety instructions readily available to all operating personnel. Verify that supervisors train facility personnel on safety procedures and equipment and enforce their proper use at all times. (NOTE: Once trained, individual workers are personally responsible for following safe procedures.)

(1) BCE (Environmental Planning) (2) BES (Bioenvironmental Engineering Services) (3) Wastewater Treatment Plant Superintendent (4) BCE (Natural Resources Planner) (5) Base Staff Judge Advocate

Table 12-1

Fixed Quarterly Monitoring Requirement Standards for All Direct Discharge Wastewater Flows

(FGS-Japan Table 4-1)

Parameter	Unit	Allowable Limits
Phenol	mg/L	5
Copper	mg/L	3
Zinc	mg/L	5
Iron	mg/L	5
Manganese	mg/L	10
Chromium	mg/L	2
Fluorine Compounds	mg/L	15
Coliform Colony	PC/cm^3	(3000)

Allowable limits outside parenthesis are for a grab sample; values inside parenthesis are for daily average.

Table 12-2

Variable Frequency Monitoring Requirement (See Table 12-3)
Effluent Standards for All Direct Discharge Wastewater Flows
(FGS-Japan Table 4-2)

Indicators	Unit	Allowable Limits
pH		
Sea areas	pH units	5 - 9
Other areas		5.8 - 8.6
BOD_5		
Seas and lakes	mg/L	N/A
Other areas		160 (120)
COD		
Seas and lakes	mg/L	160 (120)
Other areas		N/A
TSS	mg/L	200 (150)
Normal hexane extracts		
Mineral oil	mg/L	5
Animal and vegetable fat		30
Nitrogen	mg/L	120 (60)
Phosphorus	PC/cm^3	16 (8)

Allowable limits outside parenthesis are for a grab sample; values inside parenthesis are for daily average.

Table 12-3

Monitoring Frequency for Table 12-2

(FGS-Japan Table 4-3)

Plant Capacity	Monitoring Frequency
3000 m^3/day or more	Once a week
1000 m^3/day or more but less than 3000 m^3/day	Once every 2 weeks
500 m^3/day or more but less than 1000 m^3/day	Once a month
Less than 500 m^3/day	Once a quarter

Table 12-4

Monitoring Requirement Effluent Standards (Hazardous Substances) for Direct Discharge from Non-domestic Sources Including Industrial Wastewater Treatment Plants

(FGS-Japan Table 4-4)

Substances	Allowable Limit for Grab Sample (mg/L)
Cadmium	0.1
Cyanogen	1
Organic Phosphorus Compounds	1
Lead	0.1
Chromium (VI)	0.5
Arsenic	0.5
Total Mercury	0.005
Alkyl mercury compounds	not detected
PCB	0.003
Trichloroethylene	0.3
Tetrachloroethylene	0.1
Dichloromethane	0.2
Carbon tetrachloride	0.02
1,2-dichloroethane	0.04
1,1-dichloroethylene	0.2
cis-1,2-dichloroethylene	0.4
1,1,1-trichloroethane	3
1,1,2-trichloroethane	0.06
1,3-dichloropropane	0.02
Thiuram	0.06
Simazine	0.03
Thiobencarb	0.2
Benzene	0.1
Total selenium	0.1

Table 12-5

Effluent Limits of Indirect Dischargers

(FGS-Japan Table 4-5)

Substance or Item	Effluent Limits
pH	5 to 9
BOD_5	600 mg/L
TSS	600 mg/L
Normal hexane extracts:	
Mineral oil	5 mg/L
Animal and vegetable fat	30 mg/L

Allowable limits are for a grab sample.

Table 12-6

Components of Total Toxic Organics

(OEBGD Table 4-1)

Volatile Organics
Acrolein (Propenyl)
Acrylonitrile
Methyl chloride (chloromethane)
Methyl bromide (bromomethane)
Vinyl chloride (chloroethylene)
Chloroethane
Methylene chloride (dichloromethane)
1,1-Dichloroethene
1,1-Dichloroethane
1,2-Dichloroethane
1,2-trans-Dichloroethene
Chloroform (trichloromethane)
1,1,1-Trichloroethane
Carbon tetrachloride (tetrachloromethane)
Bromodichloromethane
1,1,2,2-Tetrachloroethane
1,2-Dichloropropane
1,3-Dichloropropylene (1,3-Dichloropropene)
Trichloroethene
Diromochloromethane
1,1,2-Trichloroethane
Benzene
2-Chloroethyl vinyl ether (mixed)
Bromoform (tribromomethane)
Tetrachloroethene
Toluene
Chlorobenzene
Ethylbenzene
Base/Neutral Extractable Organics
N-nitrosodimethylamine
bis (2-chloroethyl) ether
1,3-Dichlorobenzene

(continued)

Table 12-6 (continued)

1,4-Dichlorobenzene
1,2-Dichlorobenzene
bis (2-chloroisopropyl)-ether
Hexachloroethane
N-nitrosodi-n-propylamine
Nitrobenzene
Isophorone
bis (2-chloroethoxy) methane
1,2,4-trichlorobenzene
Naphthalene
Hexachlorobutadiene
Hexachlorocyclopentadiene
2-Chloronaphthalene
Acenaphthylene
Dimethyl Phthalate
2,6-Dinitrotoluene
Acenaphthene
2,4-Dinitrotoluene
Fluorene
4-Chlorophenyl phenyl ether
Diethyl phthalate
1,2-Diphenylhydrazine
N-nitrosodiphenylamine
4-Bromophenyl phenyl ether
Hexachlorobenzene
Phenanthrene
Anthracene
Di-n-butyl phthalate
Fluoranthene
Pyrene
Benzidine
Butyl benzyl phthalate
1,2-benzoanthracene (benzo (a) anthracene)
Chrysene
3,3-Dichlorobenzidine
bis (2-ethylhexyl) phthalate
Di-n-octyl phthalate
3,4-Benzofluoranthene (benzo (b) fluoranthene)

(continued)

Table 12-6 (continued)

11,12-Benzofluoranthene (benzo (k) fluoranthene)
Benzo (a) pyrene (3,4-benzopyrene)
Indeno (1,2,3-cd) pyrene (2,3-phenylene pyrene)
1,2,5,6-Dibenzanthracene (dibenezo (a,h) anthracene)
1,12-Benzoperylene (benzo (g,h,i) perylene)
Acid Extractables Organics
2-Chlorophenol
Phenol
2-Nitrophenol
2,4-Dimethylphenol
2,4-Dichlorophenol
4,6-Dinitro-o-cresol
2,4,6-Trichlorphenol
2,4-Dinitrophenol
4-Nitrophenol
p-Chloro-m-cresol
Pentachlorophenol
Pesticides/PCBs
Alpha-Endosulfan
Beta-Endosulfan
Endosulfan sulfate
Alpha-BHC
Beta-BHC
Delta-BHC
Gamma-BHC
4,4-DDT
4,4-DDE (p,p-DDX)
4,4-DDD (p,p-TDE)
Aldrin
Chlordane (technical mixture and metabolites)
Dieldrin
Endrin
Endrin aldehyde
Heptachlor
Heptachlor Epoxide (BHC-hexachlorocyclohexane)
Toxaphene

(continued)

Table 12-6 (continued)

PCB-1242 (Arochlor 1242)
PCB-1254 (Arochlor 1254)
PCB-1221 (Arochlor 1221)
PCB-1232 (Arochlor 1232)
PCB-1248 (Arochlor 1248)
PCB-1260 (Arochlor 1260)
PCB-1016 (Arochlor 1016)
2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD)

INSTALLATION:	COMPLIANCE CATEGORY: WASTEWATER MANAGEMENT Japan ECAMP	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		

SECTION 13

WATER QUALITY MANAGEMENT

Japan ECAMP

SECTION 13

WATER QUALITY MANAGEMENT

A. Applicability of this Section

This section identifies regulations, responsibilities, and compliance requirements applicable to water use and management on Air Force (AF) installations, including activities and procedures involved in the collection, treatment, storage, and distribution of drinking water.

All AF installations have potable water issues of one sort or another; therefore, this section will be applicable to most installations.

The regulatory requirements in this section are based on DOD regulations and Air Force Regulations (AFRs) and Air Force Instructions (AFIs) that apply at overseas installations. Management Practices (MPs) are derived from U.S. Environmental Protection Agency (USEPA) regulations that are not mandatory overseas but are important to preserve the health and safety of AF employees and protect the environment.

B. DOD Directives/Instructions

- *United States Forces-Japan (USFJ) Final Governing Standards* (FGS-Japan), January 1995, Chapter 3, addresses standards for potable water and the management of a drinking water facility.

C. U.S. Air Force Documents

- AFR 91-26, *Maintenance and Operation of Water Supply, Treatment, and Distribution Systems,* 30 August 1984, provides guidance for personnel who maintain and operate water supply, treatment, and distribution systems on AF installations.

- AFI 32-1066, *Plumbing Systems,* 4 May 1994, provides guidance for personnel who maintain and operate plumbing systems on AF installations.

- AFI 32-1067, *Water Systems,* 25 March 1994, provides guidelines for managing water and wastewater systems at U.S. AF bases.

- Headquarters (HQ) USAF/SG Policy Letter, *Water Testing in Child Development Centers (CDCs),* 21 October 1992, provides guidelines for monitoring drinking water at AF CDCs.

D. Responsibility for Compliance

- The Base Civil Engineer (BCE) designs, constructs, and operates the water supply system to provide sufficient drinking water to installation personnel. The BCE is responsible for providing adequate water treatment to assure that drinking water does not exceed the maximum contaminant levels established for human consumption. Training of operating personnel to meet proficiency levels consistent with the operator certification requirements that apply to their location is also the responsibility of the BCE. The BCE maintains an up-to-date map of the complete potable water system, makes

repairs, and maintains the systems. The BCE is also responsible for negotiating and maintaining the base's water supply contract.

- The Director of Base Medical Services, through BES, is responsible for proper sample collection from drinking water systems at AF installations and for determining compliance with drinking water standards.

E. Definitions

- *Action Level* - the concentration of lead or copper that cannot be exceeded in water; it determines what kind of treatment will be required for a water system (FGS-Japan 3-2).

- *Approved* - in the context of backflow prevention, 'approved' means that the International Association of Plumbing and Mechanical Officials (IAPMO) laboratory has tested the product and that it meets their standards. IAPMO-approved products carry an attached or imprinted IAMPO seal of approval. BCE can, with Major Command (MAJCOM) coordination, approve the installation of a new product or device not yet approved by IAPMO, but BCE must ensure that it will safely satisfy the intended purpose (AFI 32-1066, para 12.4).

- *Community Water System (CWS)* - a public water system that serves at least 15 service connections used by year-round residents or that regularly serves at least 25 year-round residents (FGS-Japan 3-2).

- *Compliance Cycle* - the 9-yr calendar year cycle during which public water systems must monitor water quality. Each compliance cycle consists of three 3-yr compliance periods. The Executive Agent (EA) determines when to start the initial compliance period (FGS-Japan 3-2).

- *Compliance Period* - a 3-yr calendar year period within a compliance cycle. Each compliance cycle has three 3-yr compliance periods. The EA determines when to start the initial compliance period (FGS-Japan 3-2).

  (NOTE: FGS-Japan 3-3.5 specifies that the first 3-yr compliance period began 1 October 1995.)

- *Contaminant* - any physical, chemical, biological, or radiological substance or matter in water (FGS-Japan 3-2).

- *Disinfectant* - any oxidant, including but not limited to, chlorine, chlorine dioxide, chloramines, and ozone, added to water in any part of the treatment or distribution process, that is intended to kill or inactivate pathogenic microorganisms (FGS-Japan 3-2).

- *Disinfection* - a process that inactivates pathogenic organisms in water by chemical oxidants or equivalent agents (FGS-Japan 3-2).

- *Domestic or Other Non-Distribution System Plumbing Problem* - a coliform contamination problem in a public water system with more than one service connection that is limited to the specific service connection from which the coliform-positive sample was taken (FGS-Japan 3-2).

- *Dose Equivalent* - the product of the absorbed dose from ionizing radiation and such factors as account for differences in biological effectiveness due to the type of radiation and its distribution in the body as specified by the International Commission on Radiological Units and Measurements (ICRU) (FGS-Japan 3-2).

- *First Draw Sample* - a 1 L [0.26 gal] sample of tap water, collected in accordance with the requirements of FGS-Japan 3-3.2(d), that has been standing in plumbing at least 6 h and is collected without flushing the tap (FGS-Japan 3-2).

- *Gross Alpha Particle Activity* - the total radioactivity due to alpha particle emission as inferred from measurements on a dry sample (FGS-Japan 3-2).

- *Gross Beta Particle Activity* - the total radioactivity due to beta particle emission as inferred from measurements on a dry sample (FGS-Japan 3-2).

- *Groundwater Under the Direct Influence of Surface Water (GWUDISW)* - any water below the surface of the ground with (FGS-Japan 3-2):
    1. significant occurrence of insects or other macro-organisms, algae, or large-diameter pathogens such as *Giardia lamblia*
    2. significant and relatively rapid shifts in water characteristics such as turbidity, temperature, conductivity, or pH that closely correlate to climatological or surface water conditions.

