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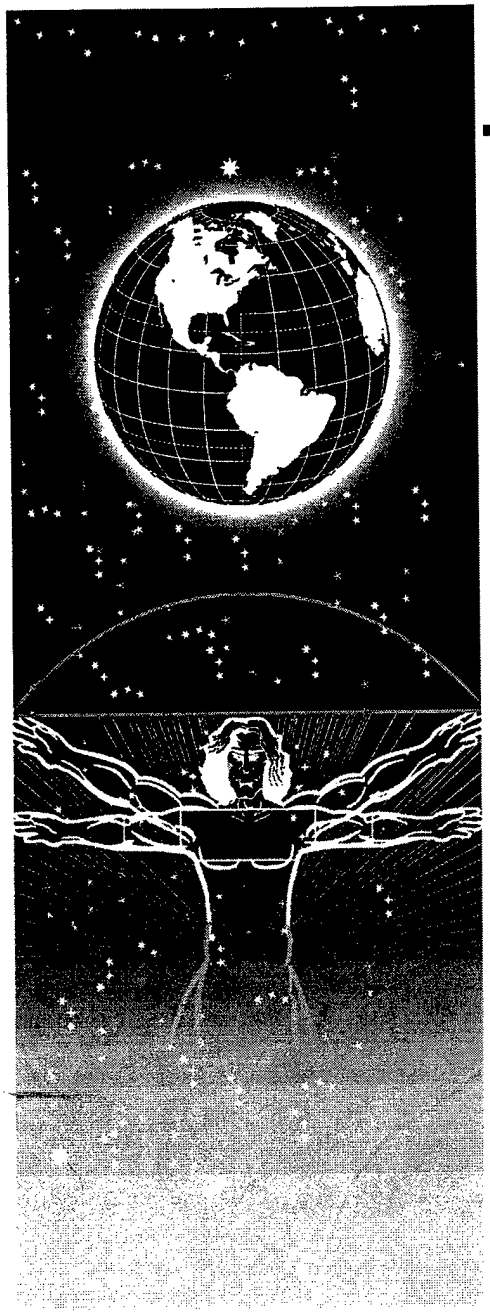

UNITED STATES AIR FORCE
IERA

Update AF-EMIS for Hazardous Material Data Entry, Grand Forks Air Force Base, North Dakota

Pacific Environmental Services, Incorporated
560 Herndon Parkway, Suite 200
Herndon, Virginia 20170-5240

September 1999

Approved for public release;

distribution is unlimited.

Air Force Institute for Environment, Safety and Occupational Health Risk Analysis
Risk Analysis Directorate
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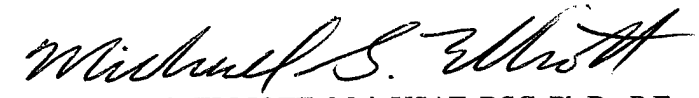

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Report details the upload of the U.S. Air Force Environmental Management Information System for subject installation. A summary of records and types of data input is provided. Also included is a summary of input procedures to include workplace data, national stock number entry and validation, manufacturer data entry and validation, material safety data sheet information, and authorizations/validation paperwork sources.

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ACRONYM AND ABBREVIATION LIST

ACGIH	Amercian Conference of Governmental Industrial Hygienists
AFB	Air Force Base
AF-EMIS	Air Force Environmental Management Information System
AFI	Air Force Instruction
AFOSH	Air Force Occupational Safety and Health
AMC	Air Mobility Command
Avg.	Average
BE	Bioenvironmental Engineering
BEI	Biological Exposure Index
BEF	Bioenvironmental Engineering Flight
BESWPID	Bioenvironmental Engineering Services Workplace Identification Number
CAA	Clean Air Act
CAGE	Commercial and Government Entity
CAS	Chemical Abstract Service
CE	Civil Engineering
CF	Cubic Feet
Cmd.	Command
Conc.	Concentration
COR	Contractor Officer Representative
CSA	Chemical Staging Area
CSA ID	Chemical Staging Area Identification
CY	Cylinder
DESCIM	Defense Environmental Security Corporate Information Management
DOT	Department of Transportation
°F	Degree Fahrenheit
EHS	Environmental Health and Safety
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-to-Know Act
g/l	Grams per liter
GOCESS	Government Operated Civil Engineering Supply Store
HAP	Hazardous Air Pollutant
HAZMAT	Hazardous Material
HAZMART	Hazardous Material Pharmacy
Hg	Mercury
HMIS	Hazardous Material Information System
HM POC	Hazardous Material Point of Contact
HW POC	Hazardous Waste Point of Contact
IEX	Issue Exception
Ins.	Installation

ACRONYM AND ABBREVIATION LIST (continued)

LB	Pounds
lbs/gal	Pounds per gallon
LG	Logistics Group
LPN	Local Purchase Number
Max.	Maximum
mg/m^3	Milligrams per cubic meter
Min.	Minimum
mm	Millimeters
MSDS	Material Safety Data Sheet
N/A	Not applicable
NIOSH	National Institute for Occupational Safety and Health
No.	Number
NSN	National Stock Number
ODC	Ozone Depleting Chemicals
Ofc.	Office
Org.	Organization
PEL	Permissible Exposure Limit
PES	Pacific Environmental Services, Inc.
Pkg.	Packaging
POC	Point of Contact
PPE	Personal Protective Equipment
ppb	Parts per billion
ppm	Parts per million
Qty.	Quantity
RCRA	Resource Conservation and Recovery Act
RMP	Risk Management Plan
SE	Safety or Chief of Safety
Seq.	Sequential
SOS	Sources of Supply
STEL	Short-Term Exposure Limit
TLV	Threshold Limit Value
TRI	Toxic Release Inventory
UEC	Unit Environmental Coordinator
VOC	Volatile Organic Compounds

1.0 INTRODUCTION

1.1 BACKGROUND

Pacific Environmental Services, Inc. (PES) was contracted under Air Force Contract F41624-95-D-9017, Order 48, to enter and validate data in the Air Force Environmental Management Information System (AF-EMIS) at Hazardous Material Pharmacies at Charleston, Grand Forks, MacDill, McChord, McConnell, McGuire, and Travis Air Force Bases (AFBs). Air Force Instruction (AFI) 32-7086 Hazardous Materials Management, 01 August 1997, requires that bases collect and maintain hazardous material (HAZMAT) data on standardized automated data processing equipment through a Defense Environmental Security Corporate Information Management (DESCIM) program, or a DESCIM-approved interim program. Presently, AF-EMIS is the DESCIM-approved interim program for the Air Mobility Command (AMC). While AF-EMIS is installed at each of the seven AMC bases addressed by this Order, presently its full capabilities cannot be utilized because key data has not been entered into the system. The objective of Order 48 was to correct this deficiency by contracting PES to enter and validate the needed data.

AF-EMIS was developed to provide HAZMAT data to the functional organizations responsible for execution of the HAZMAT Management Process: i.e., Civil Engineering (CE), Bioenvironmental Engineering (BE), Safety (SE), and the Logistics Group (LG). These organizations shall be referred to hereafter as AF-EMIS stakeholders. The HAZMAT data are needed by the organizations to meet their HAZMAT-related reporting requirements; assess pollution prevention opportunities; measure the success in minimizing HAZMAT use; and protect the environmental, safety, and health conditions of workers and the community. Because some of the data fields have not been populated, AF-EMIS cannot be fully utilized for these purposes at the seven bases addressed by this Order.

Furthermore, not all sources of supply (SOS) currently have connectivity to AF-EMIS or have arrangements with another SOS to make the necessary entries into the tracking system, as required by AMC Supplement I to AFI 32-7086.

PES is to determine the status of the AF-EMIS at the seven bases and to populate the tracking system to allow CE, BE, SE, and LG to satisfy their HAZMAT-related data requirements. In performing this work, PES is to enter data from other SOS, as provided and directed by each base. Data entry for the third of the seven bases (Grand Forks AFB) was completed 20 May 1999. This report documents the results of the Grand Forks AFB effort.

PES determined the initial status of AF-EMIS through a telephone conversation with the Base project point of contact (POC) and conducting a Kick-off Meeting. First, PES conversed by telephone with the Base project point of contact (POC) in early January 1999 to establish lines of communication with key AF-EMIS stakeholders and partially determine the status of AF-EMIS.

PES conducted a base-specific Kick-off Meeting at Grand Forks AFB on 15 March 1999 to further determine the initial status of AF-EMIS data completeness and quality. In addition, the availability of information and resources to complete data input/validation was discussed with respect to all SOS. The initial AF-EMIS status is summarized in Section 1.3.

Data elements to be entered or verified were established during the base Kick-off Meeting, which was attended, among others, by representatives from CE, BE, and LG. A list of the AF-EMIS Materials Module data fields was distributed to each of the Kick-off Meeting attendees. The list also contained a brief description of each data field and the potential sources of data for each data field. This list was discussed in detail during the meeting to establish the data

elements to be entered or verified by PES. The data fields that the various Base organizations wanted populated/updated are identified in Section 1.2.

Data entry/validation was conducted at Grand Forks AFB by a two-person PES team. The lead data entry person was on-site for data entry from 15 March 1999 to 30 April 1999 and from 17 May 1999 to 20 May 1999. The junior data entry person was on-site from 18 March 1999 to 20 May 1999. PES' data entry/validation efforts are presented in Sections 2 through 7 of this report.

1.2 AF-EMIS DATA FIELDS TO BE POPULATED/UPDATED

The hazardous material data resides in the "Materials Module" in the AF-EMIS program. This module consists of the following six types of records: National Stock Number (NSN); Shop; Authorization; Commercial and Government Entity (CAGE), which contains information from the MSDS; Chemical Abstract Service (CAS); and Manufacturer. These records contain the following information:

This record:	Stores information on:
NSN	**Hazardous material and waste profiles identified by a National Stock Number or other identifying stock number, such as Local Purchase Number (LPN).**
Shop	**Organizations and work areas where hazardous material is used and waste is accumulated.**
Authorization	**Authorizations for shops to use hazardous material.**
CAGE (MSDS)	**MSDS information on the hazardous material and waste profiles.**
CAS	**Information on the chemicals contained in the hazardous material or hazardous waste streams.**
Manufacturer	**Manufacturers and vendors that supply hazardous material.**

These records were presented to the AF-EMIS stakeholders as the data AF-EMIS Materials Module data fields list. The AF-EMIS stakeholders used this list to identify the data fields to be populated/updated by PES.

Data fields that the Base AF-EMIS stakeholders wanted populated for the six record types are listed in Table 1.1. Those data fields appearing in bold for each record are the mandatory data that must be entered in order for the AF-EMIS program to create that record. For example, AF-EMIS will not create a NSN record if the NSN, Components in NSN, Noun, Supply, and Shelf Life fields are not populated.

1.3 INITIAL AF-EMIS STATUS

A limited assessment of the status of the data already entered into the AF-EMIS system before PES arrived onsite was determined from discussions with the Base project POC in early January 1999 and with Base AF-EMIS Stakeholders during the Base-specific Kick-off Meeting. PES also perused the database master reports for this purpose, however, only through entering and validating the data was PES able to develop a full understanding of the database condition.

There were 1,690 valid hardcopy Chemical/Hazardous Material Request/ Authorizations (Form 3952s), on file at the Base HAZMART. Most of these authorizations were entered into AF-EMIS by the LG prior to PES' data entry activities; however, not all of the data fields were populated. Typically, the only AF-EMIS data fields populated for the authorization record by LG personnel were the mandatory ones for adding a record to the database. In addition, PES found over 100 expired and/or invalid authorizations that were listed in AF-EMIS as active authorizations during its data entry activities. These authorizations were made inactive.

Table 1.1 AF-EMIS Data Fields that Grand Forks AFB Organizations Wanted Populated	
Records	**Data Field**
NSN	**NSN** **Components in NSN** **Noun** Specification Label Style (2 fields) Status Break NSN Break Qty Size Unit Pkg. **Supply** Cost Seq. Tracking Type Material Aerosol Outside Container VOC % Min. (automatically calculated) VOC % Max. (automatically calculated) Health Review IEX Code Physical Hazard Acquisition Advice **Shelf Life**
Shop	**Shop Code** **Shop Type** BES WPID Ins. **Cmd.** **Org.** **Ofc.** **Title** CSA ID **Shop Status** Building Location Address City

Table 1.1 (Continued)	
Records	Data Field
Shop (continued)	State Zip **Contractor** COR Shop Contract Period From and To HM POC with Phone Number Supervisor with Phone Number UEC with Phone Number HW POC Supply Account Code Supply Account Code Status Supply Account Code Effective Date Process Code and Description Mission Statement
Authorization	**NSN** **Shop Code** **Status** **Process** New Process ODC (system generated) ODC Application **Draw Amount** **Draw Frequency** **Reset** Justification – Weapon System Justification – Justification Type Justification – Justification Justification – Technical Order Justification – Page Number Justification – Paragraph Number Justification – Date Justification – Revision Justification – Remarks How Used Disposal Remarks – Disposal **Date Next Action** **Next Action** Date Reviewed (Environmental) Reviewed By (Environmental)

Table 1-1 (Continued)	
Records	**Data Field**
Authorization (continued)	Remarks (Environmental) Health Review – PPE Date Reviewed (Health) Reviewed By (Health) Remarks (Health)
CAGE (MSDS)	**NSN** **CAGE** CAGE Status **CAGE Version** **CAGE Component No.** Part No. or Trade Name DOT Shipping Name DOT Technical Name DOT Packaging Group MSDS Date Health Review Code Health Hazard Physical Hazard **Ounces** **Type** Flash Point Min., Max., and Type pH Type, Min., and Max. VOC with Units Specific Gravity Density Vapor Pressure with Units Health Data Frame – Health Hazard Health Data Frame – Specific Hazard Health Data Frame – Fire Hazard Health Data Frame – Reactivity Health Data Frame – Target Organ(s) Health Data Frame – Comments Constituents – CAS Constituents – Chemical Name Constituents – Amount Min. and Max. Constituents – Concentration Units Constituents – Percent Weight or Volume Constituents – Chemical Form Constituents – Chemical State

Table 1-1 (Concluded)

Records	Data Field
CAS	None
Manufacturer	**CAGE** **Status** Distributor **Company Name** Address City County State Country Zip Phone Fax

With respect to NSN records, most of the NSNs and LPNs were already in the AF-EMIS database when PES initiated its data entry activities; however, only AF-EMIS-mandatory (for record creation) data fields were typically populated correctly. Because the AF-EMIS software uses multiple NSNs or LPNs for the same hazardous material to differentiate container type/size, the 832 NSNs and LPNs represent a somewhat smaller number of different HAZMATs.

While most of the NSN records had at least one associated CAGE (MSDS) record, many had multiple CAGE records. This posed an unmanageable quantity of data entry/validation to be performed (>5,000 CAGE records). To reduce the data entry effort to a more manageable level, mutual agreement was reached between HAZMART personnel and PES to limit the CAGE record(s) for populating/updating to those associated with HAZMAT(s) that was (were) in the electronic inventory in the AF-EMIS Staging Area Module and those that had hard copy MSDSs attached to the Form 3952. If no HAZMAT with the NSN/LPN were in inventory and if no hard copy MSDS were attached to the Form 3952, the most recent MSDS based on the MSDS date listed in the Hazardous Material Information System (HMIS) database was used. PES found that the number of CAGE records populated/validated to be approximately 1.2 times the number of different NSNs and LPNs authorized for shop use. CAGE records that were already in AF-EMIS before PES began data entry, but no longer active (i.e., the associated HAZMAT was not in inventory or the record did not reflect the latest MSDS) were assigned proper sizes (Ounces and Type) and inactivated. Additional details on this subject are presented in Section 6.

Another issue regarding CAGE records relates to the incorrect population of the "CAGE Version" fields. When a new version of a MSDS is obtained for a HAZMAT used at the Base, a new CAGE record should be created utilizing the same CAGE but changing the "CAGE Version" to the next letter value (i.e., old version "B", new version "C"). The CAGE records in AF-EMIS, when PES first

reviewed the data, did not reflect the use of this procedure; the "CAGE Component No." was increased instead. The CAGE Component No. is designed for multi-part kits, such as a two-part epoxy. This incorrect practice resulted in CAGE records with multiple components listed for a single component material. These invalid CAGE records were assigned near zero sizes (Ounces and Type) and inactivated. Based on discussions with personnel at the AF-EMIS Help Desk, the new AF-EMIS, Version 6.0 due for August 1999 release, will not allow the number of CAGE components to exceed the Components in NSN entered in the NSN records. For additional details, refer to Section 6.

About one half of the final number of Manufacturer records required updating to some degree. Most updates were minor such as changes in Office Location or area codes for phone/fax numbers.

PES did not update CAS records because they would be updated with the new AF-EMIS Version 6.0 due to be released in August 1999. Version 6.0 will contain updated CAS records, including some new fields. Therefore, any updates that PES made to the current version of AF-EMIS, would be overwritten by the new CAS records associated with AF-EMIS Version 6.0.

Most of the Shop record data fields were populated for the 92 Base shops having hazardous materials authorizations before PES began data entry. PES' efforts to update/validate these records were hampered by a lack of data on the shops. The Shop Profile Worksheet would provide all of the information needed to completely populate all Shop record data fields that the AF-EMIS stakeholders wanted populated; however, very few of these forms were completed by the Shops. The Shop records were updated/validated based on the Shop Profile Worksheets.

1.4 OVERVIEW OF DATA ENTRY/VALIDATION PROCEDURES

The population of the six hazardous material records must be performed in the following order: Shop, NSN, Manufacturer, CAS, CAGE, and Authorization. Procedures used by PES for each record are described in Sections 2 through 7, with each section devoted to a particular type of record. The data fields, including the data sources, difficulties encountered, and conventions for a specific type of record are discussed in each section. A table that lists each data field; identifies sources of information used to populate each field; and enumerates data entries made by PES is included in each section. The AF-EMIS record screen is also presented for each record type.

Printouts of each Shop's AF-EMIS Report "Chemical Authorizations in Shop Sequence" and hard copies of Form 3952 on file at the HAZMART formed the basis of data entry in three respects. First, PES entered data for a HAZMAT only if there was a hard copy Form 3952 authorizing its use on Base; the Order's Statement of Work did not include the capture of HAZMAT in the AF-EMIS database if this material were not being acquired, stored, etc. in accordance with the HAZMAT management process authorization procedures. Second, the information contained on the hard copy Form 3952 was used as one of the standard resources for validating the information previously entered into AF-EMIS and the data entered by PES under this Order. Last, the HAZMART file cabinets contained all "Chemical Authorizations in Shop Sequence" reports and authorized Form 3952's on Base; therefore, this was the most extensive list of hazardous materials and was the logical choice for the basis of data entry.

When authorized materials were no longer needed by a Shop, the printout of "Chemical Authorizations in Shop Sequence" report was revised to show the elimination of these materials; however, the original Form 3952 was kept in the file cabinet for record keeping purposes. Thus, PES used a combination of Form

3952's and the "Chemical Authorizations in Shop Sequence" report to determine the current authorized materials for a Shop.

Shops requiring the use of HAZMAT are required to submit a Form 3952 prior to obtaining such materials. The Form 3952 is deemed approved when it has been reviewed and signed by appropriate BE, CE, and SE representatives and forwarded to the HAZMART for input into AF-EMIS. The HAZMART will not issue HAZMAT to a shop that has not followed the Form 3952 process.

2.0 SHOP RECORD DATA ENTRY/VALIDATION PROCEDURES

Shop records must be entered/validated as the first step in populating the AF-EMIS Material Module because each material authorization is specific to the processes in a particular shop. The Authorization record cannot be created in AF-EMIS if the shop and process codes do not already exist in the database. Shop records were created by Base personnel prior to PES' arrival for all shops at Grand Forks AFB, including the Government Operated Civil Engineering Supply Store (GOCESS).

AF-EMIS has two Shop record screens; these are presented as Figures 2.1 and 2.2. The Shop record data fields that the AF-EMIS stakeholders wanted updated; the sources of information PES used to update them, and the number of times data were entered by PES for each data field are presented in Table 2.1.

The mandatory data fields for creating a shop record (see Table 1-1) were already populated for all of the Base's 92 shops that had Form 3952 authorization for hazardous materials usage before PES began populating the AF-EMIS database. Information needed for validating these data fields and populating the other Shop record data fields is typically obtained by the Base LG or BE staff from the shops using a Shop Profile Worksheet. However, a Shop Profile Worksheet was completed for only six shops. The non-mandatory data fields for these six shops were also populated by the Base staff before PES came on-site. PES validated the data for these six shops; no data fields had to be updated. Because the Process Code and Description information was contained on the Form 3952, PES was able to verify these data fields for all the 92 Shops, of which 62 were updated.

FIGURE 2.1

AF-EMIS SHOP RECORD SCREEN NUMBER 1 OF 2

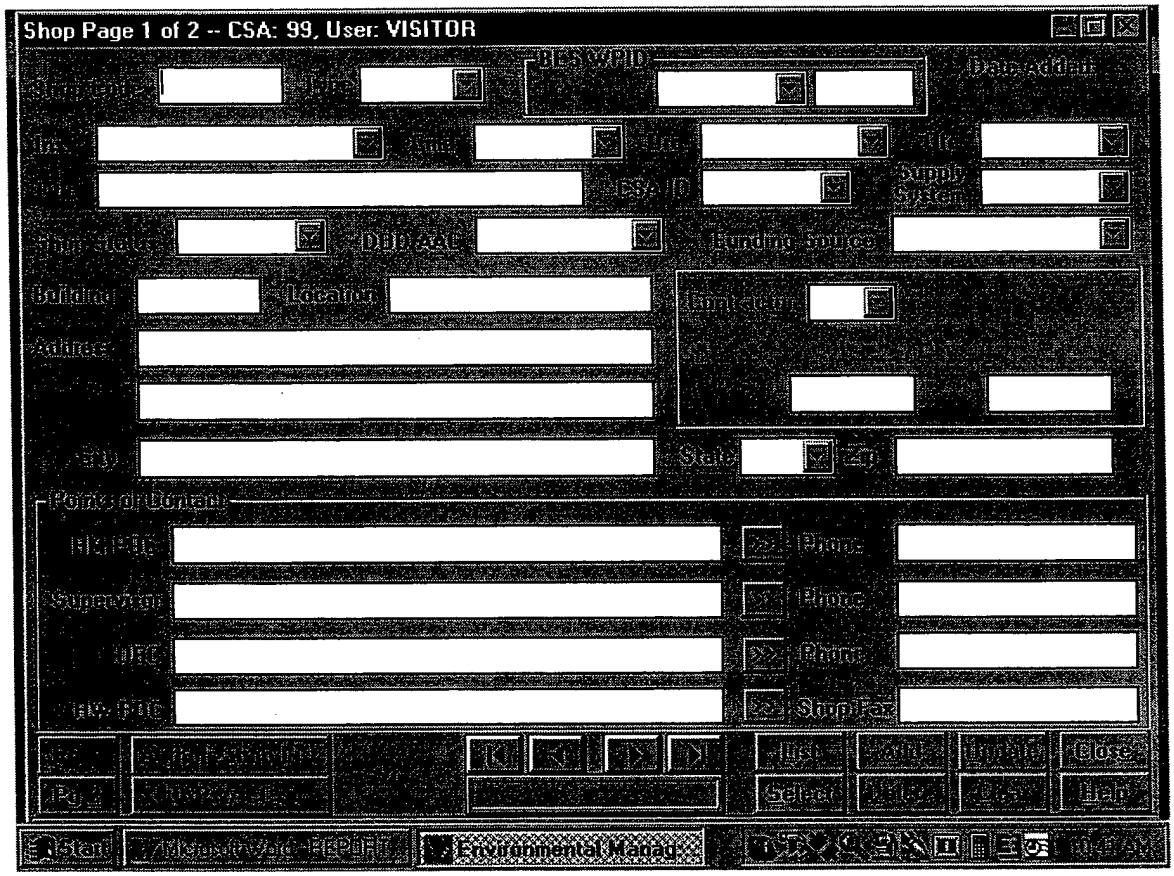


FIGURE 2.2

AF-EMIS SHOP RECORD SCREEN NUMBER 2 OF 2

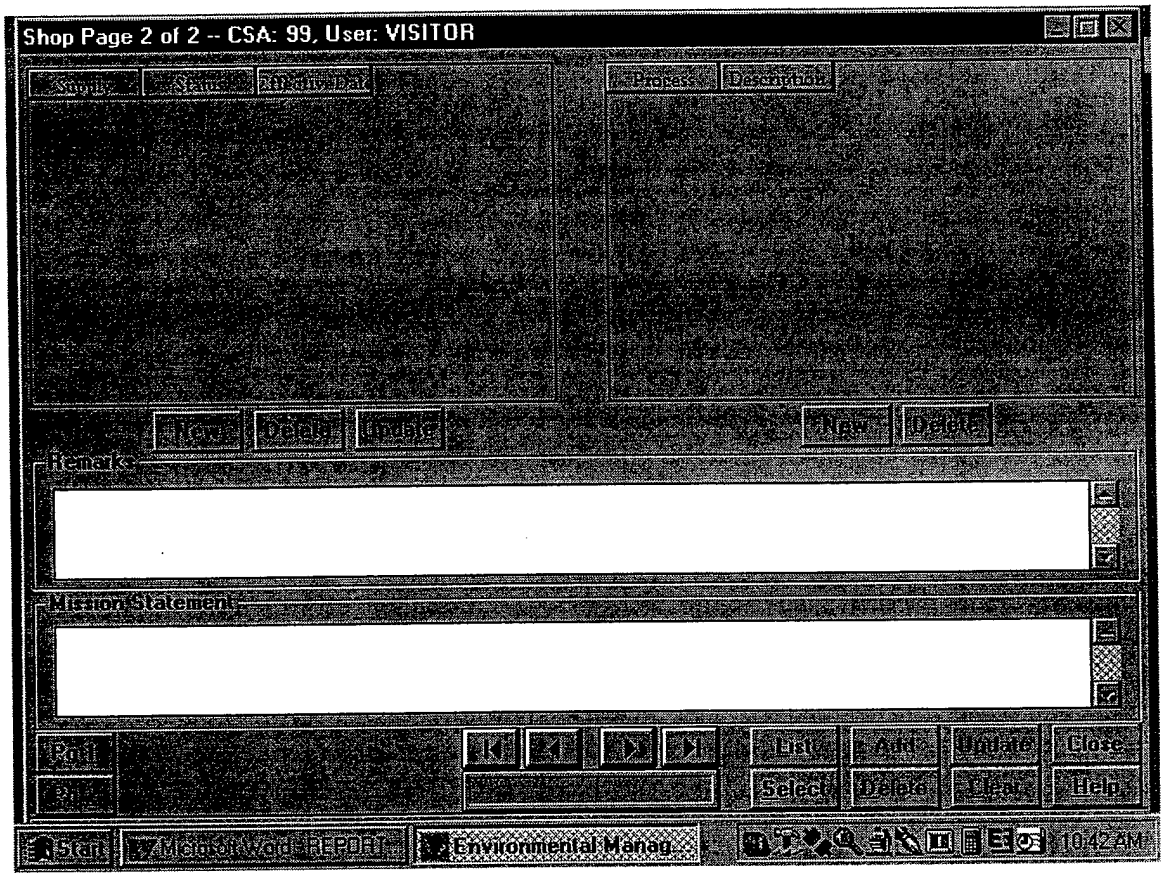


Table 2-1. Shop Record Data Fields with Sources of Information and Number of PES Entries		
Data Field	Source of Information	Number of PES Entries
Shop Code	Shop Profile	0
Shop Type	Shop Profile	0
BES WPID	Shop Profile	0
Ins.	Shop Profile	0
Cmd.	Shop Profile	0
Org.	Shop Profile	0
Ofc.	Shop Profile	0
Title	Shop Profile	0
CSA ID	Shop Profile	0
Shop Status	Shop Profile	0
Building	Shop Profile/Form 3952	0
Location	Shop Profile/Form 3952	0
Address	Shop Profile	0
City	Shop Profile	0
State	Shop Profile	0
Zip	Shop Profile	0
Contractor	Shop Profile	0
COR Shop	Shop Profile	0
Contract Period From and To	Shop Profile	0
HM POC with Phone Number	Shop Profile	0
Supervisor with Phone Number	Shop Profile	0
UEC with Phone Number	Shop Profile	0
HW POC	Shop Profile	0
Supply Account Code	Shop Profile	0
Supply Account Code Status	Shop Profile	0
Supply Account Code Effective Date	Shop Profile	0
Process Code and Description	Shop Profile/Form 3952	62
Mission Statement	Shop Profile	0

PES' data entry procedures/activities for each data field of the Shop record is described in the following paragraphs.