  (NOTE: Direct influence must be determined for individual sources in accordance with criteria established by the EA. The EA's determination of direct influence may be based on site-specific measurements of water quality and/or documentation of well construction characteristics and geology with field evaluation.)

- *Initial Compliance Period* - the first full 3-yr compliance period that begins after FGS-Japan is published (FGS-Japan 3-2).

  (NOTE: FGS-Japan 3-3.5 specifies that the first 3-yr compliance period began 1 October 1995.)

- *Langelier Saturation Index* - a calculation based on the pH and hardness of treated water that gives an indication of the potential of the water to accelerate corrosion of components of the distribution system (FGS-Japan 3-2).

- *Lead-free* - a maximum lead content of 0.2 percent for solder and flux and 8.0 percent for pipes and fittings (FGS-Japan 3-2).

- *Lead Service Line* - a service line, made of lead, that connects the water main to the building inlet, and any lead pigtail, gooseneck, or other fitting which is connected to such a line (FGS-Japan 3-2).

- *Management Practice (MP)* - practices that, although not mandated by law, are encouraged to promote safe operating procedures.

- *Maximum Contaminant Level (MCL)* - the maximum permissible level of a contaminant in water that is delivered to the free-flowing outlet of the ultimate user of a public water system, except for turbidity, for which the maximum permissible level is measured after filtration (FGS-Japan 3-2).

(NOTE: Contaminants added to the water under circumstances controlled by the user, except those resulting from the corrosion of piping and plumbing caused by water quality, are excluded.)

- *Non-Public Water System (NPWS)* - a system that is not a public water system; for example, a well serving a building (FGS-Japan 3-2).

- *Non-Transient, Non-Community Water System (NTNC)* - See *Public Water System* (FGS-Japan 3-2).

- *PicoCurie (pCi)* - the quantity of radioactive material producing 2.22 nuclear transformations per minute (FGS-Japan 3-2).

- *Point of Disinfectant Application* - the point where water downstream of that location is not subject to recontamination by surface water runoff (FGS-Japan 3-2).

- *Point-of-Entry (POE) Treatment Device* - a treatment device applied to the drinking water entering a house or building for the purpose of reducing contaminants in the drinking water throughout the house or building (FGS-Japan 3-2).

- *Point-of-Use (POU) Treatment Device* - a treatment device applied to a single tap used for the purpose of reducing contaminants in drinking water at that one tap (FGS-Japan 3-2).

- *Population Served* - the sum of all military, civilian, and dependent personnel living on the installation, plus one-third of the work force not living on the installation (FGS-Japan 3-2).

- *Potable Water* - water that has been examined and treated to meet the standards in FGS-Japan, Chapter 3 (FGS-Japan 3-2).

- *Public Water System (PWS)* - a system for providing piped water to the public for human consumption if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days of the year. This term includes:
    1. any collection, treatment, storage, and distribution facilities under control of the operator of such systems and used primarily in connection with such system
    2. any collection or pretreatment storage facilities not under such control that are used primarily in connection with such system.

  The term includes both community water systems, which serve year-round residents, and non-community water systems. A non-community system is used by intermittent users or travelers and is subclassified into non-transient, non-community (NTNC) systems and transient non-community (TNC) systems. A NTNC system could be a school or a factory with its own water supply, where the same people drink the water throughout the year, but not 24 h/day. A TNC system example is a motel with its own well (FGS-Japan 3-2).

- *Rem* - the unit of dose equivalent from ionizing radiation to the total body or any internal organ or organ system. A millirem (mrem) is 1/1000 of a rem (FGS-Japan 3-2).

- *Repeat Compliance Period* - any subsequent compliance period after the initial compliance period (FGS-Japan 3-2).

- *Sanitary Survey* - an on-site review of the water source, facilities, equipment, operation, and maintenance of a public water system for the purpose of evaluating the adequacy of such elements for producing and distributing potable water (FGS-Japan 3-2).

- *Service Line Sample* - a 1 L [0.26 gal] sample of water, collected in accordance with the requirements of FGS-Japan 3-3.2(d), that has been standing for at least 6 h in a service line (FGS-Japan 3-2).

- *Surface Water* - all water that is open to the atmosphere and subject to surface runoff (FGS-Japan 3-2).

- *Total Trihalomethanes (TTHM)* - the sum of the concentration in mg/L of the trihalomethane compounds (trichloromethane [chloroform], dibromochloromethane, bromodichloromethane, and tribromomethane [bromoform]), rounded to two significant figures (FGS-Japan 3-2).

- *Transient, Non-Community Water System (TNC)* - See *Public Water System* (FGS-Japan 3-2).

- *Trihalomethane (THM)* - one of the family of organic compounds, named as derivatives of methane, wherein three of the four hydrogen atoms in methane are each substituted by a halogen atom in the molecular structure (FGS-Japan 3-2).

- *Underground Injection* - a subsurface emplacement through a bored, drilled, driven, or dug well, in which the depth is greater than the largest surface dimension, whenever a principle function of the well is the emplacement of any fluid (FGS-Japan 3-2).

- *Vulnerability Assessment* - an evaluation by the DOD that shows that contaminants of concern either have not been used in a watershed area or the source of water for the system is not susceptible to contamination (FGS-Japan 3-2).

  (NOTE: Susceptibility is based on prior occurrence, vulnerability, assessment results, environmental persistence, and transport of the contaminants, and any wellhead protection program results.)

- *Water System* - refers to PWSs and NPWSs, and purchasers who have a distribution system and water storage facilities (FGS-Japan 3-2).

WATER QUALITY MANAGEMENT

GUIDANCE FOR CHECKLIST USERS

	REFER TO CHECKLIST ITEMS:	CONTACT THESE PERSONS OR GROUPS: (a)
All Installations	JA.13-1 through JA.13-9	(1)(2)(3)(4)(6)
Backflow Prevention	JA.13-10 through JA.13-22	(1)(2)(5)
Drinking Water		
General	JA.13-23 through JA.13-33	(1)(2)(4)
Water Quality Standards	JA.13-34 through JA.13-45	(1)(2)(4)
Disinfection and Filtration	JA.13-46 and JA.13-47	(1)(2)(3)
Child Development Centers	JA.13-48 through JA.13-52	(2)
Recordkeeping and Notification Requirements	JA.13-53 through JA.13-62	(1)(2)(4)
Training and Certification	JA.13-62 and JA.13-63	(3)(4)

(a) CONTACT/LOCATION CODE:

(1) BCE (Environmental Planning)
(2) BES (Bioenvironmental Engineering Services)
(3) BCE (Natural Resources Planner)
(4) Water Treatment Plant Superintendent
(5) Backflow Program Manager
(6) Base Staff Judge Advocate

WATER QUALITY MANAGEMENT

Records To Review

- Bacterial and chemical analyses of drinking water, including sampling dates and locations, dates of analyses, analytical methods used, and results of analyses
- Monthly operating reports (flow, chlorine residual, etc.)
- Records of planning and construction of injection wells
- Results of injection well monitoring
- Records of facility projects, including any petition for review, that may potentially cause contamination of a sole source aquifer through its recharge zone

Physical Features To Inspect

- Drinking water collection, treatment, and distribution facilities
- Onbase laboratory analysis facilities
- Underground injection wells

People To Interview

- BCE (Environmental Planning)
- BES (Bioenvironmental Engineering Services)
- BCE (Natural Resources Planner)
- Water Treatment Plant Superintendent
- Backflow Program Manager
- Base Staff Judge Advocate

COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
ALL INSTALLATIONS	
JA.13-1. Determine actions or changes since previous review (MP).	Determine whether noncompliance issues have been resolved by reviewing a copy of the previous review report. (1)(2)
JA.13-2. Copies of all relevant DOD directives/ instructions, USAF directives, and guidance documents should be maintained at the installation (MP).	Verify that copies of the following regulations are maintained and kept current at the installation: (1)(6) - *United States Forces-Japan (USFJ) Final Governing Standards* (FGS-Japan), January 1995 - AFR 91-26, *Maintenance and Operation of Water Supply, Treatment, and Distribution Systems*, 30 August 1984 - AFI 32-1066, *Plumbing Systems*, 4 May 1994 - AFI 32-1067, *Water Systems*, 25 March 1994 - HQ USAF/SG Policy Letter, *Water Testing in Child Development Centers*, 21 October 1992. Verify that the Base Staff Judge Advocate reviews the documents annually for currency and completeness and submits the findings of the review to the Base Environmental Protection Committee.
JA.13-3. Installations must meet regulatory requirements issued since the finalization of the manual (a finding under this checklist item will have the citation of the new regulation as a basis of finding).	Determine whether any new regulations concerning water quality have been issued since the finalization of the manual. (1)(6) Verify that the installation is in compliance with newly issued regulations.
JA.13-4. Outside of the continental U.S. (OCONUS) installations must cooperate with foreign regulatory agencies (AFI 32-1067, para 14.1).	Verify that the installation cooperates with Japanese regulatory agencies, consistent with host nation agreements. (1)(2)

(1) BCE (Environmental Planning) (2) BES (Bioenvironmental Engineering Services) (3) BCE (Natural Resources Planner) (4) Water Treatment Plant Superintendent (5) Backflow Program Manager (6) Base Staff Judge Advocate (SJA)

COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.13-5. Bases must not have dual water supply systems for potable and nonpotable water unless certain conditions have been met (AFI 32-1067, para 12.1).	Verify that the following conditions are met by bases with dual water supply systems: (1) - BCE establishes and maintains a clearly defined separation of the two systems so that nonpotable water cannot contaminate the potable water system - the systems have approved backflow prevention devices to prevent contamination of potable water - the MAJCOM approves the dual system before construction and operation - connections between systems are avoided.
JA.13-6. DOD installations must use only approved alternative water sources, if the use of alternative sources is necessary (FGS-Japan 3-3.2(k)).	Determine whether the installation uses alternative water sources. (1)(2) Verify that alternative water sources have approval from the IC. (NOTE: This requirement includes POE and POU treatment devices, as well as bottled water supplies.)
JA.13-7. Underground injection must be carried out in such a way that underground water resources are protected (FGS-Japan 3-3.1(i)).	Verify that the installation regulates underground injection so as to protect underground water sources. (2)(3) Verify that, at a minimum, the installation conducts monitoring to determine the effects of any underground injection wells on nearby groundwater supplies.
JA.13-8. Installations must protect water supply aquifers from contamination (FGS-Japan 3-3.1(c)).	Determine whether the installation is located by a water supply aquifer. (2)(3) Verify that the aquifer is protected by suitable placement and construction of wells, siting and maintenance of septic systems and onsite treatment units, and appropriate land use management.
JA.13-9. Installations must meet requirements with regard to the methods used in the analysis of drinking water samples (FGS-Japan 3-3.4).	Verify that all samples are analyzed using USEPA-approved methods or other methods approved by COMUSJAPAN. (1)(2)(4) Verify that approved Japanese methods are used for those contaminants for which no USEPA-approved method exists.

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
BACKFLOW PREVENTION **JA.13-10.** Installations must have a Backflow Program Manager who fulfills specific responsibilities (AFI 32-1066, paras 6, 8, and 12.2).	(NOTE: Except for laboratory sinks and sinks with hose threaded faucets, backflow preventers integral to a standard plumbing fixture do not come under this program.) Verify that an engineer or appropriate supervisor has been appointed the Backflow Program Manager. (1)(5) Verify that the Backflow Program Manager: - maintains an aggressive program to identify, isolate, record, and correct cross-connections and other potential sources of distribution system contamination - makes sure plumbing personnel can properly test, install, maintain, and repair backflow prevention device - identifies and forecasts training requirements for BCE personnel - reviews all plans and drawings of new or modified water systems to identify potential cross-connections - centrally maintains inspection records and the status of installation and upgrade actions.
JA.13-11. The installation's Backflow Program Manager must conduct a facility survey of plumbing devices and systems every 5 yr (AFI 32-1066, paras 8, 12.1).	Verify that the Backflow Program Manager conducts a facility survey of plumbing devices and systems every 5 yr. (5) Verify that records are updated to reflect the results of the survey. (NOTE: Military family housing is excluded from the survey unless underground sprinkler systems are installed.) (NOTE: The Backflow Program Manager coordinates the surveys with BES.) Verify that survey personnel locate backflow prevention devices, assess their adequacy, and determine the need for more devices. (NOTE: This information is used to determine potential or existing cross-connections and the degree of hazard they present.) Verify that the results of the survey are recorded on AF Form 848, *Inventory of Cross-Connection Control and Backflow Prevention Devices*.
JA.13-12. BES must fulfill particular responsibilities with regard to cross-connections (AFI 32-1066, para 9).	Verify that BES assigns a degree of hazard to each cross-connection, using the *Uniform Plumbing Code* (UPC). (2) Verify that BES reviews plans for water system modification to prevent cross-connections and to identify existing cross-connections or other potential sources of contamination or pollution and recommends corrective action.