Shop Code. All necessary shop codes were already in AF-EMIS when PES began the data entry. The codes are alphanumeric symbols consisting of the letters "HM" and three numbers. The numbers were developed by the Base LG staff by sequentially numbering the shop supply account codes that appear on a list maintained at the HAZMART. Thus, the shop corresponding to the first supply account code on the list was assigned a shop code of HM001, the second one HM002, and so on. When a new Shop Code needed to be created, the next available sequential shop code was used regardless of the sequential order of supply account codes. No new shop codes were created by PES.

Type. There are three shop types to choose from a pick list provided in AF-EMIS: shop, Chemical Staging Area (CSA), or other. For all shops, the shop type entered by the Base was shop.

BES WPID. The Bioenvironmental Engineering Services Workplace Identification number (BES WPID) is a three part number based on the installation identification number, Air Force Occupational, Safety and Health (AFOSH) Shop Code, and Bioenvironmental Engineering Flight (BEF) case file number, respectively. No revisions were made to this data field.

Ins., Cmd., Org., and Ofc. These abbreviations stand for installation, command, organization, and office, respectively. The installation field is the name of the installation (Grand Forks AFB) and was validated for all shops (no revisions necessary). Also, the command (major command or agency) was validated for shops that submitted Shop Profile Worksheets.

The organization and office data fields represent the shop's organization and office symbols, respectively. These fields were validated using the few available Shop Profile Worksheets.

Each of these data fields was populated using Base-maintained pick-lists. If the necessary information were not in any of these pick-lists, the data would have been added to the appropriate pick-list table using the System Administration Module of AF-EMIS.

Title. The title is the Organization Title on the Shop Profile Worksheets and represents the name of the shop, such as Corrosion Control Shop. This data field was validated for the shops that submitted Shop Profile Worksheets.

CSA ID. This data field represents the shop's assigned Chemical Staging Area Identification (CSA ID), such as the HAZMART. PES found this data field to be correct for all the shops that submitted Shop Profile Worksheets.

Status. This data field defines the shop status as active or inactive. PES verified that the status for all shops was listed active in the AF-EMIS database.

Building, Location, Address, City, State, and Zip. These data fields relate to the physical location of the shop. The building is the number assigned to the shop building. The location is a general description of the shop location on Base, such as north of the airfield. The address, city, state, and zip refer to the shop's mailing address. Each of these data fields were validated for the shops that submitted a Shop Profile Worksheet.

Contractor, COR Shop, Contract Period From, and Contract Period To. These data fields indicate if a contractor is performing services in the shop. None of the

Shop records already in the database when PES initiated its work nor any of the Shop Profile Worksheets indicated contractor operations in the shop.

HM POC and Phone Number. These data fields represent the shop hazardous material point of contract (HM POC) and phone number. Revisions to these AF-EMIS data fields were not required for shops that submitted Shop Profile Worksheets.

The data field is actually a pick-list. If the name of the POC is not in the list, it must be added. There are two methods for adding employees to this list, depending on whether or not the AF-EMIS Employee Module is being used. If the Employee Module is being used, the POC must be added to the Employee Module to be available in the HM POC pick-list. If it is not being used, the name of the POC could have been entered in the data field without using the pick-list.

Supervisor with Phone Number, UEC with Phone Number, and HW POC. These data fields represent the names and phone numbers of the shop supervisor, Unit Environmental Coordinator (UEC), and the hazardous waste point of contact (HW POC). The method of entering this data is identical to that used to enter the HM POC. As with the HM POC, revisions to these AF-EMIS data fields were not required for the shops that submitted Shop Profile Worksheets.

Supply Account Code, Supply Status, and Effective Date. The supply account code is the code used to bill for hazardous material purchases and wastes. These codes were the basis for establishing AF-EMIS Shop Codes and are included on every Form 3952. The effective data was based on the date the supply account code was added to AF-EMIS. As was the case with the shop status, the majority of the shops had active authorizations; therefore, the supply status of all shops was active.

Process Code and Description. The process code is a four character code (two-letters followed by two numbers) that indicates the process operations that occur in the shop, such as industrial soldering. These fields were populated/validated for each shop to the extent information was available from the Shop Profile Worksheet and the Form 3952 for that shop.

Generic process codes (e.g., MI01 for miscellaneous permanent) were assigned by Base personnel for each shop if specific processes were not available at the time the AF-EMIS tracking system was installed at Grand Forks AFB. Because the PES data entry team was given very few Shop Profile Worksheets and the Form 3952 did not indicate a process code, the generic process codes were retained per instructions from the Base LG. Therefore, authorizations were assigned to some shops which had only generic process codes assigned to them in the database. The drawback with using the generic process codes arises when valid process codes become available. In order to change the process code in AF-EMIS for an authorization, a new authorization record must be created. The new record is created by changing the process code and saving the record as new by pressing the "Add" button on the bottom of the screen. The "Update" option is not available when the process code is changed. Pressing the "Add" button will create a new authorization record identical to the old one with a new process code; however, any personal protective equipment and justifications associated with the old authorization are lost and must be re-entered. In addition, the old authorization record must be opened again and assigned an inactive status.

Mission Statement. The mission statement is a description of the shop's primary mission (i.e. corrosion control of ground support equipment). This information was validated for the shops for which Shop Profile Worksheets were completed.

3.0 NSN RECORD DATA ENTY/VALIDATION PROCEDURES

The sources of information needed to enter/validate the data fields that Base AF-EMIS stakeholders wanted populated were as follows: Form 3952, Fedlog database, and MSDS (or Hazardous Material Information System (HMIS) if a MSDS were not available). The NSN record data fields; the sources of information used to populate these fields; and the number of times PES entered data for each data field are listed in Table 3.1. The AF-EMIS NSN record screen is included as Figure 3.1.

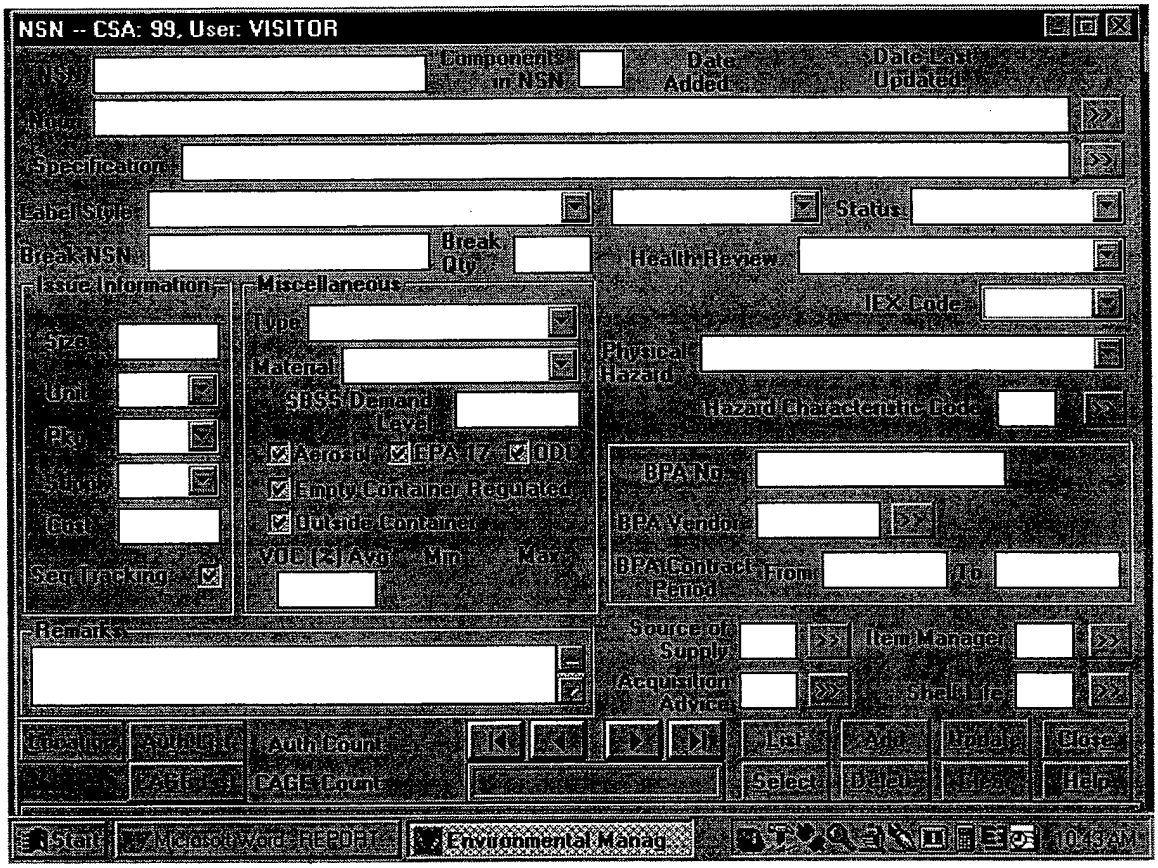
The first step for entering NSN record information was to select valid CAGE(s) (MSDS) to serve as the information basis for the data fields. The CAGE(s) were initially selected based on the presence of the associated HAZMAT in the AF-EMIS Inventory Module, and hence being stored in the HAZMART at the time of the record update. If the material from one or more suppliers was in the inventory, the corresponding CAGE(s) was used. In addition, the CAGE(s) associated with any MSDS(s) attached to the Form 3952s were also selected. If none of this material was in inventory and no MSDS was attached to the Form 3952, the CAGE with the most recent MSDS preparation and evaluation dates located in the General Information section of HMIS was selected. Typically, the most recent MSDS preparation date was used; however, an older MSDS was used if it were evaluated far more recently.

Another consideration in the CAGE selection was whether manufacturer information existed. If HMIS/MSDS did not have sufficient or valid manufacturer information for a CAGE, Fedlog was checked. If the CAGE did not exist in Fedlog (likely for CAGEs consisting of five letters), another CAGE was chosen; however, this was extremely rare.

Table 3-1. NSN Record Data Fields with Sources of Information and Number of PES Entries		
Data Field	Source of Information	Number of PES Entries
NSN	Form 3952	20
Components in NSN	Fedlog / HMIS	142
Noun	Fedlog / HMIS / 3952	25
Specification	Fedlog/3952	577
Label Style (2 data fields)	Base LG Personnel	36
Status	Fedlog / HMIS / 3952	233
Break NSN	Fedlog / HMIS / 3952	11
Break Qty	Fedlog / HMIS / 3952	11
Size	Fedlog / HMIS / 3952	684
Unit	Fedlog / HMIS / 3952	681
Pkg.	Fedlog / HMIS / 3952	651
Supply	Fedlog / HMIS / 3952	348
Cost	Fedlog	372
Seq. Tracking	Fedlog	20
Type	Fedlog / HMIS / 3952	651
Material	Fedlog / HMIS / 3952	690
Aerosol	Fedlog / HMIS / 3952	140
Outside Container	Fedlog / HMIS / 3952	11
VOC %Min (automatically calculated)	Not Applicable	N/A
VOC %Max (automatically calculated)	Not Applicable	N/A
Health Review	Form 3952	301
IEX Code	Form 3952	583
Physical Hazard	HMIS	832
Acquisition Advice	Fedlog	279
Shelf Life	Fedlog	241

FIGURE 3.1

AF-EMIS NSN RECORD SCREEN



The Base did not provide a MSDS for approximately 300 stock items to the PES team. Since PES did not have a MSDS and could not locate one in HMIS, PES requested these MSDSs from the BE staff for these items; many were items used by GOCESS, which were undergoing a NSN reassignment process. The BE staff subsequently sent an e-mail to all Shops which had Form 3952s without a MSDS; the Shops did not respond to this e-mail. This issue was not resolved prior to PES' completion of all other AF-EMIS data population/validation and close-out/training meeting.

PES contacted the Base LG and BE groups after the data entry/validation task to discuss resolutions (if any) to the aforementioned shortcoming. The LG and BE indicated that there has still been no response from the Shops with respect to missing MSDSs; therefore, they were in the process of inactivating all authorized materials for which no MSDS is in their possession. For the Shops to use these materials in the future, a new Form 3952, with MSDS, will need to be submitted and approved.

The BE staff was unsure of the reason the MSDSs were missing as current Form 3952 submittal procedures require attachment of a MSDS. It is possible that the MSDSs were misplaced or a MSDS was never attached to the Form 3952. The latter reason could be due to the Shops' belief that all materials are listed in HMIS, which would not require the attachment of a MSDS. Regardless of the reason for missing MSDSs, the LG and BE staff are rectifying the problem. In addition, current Form 3952 review and record keeping procedures assure that a MSDS will be obtained and retained.

The procedure for selecting a CAGE for local purchases differed from that used for selecting a CAGE for NSNs because locally purchased items were not kept in the AF-EMIS Inventory Module and the CAGE data for these items were rarely in Fedlog. The only source of information were in Form 3952, a hard copy of the

MSDS, and HMIS if a hardcopy MSDS was not available. When a MSDS was not attached to the Form 3952, the first step was to attempt to find the LPN in HMIS using the LPN provided on the Form 3952. LPNs with a letter as the seventh digit can typically be found in HMIS. If this method did not work, searches in HMIS were attempted on manufacturers, part numbers, product names, or any other information relating to the product. The lack of product information supplied on the Form 3952 prevented PES from finding the MSDS in HMIS for any of these.

Once a CAGE was chosen for the NSN/LPN, all data fields were populated or validated as described in the following paragraphs.

NSN. The NSN for a stock or local purchase item was obtained from its Form 3952. However, several scenarios required that the NSN entered into AF-EMIS differ from the value listed on the Form 3952. One such scenario is related to the AF-EMIS "Break Open" feature. The supply unit of issue in the management and characteristic sections of Fedlog may indicate that the item is received by the HAZMART in bulk. If this is known to be the case, the "Break Open" feature in AF-EMIS must be used. This allows for the issue and tracking of material that is ordered in bulk, but can be either delivered as bulk (e.g., a box of 12 cans of spray paint) or as individual issues (e.g., one can of spray paint). The base NSN is for the bulk item. Another NSN, commonly referred to as "dash one NSN" because it is formed by adding a "-1" to the end of the base NSN, is created as the AF-EMIS identification number for sequential tracking of the individual units from a bulk package. The "dash one NSN" is also referred to as a "Break NSN".

PES entered data for 11 "Break" NSN records created in the database. The majority of these records involved boxes of paint, cleaner, oil, or insect repellant.

Another scenario that required a change to the NSN entered into AF-EMIS from the Form 3952 occurred when Fedlog showed that the authorized NSN had been replaced. For this scenario, the status of the pre-existing (i.e., before PES' data entry activities) NSN record status was changed to "replaced" and a remark was added discussing the replacement of this NSN record. A new NSN record was created (or if the new NSN existed in AF-EMIS, that record was updated), based on the new Fedlog data and appropriate CAGES.

Components in NSN. This data field represents the number of components, or parts, in a single NSN and was obtained by PES from either the characteristics section of Fedlog or in HMIS (typically in the Part Number/Trade Name). For most materials, such as oil, the value is one; however, some materials are multi-part kits, such as an epoxy adhesive.

Noun. The Noun is the nomenclature associated with a NSN. In AF-EMIS, it must be chosen from a pull-down list pre-loaded in the software by the Air Force. Typically, the correct Noun was available from the pull-down list for the NSN, but it was validated and occasionally changed based on information from Fedlog or HMIS/MSDS/Form 3952 for local purchases. If the required Noun did not exist in the pull-down list, it was added to the list using the AF-EMIS System Administration Module.

Specification. This pick-list data field represents the military, federal, commercial or other specification to which the NSN conforms. Typically, both Fedlog and the Form 3952 provide this data field for nationally procured items. The specification could rarely be found for locally procured items; therefore, the pick-list option "no data" was selected.

Label Style (two data fields). These data fields designate the type of barcode label that is generated. The options "Intermec 1x3" and "Auto Label" were selected for all data fields where this information was populated by PES.

Status. The Status of a NSN record was always entered as "active" unless the material was not authorized for use by any shop on Base. For instance, if a material was replaced (see discussion under NSN above), the Status was assigned "Replaced". As the last step of updating the NSN records, PES changed the status of NSN records for unauthorized material use to "Inactive".

Break NSN. This data field was used for bulk materials and compressed gases when using the Break Open feature of AF-EMIS. See discussion under NSN above on when to use this feature. The Break NSN was entered in the base NSN record; this data field is left blank in the Break NSN (dash one) record. Also note that the Break NSN record must be created before this data field can be populated in the base NSN record.

Break Qty. This data field represents the number of individual items indicated within the base NSN (from which the "dash one NSN" was created), such as 12 cans of paint in a box. As was the case for the Break NSN data field, it was used when the Break Open feature was required and could not be populated until the Break NSN record was created.

Size. This data field gives the quantity of HAZMAT shipped in the container provided by the supplier. The management and characteristics sections of Fedlog or general information section of HMIS indicated the appropriate Size for a given NSN. When PES began the data entry, the size data field for all NSN records was either empty or was incorrectly populated with packaging information (e.g., box or bottle) rather than HAZMAT size units of measurements.

PES updated these fields to mass (e.g., pounds) or volumetric (e.g., gallons) units using data from Fedlog.

Size information for local purchases was typically based on the Form 3952 for each material as Fedlog was not available for local purchases and HMIS records or MSDSs rarely listed such data for these items. If the Form 3952 did not include sufficient data, the Size was based on typical quantities for similar materials. For example, the typical size for spray paint was one pint. If a typical quantity did not exist for some HAZMAT, PES did not populate the size related data fields and requested the size of these materials from LG personnel.

Unit. The Unit represents the stock item's mass or volumetric unit of measurement within the package specified by the NSN; it was chosen from a pull-down menu. The management and characteristics sections of Fedlog or general information section of HMIS indicated the Unit for each NSN. Most of the Unit data entered into the AF-EMIS database before PES started its data entry was found to be incorrect and was changed to the right values of pounds or gallons.

Pkg. This data field is the packaging specific to the NSN. The management and characteristics sections of Fedlog or general information section of HMIS give the packaging for each NSN. In AF-EMIS, it was chosen from a pull-down menu, which provided the same choices as Unit; however, this field was not the same as Unit. Instead of mass or volumetric units of measurement, the packaging is the physical container for the material, such as a bottle, can, box, roll, cylinder, drum, etc. This data field had to be updated for most NSN records.

Supply. This data field is used for identifying the unit of issue that the supply system uses when ordering a material and is obtained from the management

section of Fedlog. This field rarely required updating, as the pre-existing Supply data was typically correct.

Cost. The cost data field represents the purchasing cost of the hazardous material. This data field was populated for nearly all NSNs but rarely for LPNs, because locally procured items rarely appeared in Fedlog, the source of cost information.

Seq. Tracking. This data field enables the sequential tracking feature in AF-EMIS and is locally established through the use of a three way check box. The box is checked "yes" (indicated by an "X" in the box) for all materials. The second and third options, which were never used, was "no" (indicated by an empty, non-shaded box) and "unknown", indicated by an empty, shaded box.

Type. The Type data field represents the type of container the material is packaged in, such as can, box, bottle, etc. It was chosen from a pull-down menu and matched the Pkg. data field. If none of the choices in the pull-down menu match the Pkg. field, "other" was selected (typical for unusual packages such as rolls of solder). Also, for a NSN record that had a Break NSN, the Type data field for the base NSN reflected the individual units' container, not the package containing the individual units (i.e., the bulk package). This data field was populated for nearly all NSN records.

Material. The container material of construction (i.e., glass, metal, plastic, or cardboard) is entered in the Material data field. As is the case with the Type data field, it was limited to the options in a pull-down menu and did not represent the outside container of the original NSN when the Break Open feature was utilized. This field was also populated for nearly all NSN records.

Aerosol. The Aerosol data field is a three-way check box with yes, no and unknown options. If the characteristics section of Fedlog or the constituents in HMIS indicates that the material is an aerosol, the box was toggled to contain an "X"; otherwise the box was left empty and non-shaded. In the pre-existing database (prior to PES' efforts), this data field was rarely checked with an "X" regardless of whether it was an aerosol or not.

EPA 17. This three-way check box indicates the possible presence of an EPA-17 regulated chemical within the material. Because there may be multiple CAGEs with different constituents for a given NSN, this data field does not indicate that the HAZMAT corresponding to the NSN does in fact contain an EPA 17 chemical. It only indicates that at least one supplier of the HAZMAT includes an ingredient that is an EPA 17 chemical. Because it has no bearing on EPA-17 related calculations, this data field was not populated. This decision was made jointly by PES and representatives from BE and CE.

ODC. Similar to the EPA 17 data field, ODC indicates, through the use of a three-way check box, the possible presence of an ozone depleting chemical. Because it has no bearing on ODC related calculations, this data field was not populated. This decision was made jointly by PES and representatives from BE and CE.

Empty Container Regulated. This data field indicates whether or not disposal of the empty container of the material is regulated. This data field was not populated because the post-use treatment of the empty container may impact the regulated status of an empty container.

Outside Container. This data field indicates that the material is contained within an outside container through the use of a three way check box. The box was checked "yes" if an outside container were used, such as for bulk materials when

the Break Open feature of AF-EMIS (i.e., box of metal cans containing paint) was used. Otherwise, the box was checked "no". The third option, which was never used, is "unknown", indicated by an empty, shaded box. PES changed the "unknown" for many of the NSN records to "no" or "yes" as appropriate.

VOC (%) Avg., Min., and Max. These data fields represent the average, minimum, and maximum percent by weight concentration of volatile organic compounds. This information is AF-EMIS-generated based on information entered in the associated CAGE record(s).

Health Review and IEX Code. The Health Review data field is based on the Issue Exception (IEX) Code. These data fields were populated based on information from the Form 3952. If the Form 3952 did not include this information and the Health Review and IEX Code data fields were already populated, they were left unchanged. If one field was populated, the other field was assigned the matching value (both fields showed the IEX Code). The Form 3952 typically contained this data.

Physical Hazard. The Physical Hazard data field represents the physical hazards associated with the material. A pull-down menu provides a set number of choices. This data field was populated/verified in conjunction with the Hazard Characteristic Code data field. In the general information section of HMIS, the hazard characteristic code, if available, is given by a code consisting of one letter followed by one number, such as F1. This code is the same code as the Hazard Characteristic Code in AF-EMIS; the associated pick-list shows each code along with a description of that code. This description corresponds to the options in the Physical Hazard data field.

There were three situations for which the exact code and description given in HMIS was not used to populate this data field in AF-EMIS. The first situation

was when HMIS showed a hazard characteristic code of "N1", the corresponding description in the AF-EMIS Hazard Characteristic Code was "Nonhazardous Material". Because this option does not exist under Physical Hazard, "No Specific Hazard" was used instead.

Another situation was when HMIS did not list a hazard characteristic code. When this occurred, the transportation data section of HMIS, which occasionally describes the physical hazards associated with the material, was checked. For this situation, the Hazard Characteristic Code was left blank and the option under Physical Hazard that best fit the description given in HMIS was selected.

The last situation was when HMIS did not list a hazard characteristic code or informative transportation data for the HAZMAT. When this occurred, the Hazard Characteristic Code was left blank and "No Specific Data" was chosen from the pull-down menu under Physical Hazard. The Physical Hazard data field was populated or updated for virtually all NSN records.

For a manufacturer MSDS, the physical hazard was obtained by searching the entire MSDS for data that would indicate the physical hazard of the material. Typically, the transportation data section or hazard identification section would indicate any physical hazards.

Acquisition Advice. This data field represents how a material is procured and lists any restrictions the material has with respect to acquisition. A pick-list provides a list of options that match those in Fedlog data field AAC.

Shelf Life. This data field represents the amount of time, selected via a pick-list, a material can remain unused in storage before it must be tested, disposed, or reconditioned. Typically, Shelf Life did not need to be updated for NSNs; however, the shelf life for local purchases was often entered as "unknown"

because the information was not available (no Fedlog information for local purchases).

4.0 MANUFACTURER RECORD DATA ENTRY/VALIDATION PROCEDURES

Manufacturer records were updated/validated using both HMIS/MSDS and Fedlog. HMIS/MSDS was used to provide search information in retrieving data in Fedlog, which was typically more up-to-date. Many of the most recent MSDSs for products were several years old; however, Fedlog is updated monthly with more recent information.

Once the NSN record was updated, the Manufacturer record was populated next. It is necessary to populate the Manufacturer record before the CAGE record because the latter cannot be created unless the CAGE data field in the Manufacturer records has been entered into the AF-EMIS database.

While the Manufacturer records are not directly connected to NSN records, they are indirectly linked via the CAGE record. Once a Manufacturer record for a given CAGE has been updated, it did not need to be updated again if the same CAGE were used for a different NSN record. For instance, if one manufacturer (CAGE) makes ten different colors of spray paint (each color would have a different NSN record), the Manufacturer record only needed to be updated one time. For this data entry/validation task, PES determined if a Manufacturer record needed updating by inspecting the system-generated Date Last Updated data field. If this date was before the PES data entry team arrived onsite, the record needed to be updated.