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.13-13. BCE personnel must eliminate the potential for cross-connections (AFI 32-1066, para 11).	Verify that the potential for cross-connection is eliminated. (1) Verify that, if elimination is not feasible, approved prevention devices are installed. Verify that the devices installed prevent contamination of potable water supplies that are susceptible to backpressure or back-siphonage from fixtures, equipment, appliances, or buildings. Verify that, if the potable water supply is critical, approved backflow preventers are installed in parallel to allow maintenance or repair without system shutdown.
JA.13-14. Severe cross-connections must be eliminated immediately (AFI 32-1066, para 12.2).	Verify that severe cross-connections are eliminated immediately. (1)
JA.13-15. Installations must take specific actions with regard to existing backflow protection devices (AFI 32-1066, para 12.5).	Verify that existing backflow prevention devices are identified during the survey by a control number. (5) Verify that unapproved devices are replaced in priority depending on the degree of hazard and without waiting for the devices to fail. (NOTE: MAJCOM/CE may be contacted for help when uncertain about a device's category or level of protection.)
JA.13-16. Installations must meet specific requirements with regard to backflow prevention on new dry/wet fire suppression systems (AFI 32-1066, para 12.6).	Verify that double check valve backflow preventers are installed on new dry/wet fire suppression systems that use only water as a fire suppressant. (5) Verify that a reduced pressure type backflow device is used where antifreeze or other hazardous chemicals are added. Verify that backflow preventers are approved and listed for fire protection use by acceptable testing agencies such as Underwriters' Laboratories or Factory Mutual.
JA.13-17. Backflow prevention retrofit work must be performed when systems are down for major renovation (AFI 32-1066, para 12.6).	Verify that backflow prevention retrofit work is performed when systems are down for major renovation. (5) (NOTE: This requirement is waived if a threat dictates that the work be performed sooner.)

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP

REGULATORY REQUIREMENTS:	REVIEWER CHECKS:
JA.13-18. Technicians who test and maintain backflow prevention devices must be certified by MAJCOM (AFI 32-1066, paras 14 and 15).	Verify that MAJCOM-certified technicians perform tests, inspections, and maintenance of backflow prevention devices. (5) (NOTE: Current certificates using forms other than AF Form 483, *Certificate of Competency,* are valid until they expire.) Verify that technicians are recertified by MAJCOM every 3 yr. (NOTE: The MAJCOM recertifies technicians using data furnished by BCE, who requests recertification at least 60 days before the expiration date on AF Form 483. For the purposes of recertification a retraining course is unnecessary if the technician has inspected and tested a representative number (normally 50) of double-check and/or reduced pressure backflow devices since last certified.)
JA.13-19. Tests and inspections of backflow devices must be conducted on a schedule established by the Backflow Prevention Manager (AFI 32-1066, para 13).	Verify that the Backflow Prevention Manager has established a schedule for testing and inspecting all backflow devices, including air gaps. (5) Verify that the frequency of testing, inspection, and overhaul of each devices is established with due regard to the age, condition, and degree of hazard each prevents. (NOTE: The inspecting and testing schedule should be part of the recurring work program.) Verify that overhauls are performed according to manufacturer recommendations. (NOTE: The following are recommended time intervals for inspection of backflow prevention devices. If the Degree of Hazard is: — Inspect Device Every: Minor — 24 mo Moderate — 24 mo Severe — 6 mo (Air Gap) — 12 mo.)
JA.13-20. Certain tasks must be conducted in the course of inspections of cross-connections (AFI 32-1066, paras 13.1, 13.2, and 13.3).	Verify that certified backflow inspectors inspect all cross-connections to make sure that: (5) - there is an approved air gap - the backflow prevention devices are in good condition - newly installed devices were installed correctly and are free of debris that could interfere with their functioning. Verify that all devices are tested in accordance with the UPC, the *UPC Illustrated Testing Manual*, or the manufacturer's instructions.

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.13-20. (continued)	Verify that defective devices are repaired and retested or replaced. Verify that the inspector records data on all cross-connections on AF Form 845, *Cross-Connection Information*, or an approved computerized version. (NOTE: For an air gap, the test consists of a visual inspection and an "OK" recorded if it is satisfactory.) Verify that the form appropriate for the device is also filled out: - AF Form 843, *Backflow Prevention Inspection Data* - AF Form 844, *Backflow Prevention (Vacuum Breakers) Inspection Data.*
JA.13-21. Installations must meet specific inspection requirements on newly installed back-flow prevention devices (AFI 32-1066, para 13.1).	Verify that newly installed devices are inspected within 1 week of installation. (5) Verify that a follow-up inspection is performed 3 mo later.
JA.13-22. Installations must meet recordkeeping requirements with regard to backflow prevention (AFI 32-1066, para 13.4).	Verify that the installation keeps an inventory of all device locations and an individual record (AF Form 845) for each device. (5) Verify that records of cross-connection control and backflow prevention devices are kept at a central location. Verify that the Backflow Program Manager keeps the records current and complete.
DRINKING WATER **General**	
JA.13-23. Installations must use municipal or regional water supply systems where feasible (AFI 32-1067, para 2).	Verify that the installation uses a municipal or regional water system where feasible. (1) Verify that a life cycle cost analysis is performed to determine the most cost-effective approach.

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.13-24. Installations must develop and update as necessary an emergency contingency plan to ensure the provision of potable water despite interruptions from natural disasters and service interruptions (FGS-Japan 3-3.1(j) and AFI 32-1067, para 13).	Verify that the installation has an emergency contingency plan that includes, at a minimum: (1)(2) - identification of key personnel - procedures to restore service - procedures to isolate damaged lines - identification of alternative water supplies - installation public notification procedures - a vulnerability assessment. Verify that the plan is updated as necessary.
JA.13-25. BCE must develop local operating instructions that address specific topics (AFI 32-1067, para 4.3).	Verify that BCE has developed local operating instructions that include the following: (1) - operational monitoring for process control - sampling and testing procedures - emergency operations - maintenance - regulatory compliance requirements.
JA.13-26. Installations must maintain a current map/drawing of the complete potable water system (FGS-Japan 3-3.1(a)).	Verify that the installation maintains a current map/drawing of the complete potable water system. (1)
JA.13-27. Installations must have a Potable Water System Master Plan that is updated at least every 5 yr (FGS-Japan 3-3.1(b)).	Verify that the installation has a Potable Water System Master Plan. (1) Verify that the plan is updated at least every 5 yr.
JA.13-28. Each separate water supply source must have a water meter and a raw water sampling point (AFI 32-1067, para 6).	Verify that each separate water supply source has a water meter and a raw water sampling point for water quality monitoring. (1)(4)

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.13-29. Each active well should have an air line or electric depth gauge to measure drawdown, static level, and pumping level (MP).	Verify that each active well has an air line or electric depth gauge to measure drawdown, static level, and pumping level. (1)(4) (NOTE: This MP is drawn from AFI 32-1067, para 6.)
JA.13-30. DOD water systems must meet specific requirements concerning positive pressure and maintenance practices (FGS-Japan 3-3.1(f) through (h)).	Verify that a continuous positive pressure is maintained in the water distribution system. (2)(4) Verify that there is an effective cross-connection control and backflow prevention program. Verify that backflow prevention devices are tested annually. Verify that the water distribution operation and maintenance practices include: - maintenance of a disinfectant residual throughout the water distribution system (except where an effective ultraviolet or ozone disinfectant process is used) - proper repair and replacement of mains procedures (including disinfection and bacteriological testing) - implementation of an effective annual water main flushing program - proper operation and maintenance of storage tanks and reservoirs - maintenance of distribution system components (including hydrants and valves).
JA.13-31. Installations must conduct sanitary surveys of the water system (FGS-Japan 3-3.1(d)).	Verify that surveys of the water system, including a review of required water quality analyses, are conducted annually and as warranted. (1)(2) Verify that off-installation surveys are coordinated with the appropriate Japanese authorities, if possible.
JA.13-32. Installations must conduct vulnerability assessments (FGS-Japan 3-3.1(j)(6)).	Verify that the installation has conducted a vulnerability assessment. (1)(2)

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.13-33. Installations must use only lead-free pipe, solder, flux, and fittings when installing or repairing water systems and plumbing systems for drinking water (FGS-Japan 3-3.1(k) and AFI 32-1067, para 12.4).	Verify that only lead-free materials (see definition) are used. (2)
Water Quality Standards	(NOTE: These requirements apply regardless of whether the installation produces or purchases water.) (NOTE: Only COMUSJAPAN may grant waivers for monitoring requirements.)
JA.13-34. Compliance with water quality standards must be demonstrated by independent testing or validated supplier testing (OEBGD, Chapter 3, Criterion 2).	Verify that the installation demonstrates compliance with applicable water quality standards by independent testing or validated supplier testing. (1)(2)
JA.13-35. DOD water systems must meet specific MCL and testing requirements for total coliform bacteria (FGS-Japan 3-3.2(a)).	Verify that PWSs have no more than 5 percent positive samples for the presence of total coliforms per month for a system examining 40 or more samples per month. (2)(4) Verify that PWSs have no more than one positive sample for the presence of total coliforms per month when a system analyzes fewer than 40 samples per month. (NOTE: The MCL for total coliforms is exceeded whenever a routine sample is positive for fecal coliforms or *Escherichia coli* (*E. coli)* or when any repeat sample is positive for total coliforms.) Verify that each system has a written, site-specific monitoring plan and collects routine samples according to the schedule in Table 13-1. Verify that systems with initial samples testing positive for total coliforms collect repeat samples as soon as possible, preferably on the same day. Verify that repeat samples are taken at the same tap as the original sample and that an upstream and a downstream sample are taken in the vicinity of the tap. Verify that any additional required repeat sampling is performed according to local medical or Executive Agent guidance.

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.13-35. (continued)	Verify that monitoring continues until total coliforms are no longer detected. Verify that, when routine or repeat samples are positive for total coliforms, they are tested for fecal coliforms or *E. coli.* (NOTE: Fecal-type testing can be foregone on a total coliform positive sample if fecal coliforms or *E. coli* are assumed to be present.) Verify that, if the system has exceeded the MCL, the installation notifies the Executive Agent and personnel no later than the end of the next business day that an acute risk to public health may exist.
JA.13-36. DOD water systems must meet specific requirements with regard to inorganic chemical parameters and monitoring (FGS-Japan 3-3.2(b)).	Verify that the parameters in water distributed to end users do not exceed the limitations in Table 13-2. (2)(4) Verify that systems are monitored for inorganic chemicals at the frequency set in Table 13-3. Verify that, if a system is out of compliance, notification is made to the Executive Agent and to personnel as soon as possible but no later than 14 days after the condition. (NOTE: If the installation is only monitoring annually on the basis of a waiver, it must immediately increase monitoring in accordance with Table 13-3 until authorities determine that the system is reliable and consistent and remedial actions are completed.)
JA.13-37. Installations that fluoridate their water must meet specific requirements (FGS-Japan 3-3.2(c)).	(NOTE: Fluoridation of drinking water occurs at the discretion of the IC responsible for the PWS.) Verify that the fluoride content of drinking water does not exceed the MCL of 4 mg/L given in Table 13-2. (2)(4) Verify that fluoride monitoring involves collecting one treated water sample at the entry point to the distribution system annually for surface water systems and once every 3 yr for groundwater systems. (NOTE: Daily monitoring is recommended for systems practicing fluoridation using the criteria in Table 13-4.) Verify that, if any sample exceeds the MCL, notification is made to the Executive Agent and to personnel as soon as possible but no later than 14 days after the violation.

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.13-38. Installation PWS and NTNC water systems must meet specific standards for lead and copper action levels and reporting requirements when these levels are exceeded (FGS-Japan 3-3.2(d)(1) through (5)).	Verify that the concentration of lead does not exceed the action level of 0.015 mg/L. (2)(4) Verify that the concentration of copper does not exceed the action level of 1.3 mg/L. (NOTE: Actions such as corrosion control treatment, public education, and removal of lead service lines are triggered if the above lead and copper action levels are exceeded in more than 10 percent of all sampled taps.) Verify that monitoring is carried out in accordance with Table 13-5. Verify that sampling sites selected are as outlined in Table 13-5. Verify that high risk sampling sites are targeted by conducting a materials evaluation of the distribution system. Verify that, if an action level is exceeded, additional water samples are collected as specified in Table 13-5. Verify that optimal corrosion control treatment is pursued. Verify that, if action levels are exceeded after implementation of applicable corrosion control and source water treatment, lead service lines are replaced if it is lead service lines that are causing the excess. Verify that the Executive Agent and installation personnel are notified within 14 days when an action level is exceeded. Verify that an education program for installation personnel (U.S. and host nation) is implemented within 60 days. Verify that all samples for lead and copper, except lead service line samples, are first draw samples. Verify that first draw samples from residential housing are collected from the cold water kitchen tap or bathroom sink tap. Verify that first draw samples from non-residential buildings are collected at an interior tap from which water is typically drawn for consumption. (NOTE: First draw samples may be collected by the system, or the system may allow residents to collect first draw samples after instructing them on the sampling procedures required under this checklist item.) (NOTE: To avoid problems with residents handling nitric acid, acidification of first draw samples may be done up to 14 days after the sample is collected. If the sample is not acidified immediately after collection, then it must stand in the original container for at least 28 h after acidification.)