Also, when a CAGE record is imported from HMIS, manufacturer information is imported as well. If the manufacturer data were updated using Fedlog before the CAGE record were imported from HMIS, the Fedlog-based data (which reflects the most recent information) is overwritten with the older data from HMIS. There are two approaches for avoiding this problem. One approach is not to use the

electronic HMIS import feature; data needed from HMIS is manually transferred to AF-EMIS. The other approach is to verify that the manufacturer CAGE has been entered in the NSN record, import the CAGE record electronically from HMIS, and then enter/validate the Manufacturer record. PES utilized the first approach.

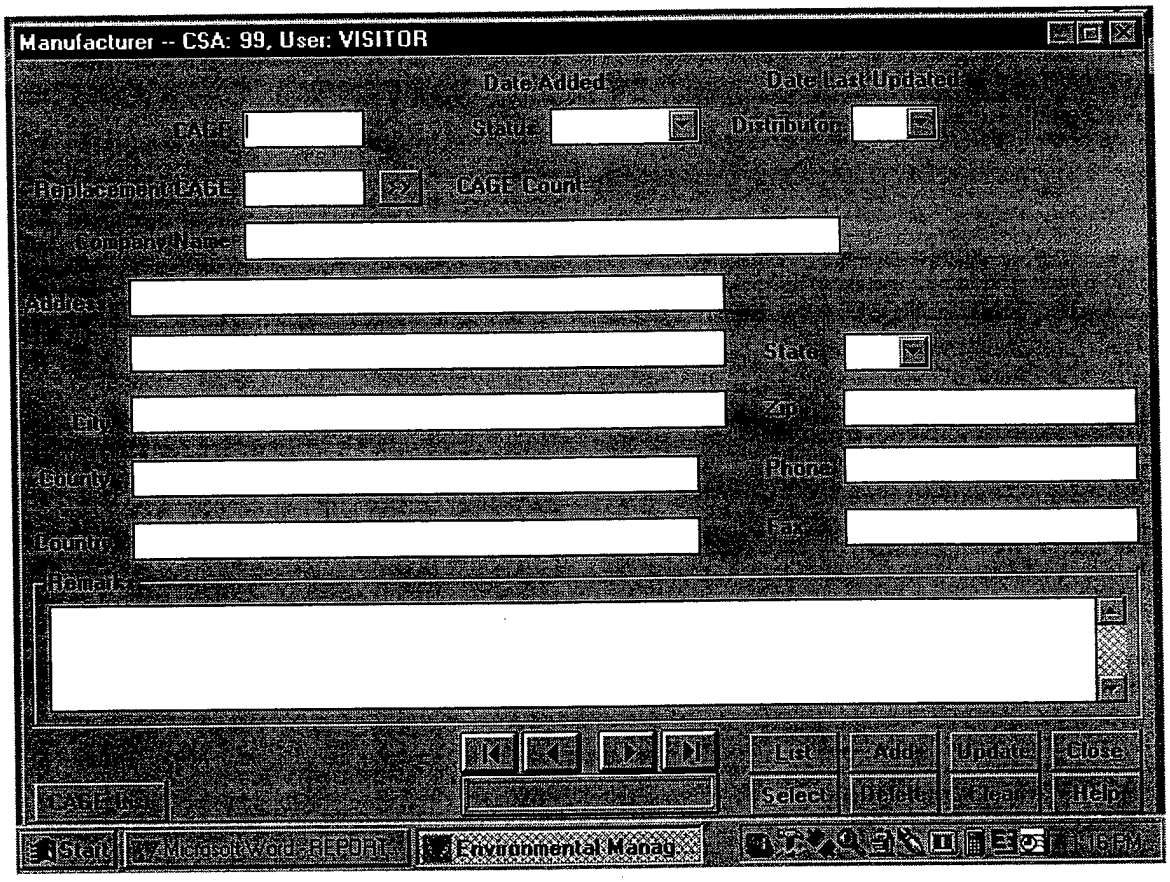
Table 4.1 lists the Manufacturer data fields that the Base AF-EMIS stakeholders wanted populated; the associated sources of information PES used to populate them; and the number of times data were entered for each data field. The AF-EMIS Manufacturer record screen is presented as Figure 4.1. Much of the Manufacturer record data had already been pre-loaded by the AF-EMIS software developer before PES arrived onsite and the entered data were typically correct. Data entry/validation by PES was fairly straight forward.

Table 4.1 Manufacturer Record Data Fields With Sources of Information and Number of PES Entries

Data Field	Source of Information	Number of PES Entries
CAGE	AF-EMIS Inventory Module / HMIS	83
Status	See Discussion	50
Distributor	See Discussion	55
Company Name	Fedlog / HMIS / MSDS	63
Address	Fedlog / HMIS / MSDS	162
City	Fedlog / HMIS / MSDS	236
County	Fedlog / HMIS / MSDS	0
State	Fedlog / HMIS / MSDS	61
Country	Fedlog / HMIS / MSDS	55
Zip	Fedlog / HMIS / MSDS	236
Phone	Fedlog / HMIS / MSDS	177
Fax	Fedlog / HMIS / MSDS	85

FIGURE 4.1

AF-EMIS MANUFACTURER RECORD SCREEN



CAGE. This data field is the HAZMAT vendor's Commercial and Government Entity (CAGE). The majority of the CAGE data fields had already been entered into the AF-EMIS database by the Logistics Group before PES began its data entry. Only 147 CAGEs needed to be entered, which brought the total number to 428.

Status. For all Manufacturer records associated with a CAGE chosen for use in the NSN record, the Status was "Active". The other Manufacturer records were left unchanged.

Distributor. This data field identifies if the manufacturer is a distributor, as indicated by "Yes or "No. There was no specific source for this information; therefore, the data team made two assumptions regarding the distributor field. First, if the data field was populated, it was assumed correct. Otherwise, the field was set to "No" unless the manufacturer name indicated that it was a distributor.

Company Name, Address, City, County, State, Country and Zip Code. These data fields relate to the location of the HAZMAT vendor/manufacturer. All data entry/validation for these fields was performed with no difficulties, except for the County field, which was rarely listed in Fedlog or HMIS. Because there were no available data, the County data field was left blank.

Phone and Fax Numbers. These data fields were also entered/validated with little difficulty. Fax numbers were sometimes left blank because they were not listed in HMIS or Fedlog.

5.0 CAS RECORD DATA ENTRY/VALIDATION PROCEDURES

As mentioned in Section 1.3, CAS records were not updated because AF-EMIS Version 6.0, which is scheduled for release in August 1999, will contain updated CAS records, including some new fields. If PES would have made any updates to the current version of AF-EMIS, they would be overwritten by the new CAS records associated with AF-EMIS Version 6.0.

6.0 CAGE (MSDS) RECORD DATA ENTRY/VALIDATION PROCEDURES

The sources of information needed to enter/validate information for the CAGE record data fields that the Base AF-EMIS stakeholders wanted updated were as follows: Fedlog database and HMIS or MSDS. Table 6.1 lists these CAGE (MSDS) record data fields; the sources of information that PES used to update them; and the number of times data were entered for each data field. The AF-EMIS CAGE (MSDS) record screens are included as Figures 6.1 and 6.2.

A significant amount of time was spent "cleaning-up" the CAGE (MSDS) records because of two factors. First, some NSN records had multiple (up to 120) CAGE (MSDS) records associated with them. The only CAGE (MSDS) records that were needed for a NSN record were those for which their CAGE number(s) were in the AF-EMIS Inventory Module (indicating that HAZMAT from the vendor corresponding to the CAGE number was actually in the HAZMART) and those for which a MSDS was attached to the Form 3952. If the manufacturer-specific (specified by the CAGE number) material were not in inventory or the material's MSDS were not attached to the Form 3952, the CAGE-specific MSDS with the most recent MSDS preparation date was used (see NSN discussion). To allow for easy identification of the CAGE records selected by PES and the HAZMART staff to be kept active in the database, all other CAGE (MSDS) records were assigned appropriate Ounces and Types and the Status was set at "Inactive" (See Section 3 for more details on this issue).

The second factor regarding CAGE (MSDS) records was the "CAGE Component No." and "CAGE Version" fields. When a new version of a MSDS is obtained, a new CAGE (MSDS) record should be created utilizing the same CAGE but changing the "CAGE Version" to the next letter value (i.e., old version "B", new version "C"). The CAGE (MSDS) records already in the AF-EMIS before PES

Table 6.1: CAGE (MSDS) Record Data Fields with Sources of Information and Number of PES Entries		
Data Field	Source of Information	Number of PES Entries
NSN	Form 3952 / HMIS	439
CAGE	AF-EMIS Inventory / HMIS	439
CAGE Status	Inventory / MSDS Date	3,689
CAGE Version	HMIS / MSDS	615
CAGE Component No.	HMIS / MSDS	625
Part No. or Trade Name	HMIS / MSDS	773
DOT Shipping Name	HMIS / MSDS	985
DOT Technical Name	HMIS / MSDS	52
DOT Packaging Group	HMIS / MSDS	154
MSDS Date	HMIS / MSDS	897
Health Review Code	HMIS / MSDS	1,093
Health Hazard	HMIS / MSDS	1,113
Physical Hazard	HMIS / MSDS	1,110
Ounces	Fedlog / HMIS / Form 3952	3,702
Type	Fedlog / HMIS / Form 3952	3,653
Flash Point Min., Max., and Type	HMIS / MSDS	943
pH Type	HMIS / MSDS	989
pH Min. and Max.	HMIS / MSDS	573
VOC with Units	HMIS / MSDS	783
Specific Gravity	HMIS / MSDS	864
Density	HMIS / MSDS	864
Vapor Pressure with Units	HMIS / MSDS	845
Health Data – Health Hazard	HMIS / MSDS	175
Health Data – Specific Hazard	HMIS / MSDS	9
Health Data Frame – Fire Hazard	HMIS / MSDS	196
Health Data Frame – Reactivity	HMIS / MSDS	187
Health Data – Target Organ(s)	HMIS / MSDS	481
Health Data Frame – Comments	HMIS / MSDS	35
Constituents – CAS	HMIS / MSDS	4,545
Constituents – Chemical Name	HMIS / MSDS	4,545
Constituents – Amount Min. and Max.	HMIS / MSDS HMIS / MSDS	4,543
Constituents – Concentration Units	HMIS / MSDS	4,544
Constituents – % Weight or Volume	HMIS / MSDS	4,539
Constituents – Chemical Form	HMIS / MSDS	4,545
Constituents – Chemical State	HMIS / MSDS	4,545

FIGURE 6.1

AF-EMIS CAGE (MSDS) RECORD SCREEN NUMBER 1 OF 2

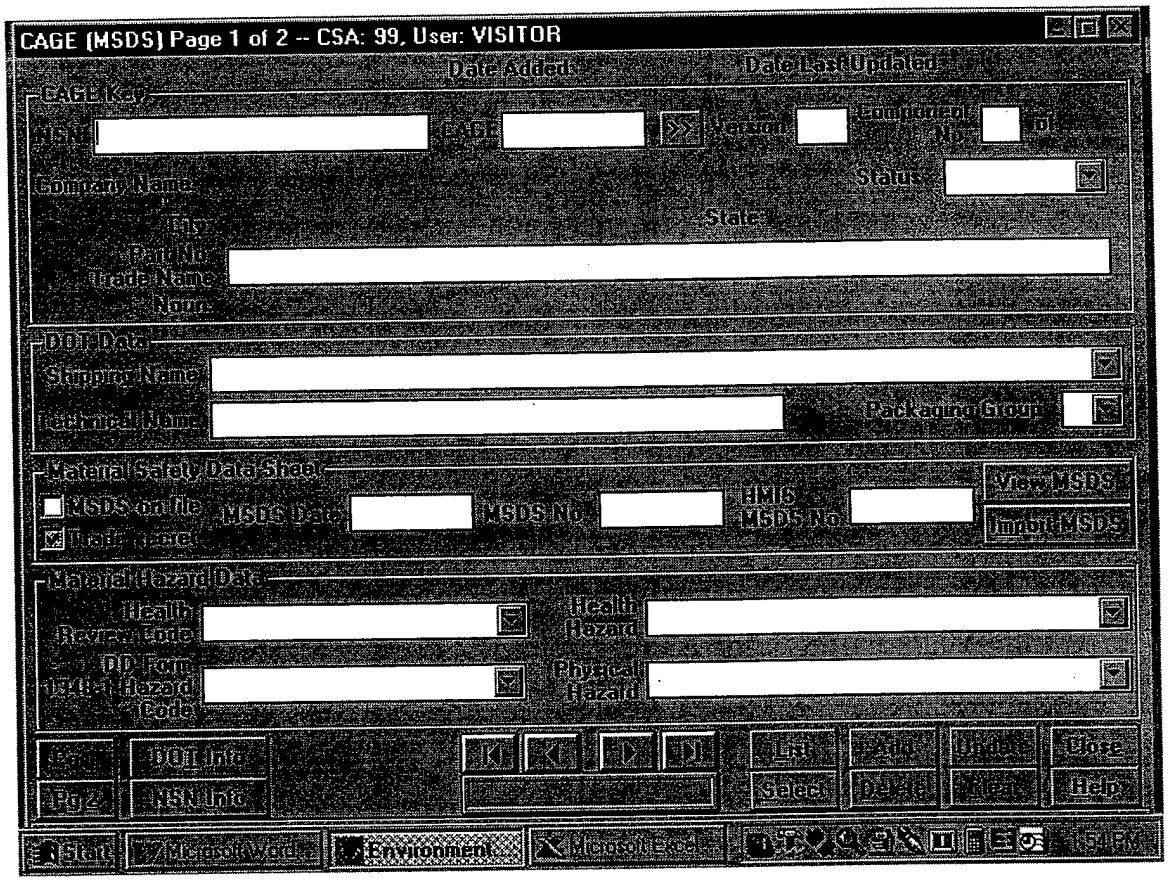
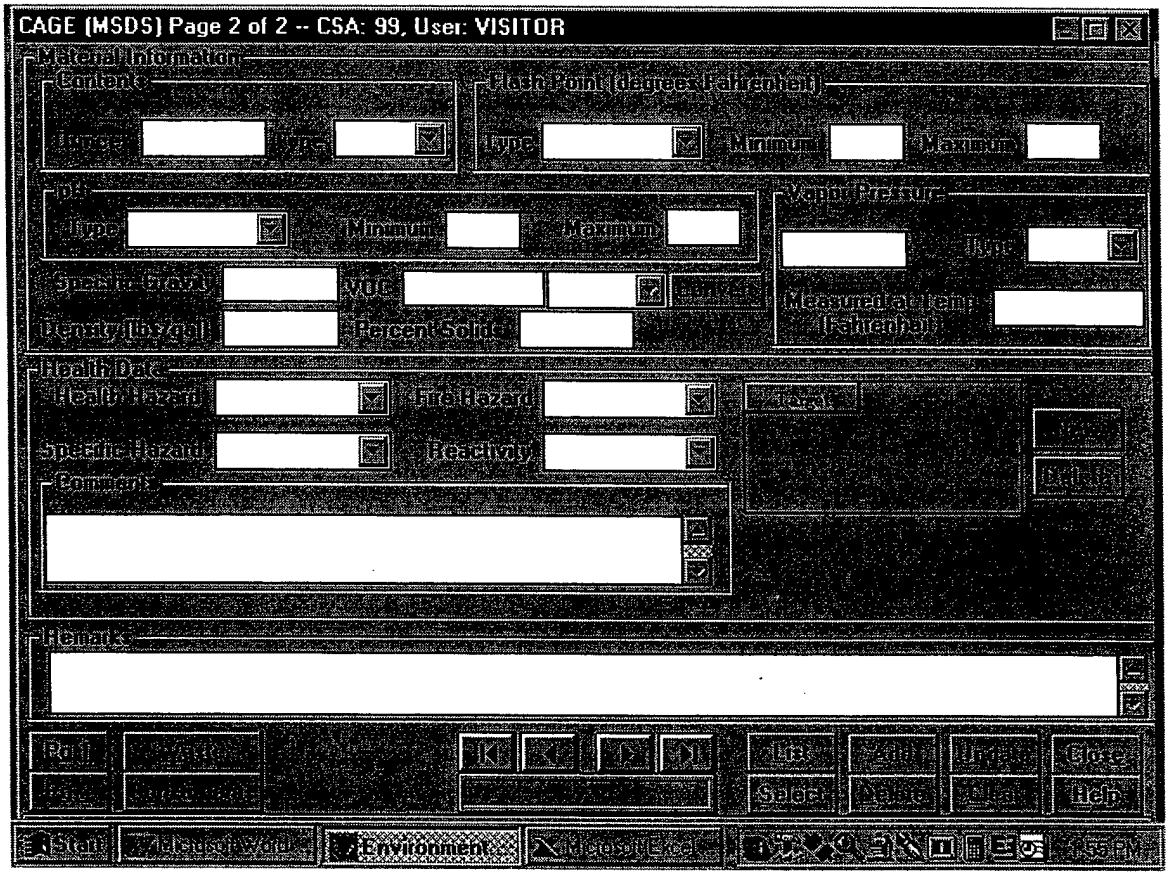


FIGURE 6.2

AF-EMIS CAGE (MSDS) RECORD SCREEN NUMBER 2 OF 2



initiated its data entry did not reflect the use of this procedure; the "CAGE Component No." was increased instead. The Component Number should be used for multi-part kits, such as a two-part epoxy. This incorrect procedure resulted in CAGE (MSDS) records with multiple components for a single component material. To resolve this error, PES assigned the additional components near zero size in Ounces and Types (zero cannot be entered) and inactivated the record. Next, the correct CAGE version and component(s) were created. A total of 3,250 CAGE (MSDS) records were inactivated for this reason.

The Base did not provide a MSDS for approximately 300 stock items (including local purchases) to the PES team and these items could not be found by PES in HMIS. As discussed in Section 3, this issue is being resolved

Once the correct CAGE(s) had been identified as part of NSN record population and all others made inactive, all the CAGE record data fields were entered or verified using a hard copy MSDS. If a hard copy of the MSDS were not available, PES manually transferred the information from HMIS if found there.

The "Import MSDS from HMIS" feature in AF-EMIS was not used. Use of this feature will automatically populate the following CAGE (MSDS) record data fields:

- NSN;
- CAGE;
- CAGE Version;
- CAGE Component Number;
- CAGE Status;
- Part Number or Trade Name;
- MSDS Date;
- HMIS MSDS Number;
- Ounces with Type;
- pH Type/Minimum/Maximum;
- Vapor Pressure with Type;
- Specific Gravity;

- Constituent CAS;
- Constituent Name;
- Constituent Concentration with Units; and,
- Constituent Weight or Volume Percent.

PES did not utilize the AF-EMIS Import MSDS feature because of the need to verify and correct some imported data fields. In some instances, corrections are required to imported information, such as Vapor Pressures with Type. For these data fields, AF-EMIS may import the Vapor Pressure and Temperature into the same vapor pressure data field. For example, a vapor pressure of "50@70 (mm Hg@°F)" sometimes is imported in the Vapor Pressure field as 5070 mm Hg. Also, some constituents are not always imported because the HMIS CAS data field is either blank or incorrect.

The manual imput of HMIS information worked well when two computers were used; one machine had AF-EMIS on-screen while the other had HMIS on-screen. Since some information had to be entered/validated manually even when the electronic import feature was used, it was more efficient to manually enter all information rather than to execute the electronic import, check imported information, then enter the remaining data.

NSN. The NSN was obtained from the Form 3952. The number of NSNs entered into AF-EMIS CAGE records by PES is the sum of NSNs associated with added NSN records and the NSNs associated with the CAGE (MSDS) records created to correct the CAGE version and component(s), as described above.

CAGE. The CAGE numbers to be entered were chosen as described in the NSN record discussion in Section 3.

CAGE Status. This data field establishes the status of the CAGE (MSDS) record as "active" or "inactive". Each NSN record must have at least one "active" CAGE

(MSDS) record. As discussed above, a CAGE (MSDS) was chosen based on three criteria. The first criteria was that the AF-EMIS Inventory Module showed that some of the HAZMAT from the supplier identified by the CAGE was in the HAZMART; if the HAZMAT corresponding to this NSN/CAGE combination was in the inventory, this CAGE (MSDS) was "active". The second criteria was, if the CAGE specific MSDS was attached to the Form 3952, this CAGE (MSDS) was also "active". Otherwise, the "active" CAGE (MSDS) was the most recent MSDS (CAGE) as determined by PES from a review of MSDS preparation and evaluation dates located in the General Information section of HMIS. Typically, the most recent MSDS preparation date was used; however, an older MSDS was used if it were evaluated far more recently. Additional information on this topic is provided in Section 3.

As discussed above, a large number of CAGE records were updated to inactivate CAGE records for suppliers that are currently not being used on Base and those that were incorrectly assigned improper versions and CAGE component numbers. PES updated the status of 3,689 CAGE (MSDS), many of which were for new CAGE records.

CAGE Version. The CAGE Version data field represents the version of the MSDS. This field is indicated in the HMIS data field "Part No. Indicator" under the top section (untitled).

As noted previously, when the database contained multiple versions of a MSDS, there should be a CAGE (MSDS) for each version. Each record should have the same CAGE code but a different CAGE Version with the next letter value (i.e., old version "B", new version "C"). The CAGE (MSDS) records in AF-EMIS when PES began its data entry did not reflect the use of this procedure; the "CAGE Component No." was increased instead.

To correct this problem, the correct version/component was created and the CAGE (MSDS) records with incorrect "CAGE Component No." were assigned near zero sizes (Ounces and Type) and inactivated.

For multi-component HAZMAT, HMIS lists a different CAGE version for each component. For example, Part One of the multi-component HAZMAT may be listed in HMIS as Version A, and Part Two listed as Version B. PES entered all parts of a multi-component HAZMAT with the same version in the AF-EMIS database. If the components in HMIS were not listed in alphabetical order, remarks were added to each CAGE record clarifying which HMIS MSDS version letter corresponds to each component constituent number.

CAGE Component Number. For multiple component HAZMATs, a separate CAGE record must be created in AF-EMIS for each component. The CAGE Component Number data field identifies the component for which the information is presented in the CAGE record. While most materials were single part or component products, this data field was designed to accommodate multi-part kits, such as a two-part epoxy. In HMIS, the CAGE Component Number was typically found in the Part Number or Trade Name field. In addition, Fedlog and the Transportation Data section of HMIS occasionally would show component information.

As with the CAGE version, PES found the CAGE component to be incorrect for many of the CAGE records. The CAGE (MSDS) record data was entered incorrectly with respect to CAGE Version and CAGE Component. These errors were corrected by establishing proper CAGE (MSDS) records, and assigning near zero sizes (Ounces and Type) and inactivating the incorrect CAGE (MSDS) records as discussed previously.

Part Number or Trade Name. This data field contains the manufacturer's (or vendor's) part number or trade name for the material. It can be found in the HMIS data field "Part Number/Trade Name", located in the top section of the HMIS screen. Typically, the Part Number or Trade Name pre-loaded in the CAGE records by the AF-EMIS software developer required only minor revisions by PES.

DOT Shipping Name. This data field represents a combination of the Department of Transportation (DOT) Identification Number and Proper Shipping Name for the material. A pick-list provided many of the shipping names that PES needed, including a selection of "Not Regulated" if the material was not regulated by DOT. A small number of materials had DOT shipping names that were not on the pick-list. For these materials, the shipping name was manually typed into the DOT Technical Name data field, which is located below the shipping name. DOT Shipping Names were populated for all active CAGE records.

DOT Technical Name. This data field provides additional shipping information when DOT Shipping Name data field specifies a generic or not otherwise specified shipping name. HMIS typically provides such information when necessary.

DOT Packaging Group. The packaging pick-list data field provides four options; blank (none), I, II, and III. HMIS listed such information for approximately 150 materials.

MSDS Date. The MSDS Date represents the date the MSDS was prepared or revised. Along with the data field HMIS MSDS Number, these data fields are the basis for the Import MSDS feature. It can be found in HMIS as "Date MSDS Prepared" in the General Information section or near the beginning or end of manufacturers' MSDSs.

Health Review Code. This data field is identical to the IEX Code data field in the associated NSN record. To quickly access the associated NSN record, there is a "NSN" button located in the bottom left corner of the first page of the CAGE (MSDS) screen. "Clicking" the mouse pointer on this button will reveal a summary of all NSN record data fields for that NSN. Upon closing this NSN summary, the same IEX Code was entered in this Health Review Code data field.

Health Hazard. This data field represents the specific hazard to human health. It is on page one of the CAGE (MSDS) record screens; another Health Hazard data field that the Base AF-EMIS stakeholders did request PES to update is on page two of the CAGE (MSDS) screens.

A pick-list containing various health hazards, such as irritant or carcinogen, is provided. This information was found in the Health Hazard Data section of HMIS. The information in this section did not identify a specific health hazard; interpretation of the information was required. Typically, materials were described as an irritant. Some materials had other specific hazards listed, such as carcinogenicity.

Physical Hazard. This data field is identical to the Physical Hazard data field in the associated NSN record. As described for Health Review Code above, this information was copied from the NSN record using the "NSN" button.

Ounces. This AF-EMIS-mandatory data field specifies the number of ounces per unit of issue as indicated in the NSN record for that material. The ounces are either in terms of weight or volume; the next data field, "Type", provides this selection. The information used by PES to populate this field was obtained by converting the units of measurement of the Size and Unit data fields in the NSN record to weight- or volume-based ounces.

With respect to units of measurement, the ounces data field represented typical conventions. For instance, a quart of oil would be entered as 32 fluid ounces or a pound of grease as 16 net ounces. As long as the specific gravity and density are entered correctly (especially for compressed gases), it does not matter whether the ounces are measured by weight or volume.

The Ounces and Type data fields are used to generate storage and usage reports used for regulatory reporting, such as the Chemical On-Site Summary and Issues Containing EPA 17 chemicals. Thus, it is crucial that these fields be entered correctly. PES found that many of the Ounces and Type fields were incorrect or blank. One typical error found by PES was that pounds were entered in the Ounces field.

As noted previously, when the AF-EMIS database contained multiple versions of a MSDS, multiple CAGE (MSDS) records were created utilizing the same CAGE, but a different CAGE Version formed by entering the letter that follows the one used in the record being replaced (i.e., old version "B", new version "C"). PES found that the CAGE (MSDS) records did not reflect the use of this procedure; the "CAGE Component No." was increased instead. To correct this problem, a new CAGE record with the correct version/component was created and the Ounces data field of the incorrect CAGE (MSDS) records was changed to a near zero size and the record was inactivated.

Type. This data field indicates the measurement unit for the value entered in the Ounces data field. A pick-list provides two choices; fluid for volumetric units or net for mass units. As discussed above, this data field must be entered correctly as numerous reports are generated using this data.