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.13-39. Installations must meet specific requirements with regard to samples collected from lead service lines (FGS-Japan 3-3.2(d)(6)).	Verify that each service line sample is 1 L in volume and has stood motionless in the lead service line for at least 6 h. (2)(4) Verify that lead service line samples are collected in one of the following three ways: - at the tap after flushing the volume of water between the tap and the lead service line, which volume is calculated based on the interior diameter and length of the pipe between the tap and the lead service line - tapping directly into the lead service line - if the sampling site is a building constructed as a single-family residence, allowing the water to run until there is a significant change in temperature that would be indicative of water that has been standing in the lead service line.
JA.13-40. Installations must notify their users about lead in drinking water systems (FGS-Japan 3-3.1(k)).	Verify that the installation provides public notification concerning the following: (2) - the lead content of materials used in distribution or plumbing systems - the corrosivity of water that has caused leaching - remedial actions that may be taken. (NOTE: This requirement appears to apply regardless of whether or not the action level for lead has been exceeded.)
JA.13-41. DOD water systems must meet specific requirements with regard to synthetic organics (FGS-Japan 3-3.2(e)).	Verify that synthetic organic chemicals in water distributed to people do not exceed the limitations in Table 13-6. (2)(4) Verify that systems are monitored for synthetic organics according to the schedule in Table 13-7. Verify that, if the system is out of compliance, notification to the Executive Agent and personnel is made as soon as possible, but no later than 14 days after the violation. (NOTE: When the MCLs for synthetic organic chemicals are exceeded, the installation must begin immediate quarterly monitoring and must increase quarterly monitoring if the level of any contaminant is at its detection limit but less than its MCL (see Table 13-7) and must continue until the system is reliable and consistent, and any necessary remedial measures are implemented.)
JA.13-42. DOD water systems must meet specific requirements with regard to TTHMs (FGS-Japan 3-3.2(f)).	Verify that drinking water that has been treated with a disinfectant (oxidant, such as chlorine, chlorine dioxide, chloramines, or ozone) during any part of the treatment process does not exceed an MCL of 0.10 mg/L for TTHMs. (2) Verify that systems that add a disinfectant monitor for TTHMs as outlined in Table 13-8.

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.13-42. (continued)	Verify that, if the system is out of compliance, the Executive Agent and personnel are notified as soon as possible, but no later than 14 days after the violation, and that remedial measures are undertaken.
JA.13-43. DOD water systems must meet specific requirements with regard to radionuclides (FGS-Japan 3-3.2(g)).	Verify that PWS and NTNC systems meet the MCLs for radionuclides and that monitoring is performed as outlined in Table 13-9. (2)(4) Verify that, if the average annual MCL for gross alpha activity, total radium, or gross beta is exceeded, the appropriate host nation authorities and the public are notified as soon as possible, but no later than 30 days after the violation. (NOTE: After a violation of an MCL for radionuclides, monitoring will continue (monthly for gross beta, quarterly for gross alpha) until remedial actions are completed and the average annual concentration no longer exceeds the MCL.) Verify that, if any gross beta MCL is exceeded, the major radioactive components are identified.
JA.13-44. Installations must test DOD PWS filtered waters daily for turbidity and must meet a specific MCL for turbidity (FGS-Japan 3-3.2(i)).	Verify that the installation tests PWS filtered water for turbidity daily. (2)(4) Verify that the monthly average of daily samples does not exceed 1 Nephelometric Turbidity Unit (NTU) in more than 5 percent of the samples. Verify that the average of 2 consecutive days does not exceed 5 NTU. Verify that, if the MCL for turbidity is exceeded, notification is made to the Executive Agent and personnel as soon as possible, but no later than 14 days after the violation.
JA.13-45. Installations must periodically monitor DOD NPWSs for total coliforms and disinfectant residuals (FGS-Japan 3-3.2(j)).	Determine whether the installation operates an NPWS. (2)(4) Verify that the installation periodically monitors (as a minimum) for total coliforms and disinfectant residuals in accordance with Table 13-1.

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
Disinfection and Filtration	
JA.13-46. Installations that use surface water or GWUDISW to produce potable water must conform to certain treatment requirements (FGS-Japan 3-3.1(e) and 3-3.2(h)).	Determine whether the installation employs surface water sources or GWUDISW. (1)(2)(3) Verify that the installation meets the surface water treatment requirements specified in Table 13-10.
JA.13-47. Installations that use a groundwater source as their supply of drinking water must disinfect the supplies (FGS-Japan 3-3.1(e)).	Determine whether the installation's water supply is groundwater. (1)(2)(3) Verify that, at a minimum, groundwater supplies are disinfected.
Child Development Centers	
JA.13-48. Drinking water at CDCs must be sampled monthly (HQ USAF/SG Policy Letter, 21 October 1992, paras 1 and 4).	Verify that the drinking water at CDCs is sampled monthly. (2) Verify that bacteriological sampling is accomplished monthly. (NOTE: Chemical sampling is generally accomplished once every 3 yr.)
JA.13-49. BES and CDC Directors must coordinate certain efforts (HQ USAF/SG Policy Letter, 21 October 1992, para 2).	Verify that BES and the CDC Director coordinate the following: (2) - determine whether *Lead Contamination Control Act* (LCCA) sampling was thorough and complete - review records to ensure that identified corrective actions to remove sources of lead contamination were completed - ensure that Lead Assessment Program analytical results for drinking water lead concentrations are on file in the CDC administrative office.

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.13-50. The Director of the CDC must notify BES of certain activities (HQ USAF/SG Policy Letter, 21 October 1992, para 3).	Verify that BES is notified prior to the opening of a new CDC facility and when plumbing lines or fixtures are added or replaced. (2)
JA.13-51. Certain taps must be taken out of service and resampled (HQ USAF/SG Policy Letter, 21 October 1992, para 3).	Verify that taps with lead concentrations exceeding 20 parts per billion (ppb) are taken out of service and resampled. (2) Verify that remediation is accomplished when successive sample results exceed 20 ppb.
JA.13-52. BES must perform sampling in accordance with LCCA guidance under certain circumstances (HQ USAF/SG Policy Letter, 21 October 1992, para 3).	Verify that BES performs sampling in accordance with LCCA guidance when metallic materials are used in CDC plumbing systems. (2)
Recordkeeping and Notification Requirements	
JA.13-53. Water treatment logs must be prepared (AFI 32-1067, para 10.1.1).	Verify that operators prepare AF Form 1461, *Water Utility Operating Log (General).* (4) Verify that, if the water requires more than minor treatment, AF Form 1460, *Water Utility Operating Log (Supplemental)*, is prepared.
JA.13-54. Water treatment facilities must manage logs and reports in accordance with specific requirements (AFI 32-1067, paras 10.1).	Verify that daily operating logs and laboratory records are prepared for in-plant use. (4) (NOTE: Computer files and printouts such as the Work Information Management System (WIMS) operating logs are acceptable if they have the same information as the forms.) Verify that permanent records of the printouts are kept as if they were forms. Verify that backup copies of the active computer files are maintained to protect them against accidental loss.

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.13-54. (continued)	Verify that operating logs or computer files are posted daily (covering 1 month's operation) in neat legible form. Verify that the original form or computer printout is kept for the BCE permanent file.
JA.13-55. Specific records must be maintained for wells and pumping stations (AFI 32-1067, para 10.1.2 and 10.2).	Verify that AF Form 996, *Well Data*, is completed and a file kept for each well, beginning with initial construction. (4) Verify that the information is updated after completing a repair, redeveloping a well, or conducting a performance test. Verify that the following daily operating records are maintained for wells and pumping stations: - AF Form 997, *Daily Well Activity Record* - AF Form 998, *Daily Pumping Station Activity Record - Water.*
JA.13-56. Facilities should establish local procedures for preparing coordinating, reviewing, and approving logs and reports (MP).	Verify that water treatment and wastewater treatment facilities establish local procedures for preparing coordinating, reviewing, and approving logs and reports. (4) (NOTE: This MP is found in AFI 32-1067, para 10.1.3.)
JA.13-57. Specific records must be maintained for DOD water systems (FGS-Japan 3-3.1(l)).	Verify that records of chemical analyses are kept for not less than 10 yr. (2) Verify that records showing monthly operating reports are maintained for at least 3 yr. Verify that records of bacteriological results are maintained for at least 5 yr.

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COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.13-58. Specific physical facility information must be developed, maintained, and kept available at treatment facilities (AFI 32-1067, para 10.2).	Verify that the following information is developed, maintained, and kept available at the treatment facilities: (1)(4) - required plant-specific Operations and Maintenance (O&M) manuals and applicable AF publications - system operating instructions with single-line drawings, including operational and compliance monitoring procedures - up-to-date system as-built drawings along with other system plans and blueprints, including hydraulic water elevation profiles and a drawing of the entire collection and distribution systems - AF Form 996, *Well Data* - shop drawings, catalogue cuts, and any other equipment information or literature.
JA.13-59. Installations must develop and maintain effective maintenance plans that address specific topics (AFI 32-1067, para 10.3).	Verify that the installation develops and maintains effective maintenance plans that include: (1) - a recurring work schedule - a maintenance history for each major piece of equipment - an essential spare parts list, with spare parts stocked at the treatment facility or other accessible location - a long-range maintenance and improvement plan.
JA.13-60. Installations must document actions taken to correct breaches of water quality criteria (FGS-Japan 3-3.1(m)).	Verify that the installation documents corrective actions taken to correct breaches of criteria. (2) Verify that such documentation is maintained for at least 3 yr.
JA.13-61. Required notifications must meet specific content standards (FGS-Japan 3-3.3).	Verify that the notices required under this checklist are clear and understandable and address the following topics: (1)(2)(4) - explanation of the violation - any potential adverse health effects - the population at risk - the steps that the system is taking to correct the violation - the necessity for seeking alternative water supply, if any - any preventive measures the consumer should take until the violation is corrected. Verify that written notification is in English and Japanese. (NOTE: The Executive Agent coordinates notification of host authorities when off-installation populations are at risk.)

(1) BCE (Environmental Planning) (2) BES (Bioenvironmental Engineering Services) (3) BCE (Natural Resources Planner) (4) Water Treatment Plant Superintendent (5) Backflow Program Manager (6) Base Staff Judge Advocate (SJA)

COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.13-61. (continued)	Verify that the owner or operator of a PWS includes the appropriate mandatory health effects language of Table 13-11 for each contaminant whenever the installation is providing: - information on potential adverse health effects in notices of violations of MCLs or treatment technique requirements - notices of the granting or the continued existence of exemptions or variances - notices of failure to comply with a variance or exemption schedule. (NOTE: If Table 13-11 does not specify language for a particular contaminant at the time notice is mandatory, the above requirement does not apply.)
JA.13-62. Installations must notify the MAJCOM Civil Engineer when the potable water supply becomes contaminated (AFI 32-1066, para 6).	Verify that MAJCOM/CE is notified when the potable water supply becomes contaminated. (1)
TRAINING AND CERTIFICATION	
JA.13-63. Operators of water treatment plants must meet training requirements (AFI 32-1067, para 8.1).	Verify that new operators receive classroom training and extensive supervised on-the-job training before being assigned to critical tasks. (3)(4) Verify that experienced personnel receive technical refresher courses and upgrade training. (NOTE: Training requirements may be met by one of the following means: - AF training available through technical schools, career development correspondence courses, and on-the-job training - civilian training courses available at educational institutions, government agencies, and professional and technical associations - correspondence courses from accredited institutions for operators in areas that do not have local resident courses.)

(1) BCE (Environmental Planning) (2) BES (Bioenvironmental Engineering Services) (3) BCE (Natural Resources Planner) (4) Water Treatment Plant Superintendent (5) Backflow Program Manager (6) Base Staff Judge Advocate (SJA)

COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP	
REGULATORY REQUIREMENTS:	**REVIEWER CHECKS:**
JA.13-64. Supervisors at water treatment plants must meet specific requirements with regard to safety training for all employees (AFI 32-1067, para 9).	Verify that all employees are familiar with the safety instructions in the following documents, as applicable: (3)(4) - AFR 91-26, *Maintenance and Operation of Water Supply, Treatment, and Distribution Systems* - AFM 91-32, *Operation and Maintenance of Domestic and Industrial Wastewater Systems* - Air Force Occupational Safety and Health Standard (AFOSH STD) 127-10, *Civil Engineering* - AFOSH STD 127-25, *Confined Spaces* - AFOSH STD 161-21, *AF Hazard Communication Standard.* Verify that the supervisor maintains current BES baseline and annual industrial hygiene survey reports. (NOTE: The supervisor should use these reports to train workers on occupational health hazards.) Verify that supervisors make safety instructions readily available to all operating personnel. Verify that supervisors train facility personnel on safety procedures and equipment and enforce their proper use at all times. (NOTE: Once trained, individual workers are personally responsible for following safe procedures.)

(1) BCE (Environmental Planning) (2) BES (Bioenvironmental Engineering Services) (3) BCE (Natural Resources Planner) (4) Water Treatment Plant Superintendent (5) Backflow Program Manager (6) Base Staff Judge Advocate (SJA)

Table 13-1

Total Coliform Monitoring Requirements

(FGS-Japan Table 3-2)

Population Served per Month	Minimum Number of Samples per Month
25 to 1000[1]	1
1001 to 2500	2
2501 to 3300	3
3301 to 4100	4
4101 to 4900[2]	5
4901 to 5800	6
5801 to 6700	7
6701 to 7600	8
7601 to 8500	9
8501 to 12,900	10
12,901 to 17,200	15
17,201 to 21,500	20
21,501 to 25,000	25
25,001 to 33,000	30
33,001 to 41,000	40

[1] A non-community water system using groundwater and serving 1000 or fewer people may monitor once in each calendar quarter during which the system provides water, provided that a sanitary survey conducted within the last 5 yr shows the system is supplied solely by a protected groundwater source and free of sanitary defects.

[2] Systems serving fewer than 4900 people which use groundwater and collect samples from different sites may collect all samples on a single day. All other systems must collect samples at regular intervals throughout the month.

Table 13-2

Inorganic Chemicals MCLs

(FGS-Japan Table 3-3)

Contaminant	MCL, mg/L
Arsenic[1]	0.05
Asbestos[1]	7 million fibers/L (longer than 10 μm)
Barium[1]	2.0
Cadmium[1]	0.005
Chromium[1]	0.1
Copper	Action level only
Fluoride[2]	4.0
Mercury[1]	0.002
Lead	Action level only
Nitrate[3]	10.0 (as Nitrogen)
Nitrite[3]	1.0 (as Nitrogen)
Total Nitrite and Nitrate[3]	10.0 (as Nitrogen)
Selenium[1]	0.05
Sodium[4]	4.0
Antimony[1]	0.006
Beryllium[1]	0.004
Cyanide (as free Cyanide)[1]	0.2
Nickel[1]	0.1
Thallium[1]	0.002

[1] MCLs apply to CWS and NTNC systems.

[2] The primary MCL applies only to CWS. See checklist item JA.13-37 above for additional fluoride requirements.

[3] MCLs apply to CWS, NTNC, and TNC systems.

[4] No MCL established. Monitoring is required so concentration levels can be made available.)

(NOTE: See checklist item JA.13-38 above for additional criteria concerning lead and copper.)

Table 13-3

Inorganics Monitoring Requirements

(FGS-Japan Table 3-4)

Contaminant	Groundwater Baseline Requirement[1]	Surface Water Baseline Requirement[1]	Trigger That Increases Monitoring[2]	Waivers
Arsenic	1 sample/3 yr	Annual sample	> MCL	---
Asbestos[3]	1 sample/9 yr	1 sample/9 yr	> MCL	Yes[4]
Barium	1 sample/3 yr	Annual sample	> MCL	---
Cadmium	1 sample/3 yr	Annual sample	> MCL	---
Chromium	1 sample/3 yr	Annual sample	> MCL	---
Fluoride	1 sample/3 yr	Annual sample	> MCL	---
Mercury	1 sample/3 yr	Annual sample	> MCL	---
Nitrate	Annual sample	Quarterly	> 50% MCL[5]	Yes[6]
Nitrite	Annual sample	Quarterly	> 50% MCL[5]	Yes[6]
Selenium	1 sample/3 yr	Annual sample	> MCL	---
Sodium	1 sample/3 yr	Annual sample	---	---
Antimony	1 sample/9 yr	Annual sample	> MCL	---
Beryllium	1 sample/3 yr	Annual sample	> MCL	---
Cyanide (as free Cyanide)	1 sample/3 yr	Annual sample	> MCL	---
Nickel	1 sample/3 yr	Annual sample	> MCL	---
Thallium	1 sample/3 yr	Annual sample	> MCL	---
Corrosivity[7]	Once	Once	---	---

[1] Samples must be taken as follows: groundwater systems must take a minimum of one sample at every entry point to the distribution system that is representative of each well after treatment; surface water systems must take at least one sample at every entry point to the distribution system after any application of treatment or in the distribution system at a point that is representative of each source after the treatment.

[2] Increased quarterly monitoring requires a minimum of two samples per quarter for groundwater systems and at least four samples per quarter for surface water systems.

[3] Systems that are vulnerable to asbestos contamination due solely to source water must monitor in accordance with note 1. A system vulnerable to asbestos contamination due to corrosion of asbestos-cement pipe must take one sample at a tap served by asbestos-cement pipe.

[4] Necessity for analysis is predicated upon a vulnerability assessment conducted by the PWS.

(continued)

Table 13-3 (continued)

[5] Increased quarterly monitoring must be undertaken for nitrate and nitrite if a sample is greater than 50 percent of the MCL.

[6] The DOD Executive Agent may reduce repeat sampling frequency to one sample if the parameter is 50 percent of MCL. Surface water systems may reduce to an annual sample if less than 50 percent of the MCL for one year.

[7] PWSs must be analyzed within 1 yr of the effective date of country-specific final governing standards to determine the corrosivity entering the distribution system.

Table 13-4

Recommended Fluoride Concentration at Different Temperatures

(FGS-Japan Table 3-5)

Annual Average of Max. Daily Air Temperatures (°F)	Control Limits (mg/L)		
	Lower	Optimum	Upper
50.0 - 53.7	0.9	1.2	1.7
53.8 - 58.3	0.8	1.1	1.5
58.4 - 63.8	0.8	1.0	1.3
63.9 - 70.6	0.7	0.9	1.2
70.7 - 79.2	0.7	0.8	1.0
79.3 - 90.5	0.6	0.7	0.8

Table 13-5

Monitoring Requirements for Lead and Copper Water Quality Parameters

(FGS-Japan Table 3-6)

Population Served	No. of Sites for Standard Monitoring[1,2]	No. of Sites for Reduced Monitoring[3]	No. of Sites for Water Quality Parameters[4]
> 100,000	100	50	25
10,001-100,000	60	30	10
3301-10,000	40	20	3
501-3300	20	10	2
101-500	10	5	1
< 100	5	5	1

1. Monitor every 6 mo for lead and copper.

2. Sampling sites must be based on a hierarchal approach. For CWS, priority must be given to: single family residences that contain copper pipe with lead solder installed after 1982, contain lead pipes, or are served by lead service lines; then, structures, including multifamily residences, with the foregoing characteristics; and finally, residences and structures with copper pipe with lead solder installed before 1983. For NTNC systems, sampling sites must consist of structures that contain copper pipe with lead solder installed after 1982, contain lead pipes, and/or are served by lead service lines. First draw samples must be collected from a cold water kitchen or bathroom tap; non-residential samples must be taken at an interior tap from which water is typically drawn for consumption.

3. Monitor annually for lead and copper if action levels are met during each of two consecutive 6-mo monitoring periods. Annual sampling must be conducted during the four warmest months of the year.

4. Samples must be representative of water quality throughout the distribution system and include a sample from the entry to the distribution system. Samples must be taken in duplicate for pH, alkalinity, calcium, conductivity or total dissolved solids, and water temperatures to allow a corrosivity determination (via a Langelier saturation index or other appropriate saturation index); additional parameters are orthophosphate when a phosphate inhibitor is used and silica when a silicate inhibitor is used.

Table 13-6

Part A: Semi-Volatile Organic Chemical MCLs

(FGS-Japan Table 3-7 A)

Semi-Volatile Organic Chemical	MCL, mg/L	Detection Limit, mg/L
Herbicides, Pesticides, Polychlorinated Biphenyls (PCBs)		
Alachor	0.002	0.0002
Atrazine	0.003	0.0001
Carbofuran	0.04	0.0009
Chlordane	0.002	0.0002
2,4-D	0.07	0.0001
1,2-Dibromo-3-chloropropane (DBCP)	0.0002	0.00002
Endrin	0.002	0.00001
Ethylene dibromide (EDB)	0.00005	0.00001
Heptachlor	0.0004	0.00004
Heptachlor epoxide	0.0002	0.00002
Lindane	0.0002	0.00002
Methoxychlor	0.04	0.0001
PCBs (as decachlorobiphenyls)	0.0005	0.0001
Pentachlorophenol	0.001	0.00004
Toxaphene	0.003	0.001
2,4,5-TP (Silvex)	0.05	0.0002

(continued)

Part B: Organic Chemical MCLs

(FGS-Japan Table 3-7 B)

Semi-Volatile Organic Chemical	MCL, mg/L	Detection Limit, mg/L
Herbicides, Pesticides, Other Organic Chemicals		
Benzo[a]pyrene	0.0002	0.00002
Dalapon	0.2	0.001
Di(2-ethylhexyl) adipate	0.4	0.0006
Di(2-ethylhexyl) phthalate	0.006	0.0006
Dinoseb	0.007	0.0002
Diquat	0.02	0.0004
Endothall	0.1	0.009
Glyphosate	0.7	0.006
Hexachlorobenzene	0.001	0.0001
Hexachlorocyclopentadiene	0.05	0.0001
Oxamyl (Vydate)	0.2	0.002
Picloram	0.5	0.0001
Simazine	0.004	0.00007
2,3,7,8-TCDD (Dioxin)	3×10^{8}	5×10^{9}
Thiuram[1]	0.006	
Thiobencarb[1]	0.02	

[1] FGS-Japan has inserted this footnote marker but does not include a corresponding note.

(continued)

Part C: Organic Chemical MCLs

(FGS-Japan Table 3-7 C)

Volatile Organic Chemical (VOC)	MCL, mg/L	Detection Limit, mg/L
Benzene	0.005	0.0005
Carbon tetrachloride	0.005	0.0005
o-Dichlorobenzene	0.6	0.0005
cis-1,2-Dichloroethylene	0.07	0.0005
trans-1,2-Dichloroethylene	0.1	0.0005
1,1-Dichloroethylene	0.007	0.0005
1,1,1-Trichloroethane	0.20	0.0005
1,2-Dichloroethane	0.005	0.0005
1,2-Dichloropropane	0.005	0.0005
Ethylbenzene	0.7	0.0005
Monochlorobenzene	0.1	0.0005
para-Dichlorobenzene	0.075	0.0005
Styrene	0.1	0.0005
Tetrachloroethylene	0.005	0.0005
Trichloroethylene	0.005	0.0005
Toluene	1.0	0.0005
Vinyl chloride	0.002	0.0005
Xylene (total)	10	0.0005
Dichloromethane	0.005	0.0005
1,2,4-Trichlorobenzene	0.07	0.0005
1,1,2-Trichloroethane	0.005	0.0005
1,3-Dichloropropene	0.002	0.0005

(continued)

Table 13-6 (continued)

Part D: Synthetic Organic Chemical MCLs

(FGS-Japan Table 3-7 D)

Synthetic Organic Chemical	MCL, mg/L	Detection Limit, mg/L
Acrylamide	treatment technique[1]	
Epihydrochlorin	treatment technique[1]	

1 Best available treatment technique relates to polymer addition practices. Each PWS must certify annually that when acrylamide and epihydrochlorin are used in drinking water systems, the combination (or product) of dose and monomer level does not exceed the levels specified as follows:

- Acrylamide: 0.05% dosed at 1 ppm (or equivalent)
- Epihydrochlorin: 0.01% dosed at 20 ppm (or equivalent).

Table 13-7

Synthetic Organic Chemical Monitoring Requirements

(FGS-Japan Table 3-8)

Contaminant	Baseline Requirement[1]		Detection limit monitoring[2]	Waivers
	Groundwater	Surface water		
Volatile Organic Compound (VOCs)	Quarterly	Quarterly	Detection limit[3]	Yes[4,5]
Pesticides/PCBs	4 consecutive quarterly samples during each compliance period		> Detection limit[3]	Yes[5,6]

[1] Groundwater systems must take a minimum of one sample at every point to the distribution system that is representative of each well after treatment (hereafter called a sampling point). Surface water systems (or combined surface/ground) must take a minimum of one sample at points in the distribution system that are representative of each source or at each entry point to the distribution system after treatment (hereafter called a sampling point). Each sample must be taken at the same sampling point unless conditions make another sampling point more representative of each source, treatment plant, or within the distribution system.

[2] Increased monitoring requires a minimum of two samples per quarter for groundwater systems and at least four samples per quarter for surface water systems.

[3] Detection limits noted in Table 13-6.

Table 13-8

Total Trihalomethane Monitoring Requirements

(FGS-Japan Table 3-9)

Population Served by System	Number of Samples per Distribution System[1]	Frequency of Samples[2]	Type of Sample
10,000 or more	4	Quarterly	Treated
Less than 10,000	1	Annually	Treated

1. One of the samples must be taken at a location in the distribution system reflecting the maximum residence time of water in the system but not at a dead end. The remaining samples must be taken at representative points in the distribution system. Systems that employ surface water sources, in whole or in part, and that add a disinfectant should have one sample analyzed for total trihalomethanes.

2. Compliance is based upon a running yearly average of quarterly samples for systems serving more than 10,000 people. Noncompliance exists if the average exceeds the MCL.

Table 13-9

Radionuclide MCL and Monitoring Requirements
(FGS-Japan Table 3-10)

MCL Contaminant	MCL, pCi/L
Gross Alpha[1]	15
Combined Radium-226 and -228	5
Gross Beta[2]	50
Strontium-90	8[4]
Tritium	20,000[4]
Radon[3]	300

Monitoring Requirements

For gross alpha activity and radium-226 and radium-228, systems must be tested once every 4 yr. Testing will be conducted using an annual composite of four consecutive quarterly samples or the average of four samples obtained at quarterly intervals at a representative point in the distribution system.

Gross alpha only may be analyzed if activity is less than or equal to 5 pCi/L. Where radium-228 may be present, radium-226 and/or radium-228 analyses should be performed when activity is greater than 2 pCi/L. If the average annual concentration is less than half the maximum contaminant level, analysis of a single sample may be substituted for the quarterly sampling procedure. A system with two or more sources having different concentrations of radioactivity must monitor source water in addition to water from a free-flowing tap. If the installation introduces a new water source, these contaminants must be monitored within the first year after introduction.

Compliance for gross beta, strontium-90, and tritium may be assumed without further analysis if the annual average concentration of gross beta particle activity is less than 50 pCi/L and if the average annual concentrations of tritium and strontium-90 are less than those listed in Table 13-9, provided that if both radionuclides are present the sum of their annual dose equivalents to bone marrow do not exceed 4 mrem/yr.

[1] Gross alpha activity includes radium-226, but excludes radon and uranium.

[2] Gross beta activity refers to the sum of beta particle and photon activity from man-made radionuclides. If gross beta exceed the MCL, i.e., equal a dose of 4 mrem/yr, the individual components must be determined.

[3] MCL for radon is proposed to be effective in 1995.

[4] Average annual concentrations assumed to produce a total body or organ dose of 4 mrem/yr.

Table 13-10

Surface Water Treatment Requirements

(FGS-Japan Table 3-1)

1. Unfiltered Systems

a. Systems that use unfiltered surface water or groundwater sources under the direct influence of surface water must analyze the raw water for total coliforms or fecal coliforms at least weekly and for turbidity at least daily for a minimum of 1 yr. If the total coliforms and/or fecal coliforms exceed 100/100 milliliters (mL) and 20/100 mL, respectively, appropriate filtration must be applied. Appropriate filtration must also be applied if turbidity exceeds 1 NTU.

b. Disinfection must achieve at least 99.9 percent inactivation of Giardia lamblia cysts and 99.99 percent inactivation of viruses by meeting applicable CT values.

c. Disinfection systems must have redundant components to ensure uninterrupted disinfection during operational periods.

d. Daily disinfectant residual monitoring immediately after disinfection is required. Disinfectant residual measurements in the distribution system must be made weekly.

e. Water in a distribution system with a heterotrophic bacteria concentration less than or equal to 500/mL, measured as heterotrophic plate count, is considered to have a detectable disinfectant residual.

f. If disinfectant residuals in the distribution system are undetected in more than 5 percent of monthly samples for 2 consecutive months, appropriate filtration must be implemented.

2. Filtered Systems

a. The turbidity of filtered water must be monitored at least daily.

b. The turbidity of filtered water must not exceed 1 NTU in 95 percent of the analyses in a month, with a maximum of 5 NTU.

c. Disinfection requirements are identical to those for unfiltered systems.

d. The sum of filtration removal credit and disinfection must achieve at least 99.9 percent inactivation of *Giardia lamblia* cysts and 99.99 percent inactivation of viruses by meeting applicable CT values.

Table 13-11

Mandatory Health Effect Language

(Source: FGS-Japan, Appendix B)

(1) Trichloroethylene is a health concern at certain levels of exposure. This chemical is a common metal cleaning and dry cleaning fluid. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. The drinking water standard for trichloroethylene has been set at 0.005 parts per million (ppm) to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(2) Carbon tetrachloride is a health concern at certain levels of exposure. This chemical was once a popular household cleaning fluid. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. The drinking water standard for carbon tetrachloride has been set at 0.005 ppm to reduce the risk of cancer or other adverse effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(3) 1, 2-Dichloroethane is a health concern at certain levels of exposure. This chemical is used as a cleaning fluid for fats, oils, waxes, and resins. It generally gets into drinking water from improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. The drinking water standard for 1,2-Dichloroethane has been set at 0.005 ppm to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(4) Vinyl chloride is a health concern at certain levels of exposure. This chemical is used in industry and is found in drinking water as a result of the breakdown of related solvents. The solvents are used as cleaners and degreasers of metals and generally get into drinking water by improper waste disposal. This chemical has been associated with significantly increased risks of cancer among certain industrial workers who were exposed to relatively large amounts of this chemical during their working careers. This chemical has also been shown to cause cancer in laboratory animals when the animals are exposed at high levels over their lifetimes. Chemicals that cause increased risk of cancer among exposed industrial workers and in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. The drinking water standard for vinyl chloride has been set at 0.002 ppm to reduce the risk of cancer or other adverse health effects which have been observed in humans and laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(5) Benzene is a health concern at certain levels of exposure. This chemical is used as a solvent and degreaser of metals. It is also a major component of gasoline. Drinking water contamination generally results from leaking underground gasoline and petroleum tanks or improper waste disposal. This chemical has been associated with significantly increased risks of leukemia among certain industrial workers who

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were exposed to relatively large amounts of this chemical during their working careers. This chemical has also been shown to cause cancer in laboratory animals when the animals are exposed at high levels over their lifetimes. Chemicals that cause increased risk of cancer among exposed industrial workers and in laboratory animals also may increase the risk of cancer in humans who are exposed at lower levels over long periods of time. The drinking water standard for benzene has been set at 0.005 ppm to reduce the risk of cancer or other adverse health effects which have been observed in humans and laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(6) 1, 1-Dichloroethylene is a health concern at certain levels of exposure. This chemical is used in industry and is found in drinking water as a result of the breakdown of related solvents. The solvents are used as cleaners and degreasers of metals and generally get into drinking water by improper waste disposal. This chemical has been shown to cause liver and kidney damage in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals which cause adverse effects in laboratory animals also may cause adverse health effects in humans who are exposed at lower levels over long periods of time. The drinking water standard for 1, 1-dichloroethylene has been set at 0.007 ppm to reduce the risk of these adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(7) Para-dichlorobenzene is a health concern at certain levels of exposure. This chemical is a component of deodorizers, moth balls, and pesticides. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause liver and kidney damage in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals which cause adverse effects in laboratory animals also may cause adverse health effects in humans who are exposed at lower levels over long periods of time. The drinking water standard for para-dichlorobenzene has been set at 0.075 ppm to reduce the risk of these adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(8) 1, 1, 1-Trichloroethane is a health concern at certain levels of exposure. This chemical is used as a cleaner and degreaser of metals. It generally gets into drinking water by improper waste disposal. This chemical has been shown to damage the liver, nervous system, and circulatory system of laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during their working careers also suffered damage to the liver, nervous system, and circulatory system. Chemicals which cause adverse effects among exposed industrial workers and in laboratory animals also may cause adverse health effects in humans who are exposed at lower levels over long periods of time. The drinking water standard for 1, 1, 1-trichloroethane has been set at 0.2 ppm to protect against the risk of these adverse health effects which have been observed in humans and laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and should be considered safe.

(9) Fluoride. The drinking water in your community has a fluoride concentration of _____. [PWS shall insert the compliance result which triggered notification under this part in milligrams per liter (mg/L).] The Final Governing Standards require that fluoride, which occurs naturally in your water supply, not exceed a concentration of 4.0 mg/L in drinking water. This is an enforceable standard called a Maximum Contaminant Level (MCL), and it has been established to protect the public health. Exposure to drinking water levels above 4.0 mg/L for many years may result in some cases of crippling skeletal fluorosis, which is a serious bone disorder.

The FGS require that we notify you when monitoring indicates that the fluoride in your drinking water exceeds 2.0 mg/L. This is intended to alert families about dental problems that might affect

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children under nine years of age. The fluoride concentration of your water exceeds this federal guideline.

Fluoride in children's drinking water at levels of approximately 1 mg/L reduces the number of dental cavities. However, some children exposed to levels of fluoride greater than about 2.0 mg/L may develop dental fluorosis. Dental fluorosis, in its moderate and severe forms, is a brown staining and/or pitting of the permanent teeth.

Because dental fluorosis occurs only when developing teeth (before they erupt from the gums) are exposed to elevated fluoride levels, households without children are not expected to be affected by this level of fluoride. Families with children under the age of nine are encouraged to seek other sources of drinking water for their children to avoid the possibility of staining and pitting.

Your water supplier can lower the concentration of fluoride in your water so that you will still receive the benefits of cavity prevention while the possibility of stained and pitted teeth is minimized. Removal of fluoride may increase your water costs. Treatment systems are also commercially available for home use. Information on such systems is available at the address given below. Low fluoride bottled drinking water that would meet all standards is also commercially available.

For further information, contact _____ [systems shall insert name and phone number of PWS POC] at your water system. [PWS shall insert the name, address, and telephone number of a contact person at the PWS.]

(10) Microbiological contaminants (for use when there is a violation of the treatment technique requirements for filtration and disinfection in Criterion 2.h.). The presence of microbiological contaminants is a health concern at certain levels of exposure. If water is inadequately treated, microbiological contaminants in that water may cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and any associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. FGS has set enforceable requirements for treating drinking water to reduce the risk of these adverse health effects. Treatment such as filtering and disinfecting the water removes or destroys microbiological contaminants. Drinking water which is treated to meet FGS requirements is associated with little to none of this risk and should be considered safe.

(11) Total coliforms. The presence of total coliforms is a possible health concern. Total coliforms are common in the environment and are generally not harmful themselves. The presence of these bacteria in drinking water, however, generally is a result of a problem with water treatment or the pipes which distribute the water, and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and any associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. The drinking water standard for total coliforms has been set to reduce the risk of these adverse health effects. Under this standard, no more than 5.0 percent of the samples collected during a month can contain these bacteria, except that systems collecting fewer than 40 samples/month that have one total coliform-positive sample per month are not violating the standard. Drinking water which meets this standard is usually not associated with a health risk from disease-causing bacteria and should be considered safe.

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(12) Fecal Coliforms/*E. coli*. The presence of fecal coliforms or E. coli is a serious health concern. Fecal coliforms and *E. coli* are generally not harmful themselves, but their presence in drinking water is serious because they usually are associated with sewage or animal wastes. The presence of these bacteria in drinking water is generally a result of a problem with water treatment or the pipes which distribute the water, and indicates that the water may be contaminated with organisms that can cause disease. Disease symptoms may include diarrhea, cramps, nausea, and possibly jaundice, and associated headaches and fatigue. These symptoms, however, are not just associated with disease-causing organisms in drinking water, but also may be caused by a number of factors other than your drinking water. The drinking water standard for fecal coliforms and *E. coli* has been set to reduce the risk of these adverse health effects. Under this standard all drinking water samples must be free of these bacteria. Drinking water which meets this standard is associated with little or none of this risk and should be considered safe.

(13) Lead is a health concern at certain exposure levels. Materials that contain lead have frequently been used in the construction of water supply distribution systems, and plumbing systems in private homes and other buildings. The most commonly found materials include service lines, pipes, brass and bronze fixtures, and solders and fluxes. Lead in these materials can contaminate drinking water as a result of the corrosion that takes place when water comes into contact with those materials. Lead can cause a variety of adverse health effects in humans. At relatively low levels of exposure, these effects may include interference with red blood cell chemistry, delays in normal physical and mental development in babies and young children, slight deficits in the attention span, hearing, and learning abilities of children, and slight increases in the blood pressure of some adults. All public water systems should optimize corrosion control to minimize lead contamination resulting from the corrosion of plumbing materials. Public water systems serving 50,000 people or fewer that have lead concentrations below 15 parts per billion (ppb) in more than 90 percent of tap water samples have optimized their corrosion control treatment. Any water system that exceeds the action level must also monitor their source water to determine whether treatment to remove lead in source water is needed. Any water system that continues to exceed the action level after installation of corrosion control and/or source water treatment must eventually replace all lead service lines contributing in excess of 15 ppb of lead to drinking water. Any water system that exceeds the action level must also undertake a public education program to inform consumers of ways they can reduce their exposure to potentially high levels of lead in drinking water.

(14) Copper is a health concern at certain exposure levels. Copper, a reddish-brown metal, is often used to plumb residential and commercial structures that are connected to water distribution systems. Copper contaminating drinking water as a corrosion by-product occurs as the result of the corrosion of copper pipes that remain in contact with water for a prolonged period of time. Copper is an essential nutrient, but at high doses it has been shown to cause stomach and intestinal distress, liver and kidney damage, and anemia. Persons with Wilson's disease may be at a higher risk of health effects due to copper than the general public. All public water systems [are] to install optimal corrosion control to minimize copper concentrations below 1.3 part per million (ppm) in more than 90 percent of tap water samples are not required to install or improve their treatment. Any water system that exceeds the action level must also monitor their source water to determine whether treatment to remove copper in source water is needed.

(15) Asbestos fibers greater than 10 micrometers in length are a health concern at certain levels of exposure. Asbestos is a naturally occurring mineral. Most asbestos fibers in drinking water are less than 10 micrometers in length and occur in drinking water from natural sources and from corroded asbestos-cement pipes in the distribution system. The major uses of asbestos were in the production of cements, floor tiles, paper products, paint, and caulking, in transportation-related applications; and in the production of textiles and plastics. Asbestos was once a popular insulating and fire retardant material. Inhalation studies have shown that various forms of asbestos have produced lung tumors in laboratory animals. The available information on the risk of developing gastrointestinal tract cancer associated with the ingestion

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of asbestos from drinking water is limited. Ingestion of intermediate-range chrysotile asbestos fibers greater than 10 micrometers in length is associated with causing benign tumors in male rats. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The drinking water standard for asbestos has been set at 7 million long fibers per liter to reduce the potential risk or cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets the standard is associated with little to none of this risk and should be considered safe with respect to asbestos.

(16) Barium is a health concern at certain levels of exposure. This inorganic chemical occurs naturally in some aquifers that serve as sources of groundwater. It is also used in oil and gas drilling muds, automotive paints, bricks, tiles and jet fuels. It generally gets into drinking water after dissolving from naturally occurring minerals in the ground. This chemical may damage the heart and cardiovascular system, and is associated with high blood pressure in laboratory animals such as rats exposed to high levels during their lifetimes. In humans, it is believed that effects from barium on blood pressure should not occur below 2 ppm in drinking water. The drinking water standard for barium has been set at 2 ppm to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to barium.

(17) Cadmium is a health concern at certain levels of exposure. Food and the smoking of tobacco are common sources of general exposure. This inorganic metal is a contaminant in the metals used to galvanize pipe. It generally gets into water by corrosion of galvanized pipes or by improper waste disposal. This chemical has been shown to damage the kidney in animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the kidney. The drinking water standard for cadmium has been set at 0.005 ppm to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to cadmium.

(18) Chromium is a health concern at certain levels of exposure. This inorganic metal occurs naturally in the ground and is often used in the electroplating of metals. It generally gets into water from runoff from old mining operations and improper waste disposal from plating operations. This chemical has been shown to damage the kidney, nervous system, and the circulatory system of laboratory animals such as rats and mice when the animals are exposed at high levels. Some humans who were exposed to high levels of this chemical suffered liver and kidney damage, dermatitis and respiratory problems. The drinking water standard for chromium has been set at 0.1 ppm to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to chromium.

(19) Mercury is a health concern at certain levels of exposure. This inorganic metal is used in electrical equipment and some water pumps. It usually gets into water as a result of improper waste disposal. This chemical has been shown to damage the kidney of laboratory animals such as rats when the animals are exposed at high levels over their lifetimes. The drinking water standard for mercury has been set at 0.002 ppm to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to mercury.

(20) Nitrate poses an acute health concern at certain levels of exposure. Nitrate is used in fertilizer and is found in sewage and wastes from human and/or farm animals and generally gets into drinking water from those activities. Excessive levels of nitrate in drinking water have caused serious illness and sometimes death in infants under six months of age. The serious illness in infants is caused because nitrate is converted to nitrite in the body. Nitrite interferes with the oxygen carrying capacity of the child's blood. This

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is an acute disease in that symptoms can develop rapidly in infants. In most cases, health deteriorates over a period of days. Symptoms include shortness of breath and blueness of the skin. Clearly, expert medical advice should be sought immediately if these symptoms occur. The purpose of this notice is to encourage parents and other responsible parties to provide infants with an alternate source of drinking water. Local and State health authorities are the best source for information concerning alternate sources of drinking water for infants. The drinking water standard has been set at 10 ppm for nitrate to protect against the risk of these adverse effects. The drinking water standard for nitrite has been set at 1 ppm. To allow for the fact that the toxicity of nitrate and nitrite are additive, the standard for the sum of nitrate and nitrite has been established at 10 ppm. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to nitrate.

(21) Nitrite poses an acute health concern at certain levels of exposure. This inorganic chemical is used in fertilizers and is found in sewage and wastes from humans and/or farm animals and generally gets into drinking water as a result of those activities. While excessive levels of nitrite in drinking water have not been observed, other sources of nitrite have caused serious illness and sometimes death in infants under six months of age. The serious illness in infants is caused because nitrite interferes with the oxygen carrying capacity of the child's blood. This is an acute disease in that symptoms can develop rapidly. However, in most cases, health deteriorates over a period of days. Symptoms include shortness of breath and blueness of the skin. Clearly, expert medical advice should be sought immediately if these symptoms occur. The purpose of this notice is to encourage parents and other responsible parties to provide infants with an alternate source of drinking water. The drinking water standard at 1 part per million (ppm) for nitrite to protect against the risk of these adverse effects. There is also a set drinking water standard for nitrate (converted to nitrite in humans) at 10 ppm and for the sum of nitrate and nitrite at 10 ppm. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to nitrite.

(22) Selenium is a health concern at certain high levels of exposure. Selenium is also an essential nutrient at low levels of exposure. This inorganic chemical is found naturally in food and soils and is used in electronics, photocopy operations, the manufacture of glass, chemicals, drugs, and as a fungicide and a feed additive. In humans, exposure to high levels of selenium over a long period of time has resulted in a number of adverse health effects, including a loss of feeling and control in the arms and legs. The drinking water standard for selenium at 0.05 ppm to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to selenium.

(23) Acrylamide is a health concern at certain levels of exposure. Polymers made from acrylamide are sometimes used to treat water supplies to remove particulate contaminants. Acrylamide has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. Sufficiently large doses of acrylamide are known to cause neurological injury. The drinking water standard for acrylamide is using a treatment technique to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. This treatment technique limits the amount of acrylamide in the polymer and the amount of the polymer which may be added to drinking water to remove particulates. Drinking water systems which comply with this treatment technique have little to no risk and are considered safe with respect to acrylamide.

(24) Alachlor is a health concern at certain levels of exposure. This organic chemical is a widely used pesticide. When soil and climatic conditions are favorable, alachlor may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed

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over long periods of time. The drinking water standard for alachlor has been set at 0.002 ppm to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to no risk and is considered safe with respect to alachlor.

(25) Aldicarb is a health concern at certain levels of exposure. Aldicarb is a widely used pesticide. Under certain soil and climatic conditions (e.g., sandy soil and high rainfall), aldicarb may leach into groundwater after normal agricultural applications to crops such as potatoes or peanuts or may enter drinking water supplies as a result of surface runoff. This chemical has been shown to damage the nervous system in laboratory animals such as rats and dogs exposed to high levels. The drinking water standard for aldicarb has been set at 0.003 ppm to protect against the risk of adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to aldicarb.

(26) Aldicarb sulfoxide is a health concern at certain levels of exposure. Aldicarb is a widely used pesticide. Aldicarb sulfoxide in groundwater is primarily a breakdown product of aldicarb. Under certain soil and climatic conditions (e.g., sandy soil and high rainfall), aldicarb sulfoxide may leach into groundwater after normal agricultural applications to crops such as potatoes or peanuts or may enter drinking water supplies as a result of surface runoff. This chemical has been shown to damage the nervous system in laboratory animals such as rats and dogs exposed to high levels. The drinking water standard for aldicarb sulfoxide has been set at 0.004 ppm to protect against the risk of adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to aldicarb sulfoxide.

(27) Aldicarb sulfone is a health concern at certain levels of exposure. Aldicarb is a widely used pesticide. Aldicarb sulfone is formed from the breakdown of aldicarb and is considered for registration as a pesticide under the name aldoxycarb. Under certain soil and climatic conditions (e.g., sandy soil and high rainfall), aldicarb sulfone may leach into groundwater after normal agricultural applications to crops such as potatoes or peanuts or may enter drinking water supplies as a result of surface runoff. This chemical has been shown to damage the nervous system in laboratory animals such as rats and dogs exposed to high levels. The drinking water standard for aldicarb sulfone has been set at 0.002 ppm to protect against the risk of adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to aldicarb sulfone.

(28) Atrazine is a health concern at certain levels of exposure. This organic chemical is a herbicide. When soil and climatic conditions are favorable, atrazine may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to affect offspring of rats and the heart of dogs. The drinking water standard for atrazine has been set at 0.003 ppm to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to atrazine.

(29) Carbofuran is a health concern at certain levels of exposure. This organic chemical is a pesticide. When soil and climatic conditions are favorable, carbofuran may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to damage the nervous and reproductive systems of laboratory animals such as rats and mice exposed at high levels over their lifetimes. Some humans who were exposed to relatively large amounts of this chemical during their working careers also suffered damage to the nervous system. Effects on the nervous system are generally rapidly reversible. The drinking water standard for carbofuran has been set at 0.04 ppm to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to carbofuran.

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(30) Chlordane is a health concern at certain levels of exposure. This organic chemical is a pesticide used to control termites. Chlordane is not very mobile in soils. It usually gets into drinking water after application near water supply intakes or wells. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed at high levels over long periods of time. The drinking water standard for chlordane has been set at 0.002 ppm to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to chlordane.

(31) Dibromochloropropane (DBCP) is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, dibromochloropropane may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed at high levels over long periods of time. The drinking water standard for DBCP has been set at 0.0002 ppm to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to DBCP.

(32) o-Dichlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a solvent in the production of pesticides and dyes. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, kidney and the blood cells of laboratory animals such as rats and mice exposed to high levels during their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the liver, nervous system, and circulatory system. The drinking water standard for o-dichlorobenzene has been set at 0.6 ppm to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to o-dichlorobenzene.

(33) cis-1, 2-Dichloroethylene is a health concern at certain levels of exposure. This organic chemical is used as a solvent and intermediate in chemical production. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, nervous system, and circulatory system of laboratory animals such as rats and mice when exposed at high levels over their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. The drinking water standard for cis-1, 2-dichloroethylene has been set at 0.07 ppm to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to cis-1, 2-dichloroethylene.

(34) trans-1, 2-Dichloroethylene is a health concern at certain levels of exposure. This organic chemical is used as a solvent and intermediate in chemical production. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, nervous system, and circulatory system of laboratory animals such as rats and mice when exposed at high levels over their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. The drinking water standard for trans-1, 2-dichloroethylene has been set at 0.1 ppm to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to trans-1, 2-dichloroethylene.

(35) 1, 2-Dichloropropane is a health concern at certain levels of exposure. This organic chemical is used as a solvent and pesticide. 1, 2-dichloropropane may get into drinking water by runoff into surface water or by leaching into groundwater. It may also get into drinking water through improper waste disposal. This

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chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The drinking water standard for 1, 2-dichloropropane has been set at 0.005 ppm to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to 1, 2-dichloropropane.

(36) 2, 4-D is a health concern at certain levels of exposure. This organic chemical is used as a herbicide and to control algae in reservoirs. When soil and climatic conditions are favorable, 2, 4-D may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to damage the liver and kidney of laboratory animals such as rats exposed at high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. The drinking water standard for 2, 4-D has been set at 0.07 ppm to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to 2, 4-D.

(37) Epichlorohydrin is a health concern at certain levels of exposure. Polymers made from epichlorohydrin are sometimes used in the treatment of water supplies as a flocculent to remove particulates. Epichlorohydrin generally gets into drinking water by improper use of these polymers. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The drinking water standard for epichlorohydrin is using a treatment technique to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. This treatment technique limits the amount of epichlorohydrin in the polymer and the amount of the polymer which may be added to drinking water as a flocculent to remove particulates. Drinking water systems which comply with this treatment technique have little to no risk and are considered safe with respect to epichlorohydrin.

(38) Ethylbenzene is a health concern at certain levels of exposure. This organic chemical is a major component of gasoline. It generally gets into water by improper waste disposal or leaking gasoline tanks. This chemical has been shown to damage the kidney, liver, and nervous system of laboratory animals such as rats exposed to high levels during their lifetimes. The drinking water standard for ethylbenzene has been set at 0.7 ppm to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to ethylbenzene.

(39) Ethylene dibromide (EDB) is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, EDB may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The drinking water standard for EDB has been set at 0.00005 ppm to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to EDB.

(40) Heptachlor is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, heptachlor may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans

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who are exposed over long periods of time. The drinking water standard for heptachlor has been set at 0.0004 ppm to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to heptachlor.

(41) Heptachlor epoxide is a health concern at certain levels of exposure. This organic chemical was once a popular pesticide. When soil and climatic conditions are favorable, heptachlor epoxide may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The drinking water standard for heptachlor epoxide has been set at 0.0002 ppm to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to heptachlor epoxide.

(42) Lindane is a health concern at certain levels of exposure. This organic chemical is used as a pesticide. When soil and climatic conditions are favorable, lindane may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to damage the liver, kidney, nervous system, and immune system of laboratory animals such as rats, mice and dogs exposed at high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system and circulatory system. The drinking water standard for lindane has been set at 0.0002 ppm to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to lindane.

(43) Methoxychlor is a health concern at certain levels of exposure. This organic chemical is used as a pesticide. When soil and climatic conditions are favorable, methoxychlor may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to damage the liver, kidney, nervous system, and reproductive system of laboratory animals such as rats exposed at high levels during their lifetimes. It has also been shown to produce growth retardation in rats. The drinking water standard for methoxychlor has been set at 0.04 ppm to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to methoxychlor.

(44) Monochlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a solvent. It generally gets into water by improper waste disposal. This chemical has been shown to damage the liver, kidney and nervous system of laboratory animals such as rats and mice exposed to high levels during their lifetimes. The drinking water standard for monochlorobenzene has been set at 0.1 ppm to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to monochlorobenzene.

(45) Polychlorinated biphenyls (PCBs) are a health concern at certain levels of exposure. These organic chemicals were once widely used in electrical transformers and other industrial equipment. They generally get into drinking water by improper waste disposal or leaking electrical industrial equipment. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The drinking water standard for PCBs has been set at 0.0005 ppm to reduce the risk of cancer or other adverse health effects wh have been observed in laboratory animals. Drinking water that meets this standard is associated with li to none of this risk and is considered safe with respect to PCBs.

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(46) Pentachlorophenol is a health concern at certain levels of exposure. This organic chemical is used as a wood preservative, herbicide, disinfectant, and defoliant. It generally gets into drinking water by runoff into surface water or leaching into groundwater. This chemical has been shown to produce adverse reproductive effects and to damage the liver and kidneys of laboratory animals such as rats exposed to high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the liver and kidneys. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The drinking water standard for pentachlorophenol has been set at 0.001 ppm to protect against the risk of cancer or other adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to pentachlorophenol.

(47) Styrene is a health concern at certain levels of exposure. This organic chemical is commonly used to make plastics and is sometimes a component of resins used for drinking water treatment. Styrene may get into drinking water from improper waste disposal. This chemical has been shown to damage the liver and nervous system in laboratory animals when exposed at high levels during their lifetimes. The drinking water standard for styrene has been set at 0.1 ppm to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to styrene.

(48) Tetrachloroethylene is a health concern at certain levels of exposure. This organic chemical has been a popular solvent, particularly for dry cleaning. It generally gets into drinking water by improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The drinking water standard for tetrachloroethylene has been set at 0.005 ppm to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to tetrachloroethylene.

(49) Toluene is a health concern at certain levels of exposure. This organic chemical has been used as a solvent and in the manufacture of gasoline for airplanes. It generally gets into water by improper waste disposal or leaking underground storage tanks. This chemical has been shown to damage the kidney, nervous system, and circulatory system of laboratory animals such as rats and mice exposed to high levels during their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the liver, kidney and nervous system. The drinking water standard for toluene has been set at 1 part per million (ppm) to protect against the risk of adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to toluene.

(50) Toxaphene is a health concern at certain levels of exposure. This organic chemical was once a pesticide widely used on cotton, corn, soybeans, pineapples and other crops. When soil and climatic conditions are favorable, toxaphene may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The drinking water standard for toxaphene has been set at 0.003 ppm to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to toxaphene.

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(51) 2, 4, 5-TP is a health concern at certain levels of exposure. This organic chemical is used as a herbicide. When soil and climatic conditions are favorable, 2, 4, 5-TP may get into drinking water by runoff into surface water or by leaching into groundwater. This chemical has been shown to damage the liver and kidney of laboratory animals such as rats and dogs exposed to high levels during their lifetimes. Some industrial workers who were exposed to relatively large amounts of this chemical during working careers also suffered damage to the nervous system. The drinking water standard for 2, 4, 5-TP has been set at 0.05 ppm to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to 2, 4, 5-TP.

(52) Xylene is a health concern at certain levels of exposure. This organic chemical is used in the manufacture of gasoline for airplanes and as a solvent for pesticides, and as a cleaner and degreaser of metals. It usually gets into water by improper waste disposal. This chemical has been shown to damage the liver, kidney and nervous system of laboratory animals such as rats and dogs exposed to high levels during their lifetimes. Some humans who were exposed to relatively large amounts of this chemical also suffered damage to the nervous system. The drinking water standard for xylene has been set at 10 ppm to protect against the risk of these adverse health effects. Drinking water that meets this standard is associated with little to none of this risk and is considered safe with respect to xylene.

(53) Antimony is a health concern at certain levels of exposure. This inorganic chemical occurs naturally in soils, groundwater and surface waters and is often used in the flame retardant industry. It is also used in ceramics, glass, batteries, fireworks and explosives. It may get into drinking water through natural weathering of rock, industrial production, municipal waste disposal or manufacturing processes. This chemical has been shown to decrease longevity, and altered blood levels of cholesterol and glucose in laboratory animals such as rats exposed to high levels during their lifetimes. The drinking water standard for antimony has been set at 0.006 ppm to protect against the risk of these adverse health effects. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to antimony.

(54) Beryllium is a health concern at certain levels of exposure. This inorganic metal occurs naturally in soils, groundwater and surface waters and is often used in electrical equipment and electrical components. It generally gets into water from runoff from mining operations, discharge from processing plants and improper waste disposal. Beryllium compounds have been associated with damage to the bones and lungs and induction of cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. There is limited evidence to suggest that beryllium may pose a cancer risk via drinking water exposure. Therefore, the health assessment is based on noncancer effects with an extra uncertainty factor to account for possible carcinogenicity. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The drinking water standard for beryllium has been set at 0.004 ppm to protect against the risk of these adverse health effects. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to beryllium.

(55) Cyanide is a health concern at certain levels of exposure. This inorganic chemical is used in electroplating, steel processing, plastics, synthetic fabrics and fertilizer products. It usually gets into water as a result of improper waste disposal. This chemical has been shown to damage the spleen, brain and liver of humans fatally poisoned with cyanide. The drinking water standard for cyanide has been set at 0.2 ppm to protect against the risk of these adverse health effects. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to cyanide.

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(56) Nickel poses a health concern at certain levels of exposure. This inorganic chemical occurs naturally in soils, groundwater and surface waters and is often used in electroplating, stainless steel and alloy products. It generally gets into water from mining and refining operations. This chemical has been shown to damage the heart and liver in laboratory animals when the animals are exposed to high levels over their lifetimes. The drinking water standard has been set at 0.1 ppm for nickel to protect against the risk of these adverse effects. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to nickel.

(57) Thallium is a health concern at certain high levels of exposure. This inorganic metal is found naturally in soils and is used in electronics, pharmaceuticals, and the manufacture of glass and alloys. This chemical has been shown to damage the kidney, liver, brain and intestines of laboratory animals when the animals are exposed at high levels over their lifetimes. The drinking water standard for thallium has been set at 0.002 ppm to protect against the risk of these adverse health effects. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to thallium.

(58) Benzo[a]pyrene is a health concern at certain levels of exposure. Cigarette smoke and charbroiled meats are common source of general exposure. The major source of benzo[a]pyrene in drinking water is the leaching from coal tar lining and sealants in water storage tanks. This chemical has been shown to cause cancer in animals such as rats and mice when the animals are exposed at high levels. The drinking water standard for benzo[a]pyrene has been set at 0.0002 ppm to protect against the risk of cancer. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to benzo[a]pyrene.

(59) Dalapon is a health concern at certain levels of exposure. This organic chemical is a widely used herbicide. It may get into drinking water after application to control grasses in crops, drainage ditches and along railroads. This chemical has been shown to cause damage to the kidney and liver in laboratory animals when the animals are exposed to high levels over their lifetimes. The drinking water standard for dalapon has been set at 0.2 ppm to protect against the risk of these adverse health effects. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to dalapon.

(60) Dichloromethane is a health concern at certain levels of exposure. This organic chemical is a widely used solvent. It is used in the manufacture of paint remover, as a metal degreaser and as an aerosol propellant. It generally gets into drinking water after improper discharge of waste disposal. This chemical has been shown to cause cancer in animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The drinking water standard for dichloromethane has been set at 0.005 ppm to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to dichloromethane.

(61) Di(2-ethylhexyl)adipate is a health concern at certain levels of exposure. Di(2-ethylhexyl)adipate is a widely used plasticizer in a variety of products, including synthetic rubber, food packaging materials and cosmetics. It may get into drinking water after improper waste disposal. This chemical has been shown to damage the liver and testes in laboratory animals such as rats and mice exposed to high levels. The drinking water standard for di(2-ethylhexyl)adipate has been set at 0.4 ppm to reduce the risk of these adverse health effects. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to di(2-ethylhexyl)adipate.

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(62) Di(2-ethylhexyl)phthalate is a health concern at certain levels of exposure. Di(2-ethylhexyl)phthalate is a widely used plasticizer, which is primarily used in the production of polyvinyl chloride (PVC) resins. It may get into drinking water after improper waste disposal. This chemical has been shown to cause cancer in laboratory animals such as rats and mice exposed to high levels over their lifetimes. The drinking water standard for di(2-ethylhexyl)phthalate has been set at 0.004 ppm to reduce the risk of these adverse health effects. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to di(2-ethylhexyl)phthalate.

(63) Dinoseb is a health concern at certain levels of exposure. Dinoseb is a widely used pesticide and generally gets into drinking water after application on orchards, vineyards, and other crops. This chemical has been shown to damage the thyroid and reproductive organs in laboratory animals such as rats exposed to high levels. The drinking water standard for dinoseb has been set at 0.007 ppm to reduce the risk of adverse health effects. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to dinoseb.

(64) Diquat is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control terrestrial and aquatic weeds. It may get into drinking water by runoff into surface water. This chemical has been shown to damage the liver, kidney and gastrointestinal tract and causes cataract formation in laboratory animals such as dogs and rats exposed to high levels over their lifetimes. The drinking water standard for diquat has been set at 0.02 ppm to reduce the risk of these adverse health effects. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to diquat.

(65) Endothall is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control terrestrial and aquatic weeds. It may get into water by runoff into surface water. This chemical has been shown to damage the liver, kidney, gastrointestinal tract and reproductive system of laboratory animals such as rats and mice exposed to high levels over their lifetimes. The drinking water standard for endothall has been set at 0.1 ppm to reduce the risk of these adverse health effects. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to endothall.

(66) Endrin is a health concern at certain levels of exposure. This organic chemical is a pesticide no longer registered for use in the United States. However, this chemical is persistent in treated soils and accumulates in sediments and aquatic and terrestrial biota. This chemical has been shown to cause damage to the liver, kidney and heart in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. The drinking water standard for endrin has been set at 0.002 ppm to protect against the risk of these adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to endrin.

(67) Glyphosate is a health concern at certain levels of exposure. This organic chemical is a herbicide used to control grasses and weeds. It may get into drinking water by runoff into surface water. This chemical has been shown to cause damage to the liver and kidneys in laboratory animals such as rats and mice when the animals are exposed to high levels over their lifetimes. The drinking water standard for glyphosate has been set at 0.7 ppm to protect against the risk of these adverse health effects. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to glyphosate.

(68) Hexachlorobenzene is a health concern at certain levels of exposure. This organic chemical is produced as an impurity in the manufacture of certain solvents and pesticides. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed to high levels

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during their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The drinking water standard for hexachlorobenzene has been set at 0.001 ppm to protect against the risk of cancer and other adverse health effects. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to hexachlorobenzene.

(69) Hexachlorocyclopentadiene is a health concern at certain levels of exposure. This organic chemical is used as an intermediate in the manufacture of pesticides and flame retardants. It may get into water by discharge from production facilities. This chemical has been shown to cause damage the kidney and the stomach of laboratory animals when exposed to high levels over their lifetimes. The drinking water standard for hexachlorocyclopentadiene has been set at 0.05 ppm to protect against the risk of these adverse health effects. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to hexachlorocyclopentadiene.

(70) Oxamyl is a health concern at certain levels of exposure. This organic chemical is used as a pesticide for the control of insects and other pests. It may get into drinking water by runoff into surface water or leaching into groundwater. This chemical has been shown to cause damage to the kidneys of laboratory animals such as rats when exposed at high levels over their lifetimes. The drinking water standard for oxamyl has been set at 0.2 ppm to protect against the risk of these adverse health effects. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to oxamyl.

(71) Picloram is a health concern at certain levels of exposure. This organic chemical is used as a pesticide for broadleaf weed control. It may get into drinking water by runoff into surface water or leaching into groundwater as a result of pesticide application and improper waste disposal. This chemical has been shown to cause damage to the kidneys and liver in laboratory animals such as rats when the animals are exposed at high levels over their lifetimes. The drinking water standard for picloram has been set at 0.5 ppm to protect against the risk of these adverse health effects. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to picloram.

(72) Simazine is a health concern at certain levels of exposure. This organic chemical is used as a herbicide used to control annual grasses and broadleaf weeds. It may leach into groundwater or runoff into surface water after application. This chemical may cause cancer in laboratory animals such as rats and mice exposed at high levels during their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The drinking water standard for simazine has been set at 0.004 ppm to reduce the risk of cancer or other adverse health effects. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to simazine.

(73) 1, 2, 4-Trichlorobenzene is a health concern at certain levels of exposure. This organic chemical is used as a dye carrier and as a precursor in herbicide manufacture. It generally gets into drinking water by discharges from industrial activities. This chemical has been shown to cause damage to several organs, including the adrenal glands. The drinking water standard for 1, 2, 4-trichlorobenzene has been set at 0.07 ppm to protect against the risk of these adverse health effects. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to 1, 2, 4-trichlorobenzene.

(74) 1, 1, 2-Trichloroethane is a health concern at certain levels of exposure. This organic chemical is an intermediate in the production of 1, 1-dichloroethylene. It generally gets into water by industrial discharge of wastes. This chemical has been shown to damage the kidney and liver of laboratory animals such as rats exposed to high levels during their lifetimes. The drinking water standard for 1, 1, 2-trichloroethane has

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been set at 0.005 ppm to protect against the risk of these adverse health effects. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to 1, 1, 2-trichloroethane.

(75) 2, 3, 7, 8-TCDD (Dioxin). is a health concern at certain levels of exposure. This organic chemical is an impurity in the production of some pesticides. It may get into drinking water by industrial discharge of wastes. This chemical has been shown to cause cancer in laboratory animals such as rats and mice when the animals are exposed at high levels over their lifetimes. Chemicals that cause cancer in laboratory animals also may increase the risk of cancer in humans who are exposed over long periods of time. The drinking water standard for dioxin has been set at 0.00000003 ppm to reduce the risk of cancer or other adverse health effects which have been observed in laboratory animals. Drinking water which meets this standard is associated with little to none of this risk and is considered safe with respect to dioxin.

INSTALLATION:	COMPLIANCE CATEGORY: WATER QUALITY MANAGEMENT Japan ECAMP	DATE:	REVIEWER(S):
STATUS NA C RMA	REVIEWER COMMENTS:		