Flash Point Minimum, Maximum, and Type. These three data fields all relate to a temperature or range of temperatures at which a material releases vapor

sufficient to form an ignitable vapor mixture near the surface of the material. Each of these fields were typically found in either a MSDS or HMIS.

The Flash Point Type data field provides a pick-list with two options; range or not applicable (N/A). When flash point data was available, the "Range" option was selected; otherwise, "N/A" was selected. The Flash Point Minimum and Maximum data fields were populated from available flash point data from a MSDS or HMIS. If a single flash point was listed in either of the aforementioned reference, this value was entered into the Flash Point Minimum and Maximum data fields.

A common data entry error observed and corrected by PES was populating the Flash Point Minimum and Maximum data fields with zero when no information was available. This actually means that the material is extremely flammable. Care must be taken to populate these data fields correctly when no information is available; the Flash Point Type data field should be "N/A" and the Flash Point Minimum and Maximum data fields should be blank.

pH Type, Minimum, and Maximum. The pH Type data field is populated from a pick-list to indicate whether pH is not applicable to the HAZMAT material ("N/A") or if the value is entered as a range ("Range"). If the Type is not applicable, the Minimum and Maximum data fields were left blank. If a pH was available, the pH type was "Range" and the minimum and maximum values were entered. If a single pH value was given in HMIS or a MSDS, the value was entered in both the Minimum and Maximum data fields. As was the case with the flash point data fields, zero was typically entered into the minimum and maximum data fields; PES corrected this error.

VOC with Units. The VOC data field represents the amount of volatile organic compounds in the HAZMAT. The Units data field is a pick-list with the following

choices: weight percent (%), pounds per gallon (lbs/gal), grams per liter (g/l), and not applicable (N/A). If no VOCs were present in the HAZMAT, the VOC data field was left blank and "N/A" was chosen from the Units pick-list. If VOCs were present in the HAZMAT, the value was entered and the appropriate units were selected. If the units were pounds per gallon or grams per liter, it was necessary to use the AF-EMIS unit conversion feature. There is a button labeled "Convert" near the Units data field; clicking the mouse pointer on this button converts these units to a weight percentage.

VOC information was found either on a MSDS or in HMIS, typically under the Physical Characteristics section. Occasionally, the VOC concentration was included in the ingredients information or transportation data section.

Care must be taken to note whether the VOC concentration is reported in terms of weight or volume. MSDSs and the HMIS ingredient information typically noted weight or volume units. In the HMIS Physical Characteristics section, the VOC concentration was reported in terms of volume. When VOC units were presented in terms of volume only, data was entered with respect to volume as this provided a reasonable estimate of the VOC weight concentration. Verification of volume-based VOC concentrations was based on a review of the actual ingredients; adjustments were made for some VOC concentrations after this review.

Specific Gravity and Density. The specific gravity and density of the HAZMAT were available from a MSDS or HMIS for nearly all of the authorized materials. When the MSDS or HMIS did not have a specific gravity or density, the HAZMAT was typically a solid; the specific gravity and density were given for some solid materials. The specific gravity was located in the Physical Characteristics section of HMIS. The density, reported in pounds per gallon, was calculated by multiplying the specific gravity by the density of water, 8.34 pounds per gallon.

Vapor Pressure, Type, and Measure Temperature. These data fields represent the vapor pressure, with units (pounds per square inch or mm Hg) and reference temperature of the HAZMAT. Approximately one half of the materials had a vapor pressure sufficiently high enough to report (above 0.01 mm Hg). The remaining materials were solids or liquids with low vapor pressures, such as oil.

As previously mentioned, corrections were required for electronically imported vapor pressures. For these data fields, AF-EMIS would import the vapor pressure and temperature into the same vapor pressure data field. For example, a vapor pressure of "50@70 (mm Hg@°F)" sometimes was imported in the vapor pressure field as 5070 mm Hg.

Health Data Frame - Health Hazard. This data field, along with the next five data fields, is used to print OSHA-compliant labels. The Health Hazard pick-list data field provides the following five options relating to the material's relative threat to human health: minimal, slight, moderate, serious, and severe. This information was available from a MSDS or HMIS in two formats. One format listed this data as minimal, slight, moderate, serious, and severe. The other format listed this data as the numbers zero to four; zero represents minimal, one represents slight, two represents moderate, three represents serious, and four represents severe. The material's MSDS or HMIS Control Data Sheet provides this information for 175 materials.

Health Data Frame - Fire Hazard. The Fire Hazard data field represents the material's degree of flammability. It is a pick-list with the same options and reference sources as the Health Hazard data field.

Health Data Frame - Specific Hazard. This pick-list data field represents a particular warning about the material. The six options for this warning are as follows: "acid", "alk" (alkaline), "cor" (corrosive), "no water" (water reactive), "oxy"

(oxidizer), and "rad" (radioactive). Either a MSDS or HMIS was used as the source of this information.

Health Data Frame - Reactivity. The Reactivity data field represents the material's degree of reactivity. It is a pick-list with the same options and reference sources as the Health Hazard data field.

Health Data Frame - Target Organ(s). Organs that the material could effect, available from a MSDS or HMIS, were listed in this data field. This data field allows for the selection of multiple target organs using the following procedure. First, the "New" button, located to the right of the Target Organ data field, was selected with the mouse pointer. Next, one of the available target organs was selected and the "OK" button was pressed with the mouse pointer. If additional target organs required listing in AF-EMIS for the material, this procedure was repeated.

Health Data Frame - Comments. This data field was used to provide any additional information that could not be entered into other Health Data Frame data fields. It was used for 35 CAGE records.

Constituent CAS and Name. The constituent data fields were populated by using the "Constituents" button located on the bottom left portion of the second screen. The Constituent CAS data field is a pick-list of the CAS numbers from the CAS records. Upon entering the CAS number from HMIS or a MSDS in the data field, the corresponding chemical typically appeared. Sometimes no chemical name would appear or the chemical name that appeared was incorrect. This situation resulted because either the CAS was not in the AF-EMIS CAS records or the HMIS CAS number was incorrect. If the AF-EMIS Import MSDS feature were used, such constituents would not be imported. In such cases, a search for the chemical name using the CAS pick-list search was utilized which

allowed PES to locate the needed constituents. Material constituents listed in HMIS with generic names, such as additives, were not entered into AF-EMIS.

PES entered/validated over 4,500 constituents into the Grand Forks AFB AF-EMIS database. Some of this effort was required to replace constituent data lost when a new CAGE record was created to correct for the improperly entered CAGE Versions.

Constituent Concentration Minimum, Maximum, Concentration Units, and Percent By Weight or Volume. These data fields all relate to the amount of constituent in an authorized HAZMAT. The Minimum and Maximum data fields represent the numeric minimum and maximum concentrations of the constituent in the authorized HAZMAT. If a single value was shown in HMIS, this value was entered for both fields. The Concentration Units data field provided three options for the minimum and maximum concentrations: parts per million (ppm), parts per billion (ppb), or percent (%). Typically, PES entered the concentration in percent. When percent is selected from the unit's data field, another data field appears; percent by weight or volume. Most HMIS records and MSDSs reported concentrations in percent by weight; however, a few constituent concentrations were reported in units other than weight percentages. These concentration units were clearly identified as ppm, ppb, or volume percent. If the concentration units were specified as units other than weight percent, those units were used. If the concentration units were not specified, weight percent units were selected because this is the typical unit reported on an MSDS.

EPCRA Chemical Form. This data field represents the constituent form as defined by EPCRA Form R reporting. There are two options provided in the pick-list; pure or mixture. The majority of constituents were reported as a mixture. A pure form was selected for materials that consisted entirely of one constituent, such as pure gases.

EPCRA Chemical State. This data field represents the constituent state as defined by EPCRA Form R reporting. The following states are available in the pick-list: solid, liquid, gas, fine powder or dust, fibrous, molten, dissolved in solution, and fume. The majority of constituents were either a solid, liquid or gas. The remaining options apply to only a few chemicals (i.e., fibrous aluminum oxide).

It should be noted that AF-EMIS does not account for the generation of EPCRA-regulated materials from reaction of air emissions. Care must be taken to account for such scenarios, as they are required for EPCRA reporting.

7.0 AUTHORIZATION RECORD DATA ENTRY/VALIDATION PROCEDURES

The sources of information needed to enter/validate the Authorization record data fields that the Base AF-EMIS stakeholders wanted updated were as follows: Form 3952 and HMIS or MSDS. The AF-EMIS Authorization record screens are included as Figures 7.1 and 7.2. Table 7.1 lists the authorization data fields to be updated; the source of information PES used to update each; and the number of times data were entered for each data field.

There was 1,690 valid Form 3952s on file at the Grand Forks AFB HAZMART. Information on most of these authorizations was already entered in AF-EMIS by the Logistics Group; however, not all of the data that the Base AF-EMIS stakeholders wanted updated were populated. Typically only data fields that are mandatory for creating the Authorization record were populated. In addition, any expired and/or invalid authorizations that remained in AF-EMIS as active authorizations were made inactive by PES.

Populating the Authorization record is the last step in entering/validating authorized materials in AF-EMIS. Because the authorized NSN and shop numbers have been established to create the NSN and shop records, respectively, these numbers were available for entry into the Authorization records.

NSN. The NSN data field was entered or validated from data on the Form 3952. As described above, most of the authorizations were already entered into AF-EMIS by the Logistics Group. PES entered an additional 200 authorizations from Form 3952.

FIGURE 7.1

AF-EMIS AUTHORIZATION RECORD SCREEN NUMBER 1 OF 2

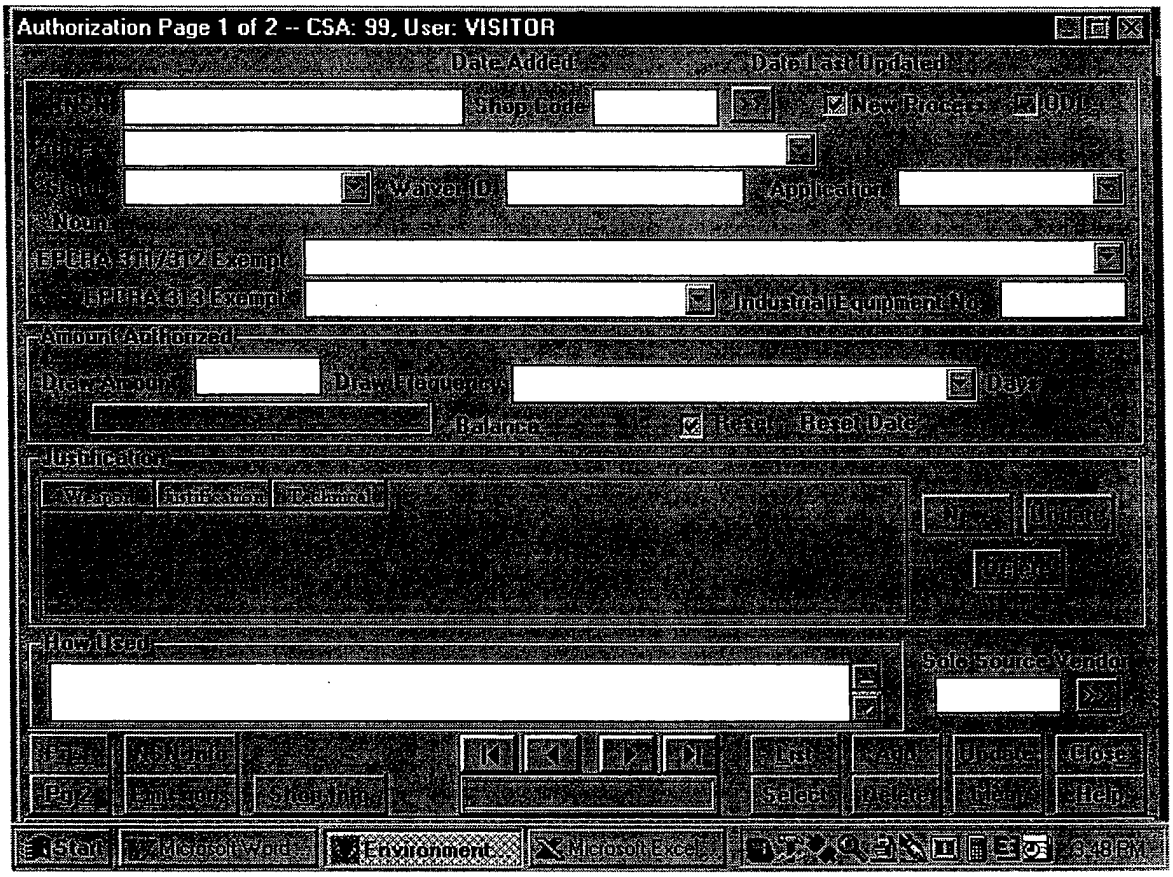


FIGURE 7.2

AF-EMIS AUTHORIZATION RECORD SCREEN NUMBER 2 OF 2

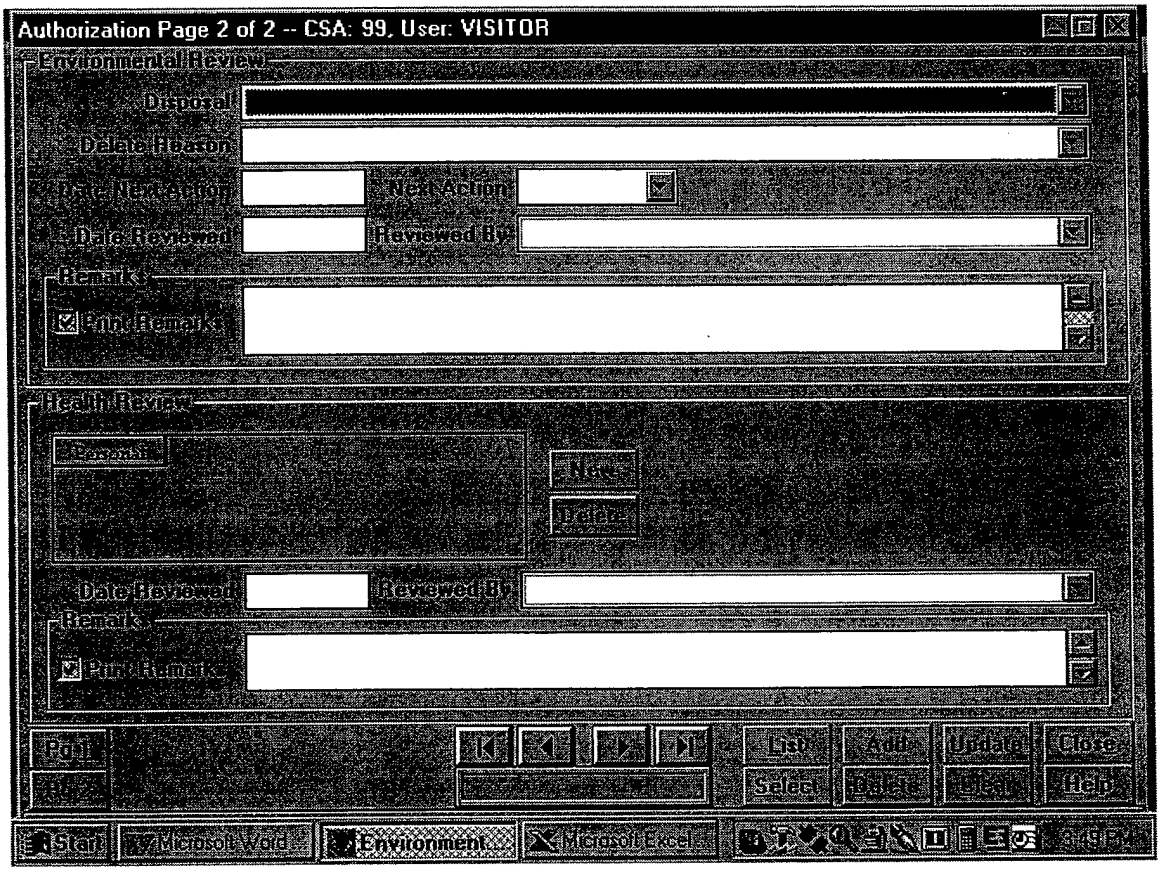


Table 7-1. Authorization Record Data Fields with Sources of Information and Number of PES Entries		
Data Field	Source of Information	Number of PES Entries
NSN	Form 3952 / HMIS	201
Shop Code	Form 3952	196
Status	Form 3952	220
Process	Form 3952	196
New Process	Form 3952	0
ODC (system generated)	System Generated	System Generated
ODC Application	Form 3952	12
Draw Amount	Form 3952	127
Draw Frequency	Form 3952	122
Reset	HAZMART Personnel	122
Justification – Weapon System	Form 3952	162
Justification – Justification Type	Form 3952	700
Justification	Form 3952	700
Justification – Technical Order	Form 3952	348
Justification – Page and Paragraph Number	Form 3952	309
Justification – Date and Revision	Form 3952	309
Justification – Remarks	Form 3952	80
How Used	Form 3952	15
Disposal	Form 3952	265
Remarks – Disposal	Form 3952	171
Date Next Action	Form 3952	132
Next Action	Form 3952	132
Date Reviewed (Environmental)	Form 3952	1,386
Reviewed By (Environmental)	Form 3952	818
Remarks (Environmental)	Form 3952	730
Health Review – PPE	HMIS / MSDS	3,718
Date Reviewed (Health)	Form 3952	1,548
Reviewed By (Health)	Form 3952	941
Remarks (Health)	Form 3952	612

Shop Code. This data field identifies the shop that is authorized to use the specific material. The shop code was obtained by comparing the supply account code from Form 3952 to a Base-created list of supply account codes with shop codes.

Status. The status of the authorization was obtained using a pick-list. If the Form 3952 was signed by a representative from CE, SE, and LG and was not expired, the status was "Active".

Process. The process code is a four character code (two-letters followed by two numbers) that indicates the process operations that occur in the shop, such as industrial soldering. This field was populated using a pick-list established in the Shop records. As discussed in Section 2, most of the codes in the database were generic; PES retained these codes because more specific codes were not provided.

New Process. This data field is a three-way check box (yes, no, or unknown) used to indicate whether a process was newly created. This information was not listed on the Form 3952. The check box was left blank by PES for all authorization records indicating that the process was not new.

ODC. This check-box indicates that an ODC may be present in the authorized material. This data field is automatically populated by AF-EMIS through a direct link to the ODC check-box in the NSN records.

Application (if ODC). This pick-list data field indicates how the HAZMAT is used if it is an ODC. The pick-list provides the following four options: solvent, fire suppressant, refrigerant or other. Form 3952 was used as the resource for this information; however, the description of the hazardous material provided input as

well. Most revisions that were made involved deleting the ODC application that was already populated since the material was not an ODC.

EPCRA 311/312 Exempt and EPCRA 313 Exempt. These data fields indicate if the authorized material and process for which it is used is exempt from EPCRA 311/312 and 313 reporting requirements. These exemptions are based on the material's method of use, purpose, packaging, and potential for exposure, and intended consumer.

At the Kick-off Meeting, it was agreed that it is far more time efficient to apply the exemptions after reporting threshold calculations have been performed. This method minimizes the unnecessary process of applying exemptions to materials that will never exceed reporting thresholds. Both data fields were populated to indicate non-exemption to "fill-in" the data field.

Draw Amount and Draw Frequency. These data fields represent the quantity of material a shop is authorized to be issued over a given period of time, e.g., two cans per week. These data fields were typically populated correctly; the only PES revisions/inputs required were associated with new authorizations or renewals of existing authorizations.

The Draw Frequency data field is a pick-list consisting of the following time periods: daily, weekly, monthly, quarterly, semi-annually, annually, greater than annually, and one-time only. If the frequency shown on Form 3952 did not match any of the pick-list frequencies, PES entered a Draw amount and frequency that was equivalent to the value on the Form 3952 (e.g., four cans per week would be entered for eight cans bi-weekly).

Reset. This data field (check-box) indicates if the draw balance should be reset after each draw. At the request of HAZMART personnel, the check-box was set to "Yes" for all authorizations except one-time only draw frequencies.

Justification – Weapon System. This data field indicates any weapon systems that require the use of the particular HAZMAT. A pick-list containing codes was used to populate this data field. Approximately one-quarter of all justifications created had a weapon system specified, usually specified in the title of the Technical Order.

Justification – Justification Type. The justification type represents the type of justification with respect to the source of the justification, such as Air Force, Army, commercial, or government. The pick-list option "Air Force" was used for all technical orders other than manufacturer's operation and maintenance manuals.

Justification – Justification. The justification data field is a pick-list containing the type of document that contains the justification for the use of the HAZMAT. Typically, the justification was either a Technical Order or Manufacturer's Manual.

Justification – Technical Order. This pick-list contained specific titles of justifications specified under the Justification data field. If a specific title was not on the pick-list, the System Administration Module was used to add the title; approximately 200 titles were added to this pick-list.

Justification – Page Number, Paragraph Number, Date, and Revision Number. These data fields represent the page number, paragraph number, date and revision number of the exact justification specified under the Technical Order data field. This data, along with all justification data, was specified on the Form

3952 or an attached copy of the relevant pages of the technical order. Approximately one-half of the justifications entered contained this data.

How Used. This data field is a large text box to be used to describe the material's purpose and how the material is used. PES found this data field to be populated for nearly all records. PES entered / validated text for all authorizations for which it was included on the Form 3952. The majority of Form 3952s included some description of how the material was used.

Disposal. The disposal data field is a pick-list with several options for the anticipated method of disposing of the material, such as "Consumed in use", "Drummed/containerized", and "Recycled off-site". This data field was used primarily to describe the method of disposal for the material, not the material's container. Information on container disposal was typed into the next Remarks data field.

Date Next Action. The Date Next Action data field indicates the date of the next required action, typically authorization renewal. The date is one year after the latest signature date on the Form 3952. This data field was updated for approximately ten percent of the authorization records.

Next Action. This data field indicates the next action that should occur on the date listed in the Date Next Action data field. Renewal was chosen for all authorizations except one-time only issues. Since one-time only authorizations are good for one issue of a quantity of material, the next action was set to "Deletion". PES typically found this data field to be correct; only new authorizations required Next Action data updating.

Date Reviewed (Environmental). This data field represents the date a representative from CE reviewed the Form 3952. It was updated for nearly all Authorization records.

Reviewed By (Environmental). The name of the CE representative who performed the review on the material authorization (i.e., Form 3952) is entered into this data field. The information appeared on the Form 3952; however, signature legibility was an issue in some instances.

Remarks (located under Environmental Review Section of the AF-EMIS Authorization Record). This data field is a blank space that can be used for miscellaneous comments pertaining to the Environmental Review section of the Authorization record. This data field was used to describe methods of container disposal. Additional material disposal information was also included when the Disposal pick-list did not provide sufficient detail. Also, any information on why an authorization was deleted was included here, such as a NSN being replaced by a specific NSN (NSN is specified). In addition, comments from the CE reviewer were included here.

Health Review – Personal Protective Equipment. Personal Protective Equipment (PPE) was entered into this data field based on information taken from the control measures section of HMIS. This data field is available for entry/validation by clicking the "New" button located to the right of the PPE data field box. A pick-list includes most PPE that may be required; however, chemical splash goggles, silver shield gloves, long sleeved shirt, and dust mask was not included. The System Administration Module was used to add additional PPE to the pick-list. Upon upgrade to a newer version of AF-EMIS (Version 6.0 is due for release in August 1999), these PPE may need to be repopulated in the pick-list but they will remain in the Authorization records.

Since the PPE was based on HMIS/MSDS information, it was far more efficient to populate all PPE data fields for a single NSN at once. Because most authorizations had already been entered in AF-EMIS by the Logistics Group, it was possible to scroll through all authorizations for a single NSN and populate the PPE. The fastest method was to add one PPE to the first authorization of the NSN, scroll to the next authorization, click the "New" button, click the "OK" button, and then scroll to the next record. When one PPE is entered for all authorizations for a given NSN at a time, AF-EMIS "remembers" the last PPE selected; therefore, the selected PPE already appears in the pick-list. Thus, simply clicking "OK" populated the field.

Date Reviewed and Reviewed By (Health). These data fields are identical to the corresponding fields contained in the Environmental Review Section of AF-EMIS; however, the reviewer information refers to a BE representative. These data fields were updated for nearly all Authorization records.

Remarks (located under the Health Review Section of the AF-EMIS Authorization Record). This data field is used for miscellaneous comments pertaining to the health (BE) review of the Form 3952. For instance, if no PPE was required for a material, "No PPE Required" was inserted into this data field.

8.0 FINAL AF-EMIS STATUS

This section summarizes the final overall status of AF-EMIS at Grand Forks AFB after completion of data entry. In addition, remaining data gaps are discussed.

At completion of the data entry on 20 May 1999, all Material Module records were updated for the validated 832 different authorized HAZMATs in the Base AF-EMIS database. Of these HAZMATs, 616 were items with a NSN and 216 were locally purchased items that were identified with a LPN. Approximately 1,024 CAGE records were completely updated; this count does not include partially completed CAGE records or multiple CAGE records for material kits. Including these items, PES updated 1,113 CAGE records. There were 1,690 authorizations in the Base's AF-EMIS database when PES completed the data entry activities.

PES could not populate AF-EMIS for 300 HAZMATs because MSDS hard copies were not provided. Because the Form 3952 for these items lacked sufficient descriptive information, PES could not find MSDS data in HMIS. In mid-April, PES submitted a list of these materials to the Base BE staff requesting that MSDSs be provided. The BE staff subsequently sent an e-mail to all Shops which had Form 3952s without a MSDS; the Shops did not respond to this e-mail. Since the Shops did not respond, the BE and LG staff are inactivating all authorized materials for which they do not have a MSDS. For the Shops to use these materials in the future, a new Form 3952, with MSDS, will need to be submitted. In addition, current Form 3952 review and record keeping procedures assure that a MSDS will be obtained and retained.

Appendix A

Shop Profile Worksheet

Shop Profile Worksheet

AF-EMIS Code:_____ BES WIPD _____

Contractor _____ Contractor Shop Code: _____ Contract Period: _____

Command: _____ Organization: _____ Office: _____

Organization Title: _____

Address 1: _____ City: _____

Address 2: _____ State: _____

Bldg: _____ Location: _____

Supply System: _____ Fund Source: _____ CSA-ID: _____

Supply Acct Code(s) _____
_____
_____
_____

Shop Processes: 1. _____ 5. _____
2. _____ 6. _____
3. _____ 7. _____
4. _____ 8. _____

DOD ACC: _____

HM POC Name: _____ Phone: _____

Supv Name: _____ Phone: _____

UEC: _____ Phone: _____

HW POC: _____ Phone: _____

Shop Fax: _____

Shop Mission Statement:

Remarks: