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Dealing with Multistate Reporting Requirements

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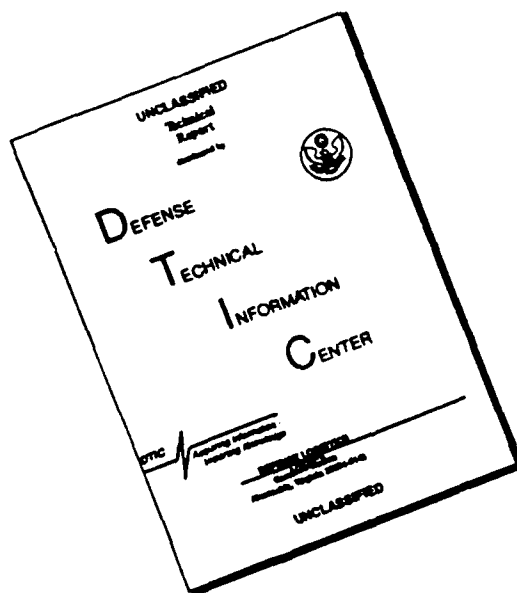
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Executive Summary

DEALING WITH MULTISTATE REPORTING REQUIREMENTS

Army efforts to protect the environment are complicated by the large number of governmental agencies that exercise regulatory authority over military installations. Each regulatory agency, as part of its oversight role, requires a separate periodic reports. With so many agencies involved, the amount and type of information needed and the formats in which the information are to be presented vary significantly.

To help resolve these reporting difficulties, the Logistics Management Institute has developed a prototype automated desktop information system that can be immediately useful to Army environmental managers and will expedite their reporting requirements until a more formal automated system is developed and fielded. To report the level of detail that is required by some states, the prototype information system addresses hazardous waste transactions at the manifest or transaction level. The information system can then produce specific outputs for the various states (or military headquarters), in the differing formats they require. In addition to eliminating the burden of preparing reports by hand, the prototype system establishes a method for a complete and accurate accounting of the Army's hazardous waste generations and disposals and for a meaningful review of the data by Army managers.

The prototype information system and the data used to develop the system are included with this report. We caution against using those data to draw conclusions about the Army hazardous waste program, since the data are incomplete and often inaccurate. The existence of these data problems is perhaps the most compelling reason for developing an automated system. Whenever reports are difficult to fill out and the information not used, employees have little incentive to ensure the data are properly entered.

We recommend that the Army develop a hazardous waste information system like the one provided by this prototype, including establishing standardized data

definitions and conventions, providing the installation environmental staff with tools to simplify the recording of data, and production of reports. Preformatted reports should be made available to installations, and the installations should be required to report to their higher headquarters on electromagnetic media using a single Army-wide format.

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DEALING WITH MULTISTATE REPORTING REQUIREMENTS

BACKGROUND

In its efforts to protect the environment as it carries out its other missions, the Army must deal with a large number of governmental regulatory authorities. As part of its oversight role, each of those regulatory agencies requires the Army to submit periodic reports that it can monitor for evidence of potential pollution problems. Because so many regulatory organizations are involved, a significant amount of information is required, and that information must be presented in a variety of ways.

The decentralized way in which the nation's environmental laws are administered has created this confusing situation. Because the vast majority of entities that pose a pollution risk operate intrastate (rather than interstate) and because most pollution problems affect single states, pollution laws have, since their initiation in the 1940s, been written under the assumption that the states are best qualified to identify and deal with pollution problems. In some of the larger states, several regional agencies have been set up as state-authorized regulators. Even though some states have not yet been authorized to supervise Federal programs on behalf of the United States Environmental Protection Agency (USEPA), they still have their own programs; thus, a regulated activity may be subject to state and Federal regulations simultaneously.

A few organizations, including most Federal operating agencies and several of the largest private-sector industries in the country, must therefore deal with many separate environmental regulatory entities.¹ Because those entities developed programs independently and in a piecemeal fashion, their programs require significantly different technical procedures, reporting, and record-keeping. Fortunately, the general objectives of the programs are similar and their record-keeping must conform to certain Federally mandated minimum standards.

¹Those separate environmental entities include the Federal Government and many of the 50 states, other territories or possessions, and various regional authorities.

Therefore, many of the states have elected to use the Federal formats for reporting even though the periods of required reports may vary.

Army installations provide hazardous waste generation and disposal reports to the appropriate state and Federal environmental regulatory agencies. Copies of those reports are also provided through the chain of command to the U.S. Army Toxic and Hazardous Materials Agency (USATHAMA) for program oversight and data analysis. Because of the many formats in which such records are provided (see Appendices A and B), USATHAMA has difficulty aggregating and analyzing the data. To ease that difficulty, the Army tasked the Logistics Management Institute (LMI) to assist in determining how automated records could be created from the volumes of paper documents that are submitted and how the information could be structured to permit ready analysis by USATHAMA.

The Army is in the process of developing a hazardous waste tracking module as part of the Installation Support Modules (ISM) System, which will become an Army standard management information system. However, that tracking module will not be available to users for some time, perhaps not until 1995. In the meantime, users will need an automated capability. To avoid duplicative effort in providing that interim capability, the Army needs to provide an inexpensive system that is adaptable to whatever form the ISM eventually takes.

We decided to focus on the rapid and inexpensive development of a desktop system that would be immediately useful to USATHAMA until more formal systems were developed and implemented. Although the newly fielded Army Compliance Tracking System (ACTS) program will eventually provide USATHAMA with a much improved data analysis capability, the hazardous waste section of ACTS is still being reviewed; in its present form, it provides only the most general view of hazardous waste issues. Even the revised version of ACTS contemplates a hazardous waste input module that requires the operator to synthesize and interpret data from a large number of other reports. Thus, a desk-top reporting system would complement those larger efforts and could be incorporated into them. To facilitate that, we chose the dBASE IV program to provide an open architecture, which as an industry standard is easily transported into other systems and can be easily modified by the Army without

dependence on expensive contract support.² The program files are written in dBASE IV because of the ease of generating forms; however, the data files are compatible with the dBASE III Plus format, which should be acceptable to most users.

CONSIDERATIONS FOR CONSOLIDATING DATA

Federal hazardous waste management forms come in summary and detailed formats. Summary forms require answers to "yes/no" questions such as, "Is there a recycling program?" and end-of-year grand totals. More detailed forms require dozens of pages to complete with a separate page for each type of hazardous waste; the quantity information on these pages are summed to obtain the grand totals reported on the summary forms. (Appendix A shows the Federal forms.) For management purposes, the Waste Generation and Management (GM) form is the most significant because it provides the end-of-period total quantities of each waste type sent to different treatment, storage, or disposal facilities as the lowest level of aggregation. Federal regulations require that this form be submitted at least every 2 years. However, most states to which the USEPA has granted primacy require that the same information be delivered annually; some even require quarterly reports. In a few cases, in addition to specifying the total amount of each type of waste that is generated during the period, organizations must provide records of every transaction involving that waste. The collection of forms that Army installations send to USATHAMA reflects all of these perspectives.

One advantage of a physical record (a sheet of paper, for example) is that the data on such a record can be organized in a fairly random way and may be aggregated directly on the form. The disadvantage is the difficulty in contrasting and comparing data from such records (even when they are all in the same format) because the analysis must be done by inspection. When the data records are all in different forms, the equivalent of random notes on a telephone log, it is impossible to draw any meaningful conclusions. The numerous Federal and state formats, shown in Appendices A and B, respectively, all provide information on essentially the same topic. Upon inspection, we can readily see that integrating this information manually is virtually impossible.

The same considerations apply to automated data bases. Aggregation of data across various formats requires that each form contain the same data elements, even

²dBASE is a trademark of Ashton-Tate, now Borland International.

if the forms are organized in different formats; more important, the same data elements on different forms must have the same meanings. Particularly important is the ability to distinguish between a quantity for a single transaction and a quantity that is the total of a number of transactions. Adding single transaction quantities and total quantities would give erroneous data.

No matter what data system it uses, the Army should select the most basic transaction as the unit of analysis because more general data can always be aggregated from those data records. Additionally, the more basic the data to be entered into the system, the less the operator needs to interpret. If, however, a higher level of analysis is selected, we cannot ever obtain a more detailed insight. We encountered precisely that problem with the various hazardous waste forms that followed the Federal method of providing only end-of-year totals. We were unable to achieve the level of detail provided in several of the state forms. That inability created a further problem because the system had to be able to reproduce the state form in the event that a result was challenged. The temporary solution was to set up the system to accommodate the full detail available, while accepting summary values (which should have been calculated from the basic transactions) directly for those states from which detailed information was not available.

DATA CONSISTENCY

Volumes of paper documents covering the type of data submitted to USATHAMA were provided to LMI to be input into its desk-top system. In many cases, the installations themselves had been required to transcribe these reports from alternative data systems used locally. Whether done by original entry or by transcription, the input process was time consuming, tedious, and subject to error.

Because the hazardous waste management process depends upon permits for handling hazardous waste as the primary means of identifying organizations (and fixing legal responsibilities), the USEPA identification numbers are included on almost every form and are often the only means of identification offered. In the case of one Army installation, we found that the staff had mistakenly entered the installation's storage facility code rather than the destination treatment facility code; thus, all data from that installation will contaminate any analyses addressing destination transportation, storage, disposal, and recycling (TSDR) facilities (such as an analysis considering the Army's risk exposure in the case of failure or

decertification of any given TSDR), and a casual reading of the file might suggest that the installation is storing its own waste although it has no permit to do so.

USATHAMA staff reviewers might have been able to recognize that case as a reporting error; however, if a regulator's automated system had captured that anomaly first, a great deal of administrative difficulty could have ensued before the problem was resolved.

While reviewing the data, we found several frequently recurring data problems:

- *Inconsistency.* Different installations used different codes to describe the same waste stream.
- *Completeness.* While some installations were thorough in completing each item on the forms, most were not. Those who were not may have felt that the required information was not readily available to them or that it was unimportant or inappropriate. In any event, they did not provide the data and in many cases, failure to include those data detracted from the analytical value of the entire data base.
- *Careless omissions.* We noted numerous careless omissions (as distinct from the obvious omissions above). For example, one report cited the quantity of waste generated but failed to enter a waste code or any other description identifying the waste stream. Such omissions, typographical errors, and miscalculations are hard to avoid when a system is managed manually; they are extremely rare when a properly planned automated record is provided. Careless omissions can be reduced by requiring that certain key fields contain a value; typographical errors can be reduced with the use of "pop-up" menus for commonly used data elements and with ranges of acceptable inputs; and miscalculations can be avoided by having the computer perform all calculations. Some input errors will always occur, but the steps outlined above will reduce those errors and help locate them when they occur.

Much of the information provided by the installations was either hard to read or illegible. Thus, our input is not always reliable since it is based on interpretations of those data. Again, an automated reporting system would avoid this problem by providing a better quality printout and possibly by eliminating the need for the physical report altogether. Several States and USEPA regional offices accept reports in automated form.

Although most such cases were minor when considered individually, the totality challenged the value of the overall data set. The need for one-time entry of

data instead of massive transcription became evident. To ensure consistency of the data and to save time in data entry, the Army needs a system to capture the data at the transaction point and produce output in any of a variety of report formats at the appropriate time.

DATA CONSOLIDATION PROCESS

Clearly, to perform any type of analysis, we had to make the data from all these sources consistent. Our first task was to identify all of the data elements that were called for in the Federal and state forms. We developed a Federal data base format and several state-unique data bases to capture the data in the form required by each jurisdiction. At the end of that process, we had disparate data structures, definitions, and data names. Before we reassigned data names to make them consistent across data bases, we had to determine the degree to which apparently similar words or information requirements really meant the same thing. Once we understood the definitions of the data elements, we could adjust the different data bases to provide common data elements with the same name.

In many cases, installations in different jurisdictions collect different information. For instance, most jurisdictions require that a hazardous waste generator identify the facility to which it sends the hazardous waste; only a few jurisdictions require that the transporter be identified. As a result, some facilities provide a much richer data set than others, and some questions cannot be answered with data from the entire group of facilities. If, however, the Army required that all relevant information be recorded and provided an easy way of doing so, all necessary data could be furnished to the states while offering managers a complete and consistent look at Army environmental operations.

Had a relational data base management system (RDBMS) been routinely available to Army managers, the process could have stopped there; each state format would have been defined in consistent terms, and Army managers could have used the power of the RDBMS to conduct queries and analyses. However, since such

programs are often not available for various reasons, we had to develop a "flat-file" approach.³ Because of the requirement to operate with flat files, only a single final data structure could be accepted; therefore, we incorporated all data required by any state into the final structure.

The result was a series of files that contain many more data elements than any of the source forms but far fewer data elements than all of the source forms combined. In general, the files are segregated to match the USEPA forms and virtually no information overlaps between the files. The file structure is shown in Appendix C. Where a facility does not have to report data, the data fields remain blank for that installation. From the all-inclusive flat file, we can obtain all the information we need to aggregate and analyze the data and all the information the installation needs to generate reports required by any state or by the USEPA.

Such large file structures are ideal for gaining access to all the required data, but they are inappropriate for data input because much of the time is wasted in tracking through unnecessary fields to arrive at those that are mandatory. The number of fields also leads to inadvertently skipping over a required field. Thus, the system should be able to identify the format required by the user's state and present only the required fields for the input process; or the Army must specify that all transaction information is needed to support Army requirements so that "not required" is not an acceptable entry. By contrast, data output will be in the format required by the appropriate jurisdiction; thus, the user does not have to transfer information from the data base to a state form but rather prints the form directly, in the required format.

The process of selecting common data elements from the Federal and various state forms consisted of several steps. The first step was to create a data structure around each of the forms, Federal and state alike. To create that structure, we examined each question on the forms and determined whether it should be answered within an open-ended text format (such as a description), a "yes/no" (logical) format, or a numeric format (a quantity). We considered each question, or sometimes a question set, to be a data element and assigned it a name. We tried to make the name as meaningful as possible so that it could easily be related to the question on the forms, but since each data element name is limited by dBASE to 10 characters, our

³A flat file is a single data base that contains all related data; a relational file, on the other hand, needs only to contain a portion of the data because an RDBMS can link many files together.

efforts may not have been completely successful. The forms in Appendices A and B have been annotated with the data field names to make the structure clearer.

Once all the file structures were complete, we searched for duplicate fields among the various file structures. Frequently, we found duplicate data elements. First, the various Federal forms require many of the same data elements; for example, the USEPA Waste Generation and Management (GM) form could report the same transaction as the Process System (PS) form and the Off-site Identification (OI) form but for different purposes, perhaps with some additional data elements, and certainly in a different format. State forms, even those whose general intent is to replicate the Federal forms, sometimes require extra information or information contained on two or more of the Federal forms. One reason they do so could be to consolidate formats at the state level. However, when trying to develop an efficient data base structure around the Federal forms structure, we could not always easily decide on the data base in which to place these data elements. Although we do not believe such a decision to be crucial, anyone trying to replicate our methodology in designing the various data structures might come up with a somewhat different structure.

The result is that some data elements are represented in a different data base structure than either the Federal or state form would indicate. In addition, because of the preliminary prototype nature of this project, some data elements may still be inadvertently duplicated across data bases.

As mentioned earlier, some forms include information at the transactional level. We did not attempt to merge records when, in the GM form, two records showed two parts of the same transaction. That merging could be done as a refinement to view a particular transaction as completely as possible or to reduce the size of the data base; however, we believe that a data base that relies on transactions as they occur is most likely to be accurate and will offer greater flexibility.

THE NEED FOR DATA STANDARDIZATION

Raw data files in state-specific formats will not be useful to Army managers because the reports use significantly different units of measure and periodicity. A laborious conversion among pounds, kilograms, and tons and among single

transaction and quarterly, annual, and biennial reports would be required before the reports of the individual installations could be used together.

We have seen how the error in assigning a USEPA identification (ID) code can invalidate an entire installation's input; similar errors in transcription from one paper record to the data base or to other paper records can equally compromise the value of the data. The solution to that problem is to provide a routine in which data are entered only once and the computer does the necessary additions and formatting. By allowing the system to convert raw data into outputs required by the state (especially the aggregation of quantities over time and the conversion of units of measure), the Army can prescribe whatever record-keeping system it wishes as long as all installations are able to meet the regulatory reporting requirements of the state. If desired, the Army can impose more inclusive reporting requirements. However, because all states require that records of every shipment of hazardous waste be maintained, no one's workload has to increase. If the system were to operate at the drum (the hazardous waste container) or manifest level, the user would be required to make only those inputs that were needed to create a manifest or a drum log; thereafter, the system could read the status of those manifests or drum logs and treat them as the raw data from which all required reports could be developed. Once the user is freed of the responsibility of adhering strictly to state format requirements, a single data system can offer consistency in data content and personnel training across all installations. As a result, the data set is more likely to be complete and accurate.

The remainder of this report describes a preliminary prototype system that we developed to make the data more amenable to analysis by USATHAMA. We were able to make the data format more consistent. The units of measure can be adjusted to standardize the data by using the unit-of-measure indicator provided in the data base; however, we did not program that feature because the data set in general was insufficient. We found it more prudent to recommend an improved reporting tool than to spend time improving such incomplete data.

HAZDAT DATA BASE DEVELOPMENT

We constructed the "HAZDAT" data base with three goals in mind:

- To eliminate (or at least minimize) field duplication

- To meet Federal and state reporting requirements
- To permit ad hoc inquiries.

In terms of the first and second goals, the data base was constructed largely around the Federal forms. For example, data base EGM.DBF comprises, for the most part, data elements found on the Federal GM form. The data bases are identified in Table 1, and the associated Federal forms are shown in Appendix A. Some of the state forms required additional information; to meet the second goal, we incorporated that information into a similar Federal form where possible, although in the end two additional data bases had to be created for state-required information that had no direct relationship with information required on the established Federal forms.

TABLE 1
ASSOCIATED FEDERAL FORMS

Active data bases	Data base descriptions
EPAID.DBF	Contains USEPA ID codes, addresses, point-of-contact information, etc.
EIC.DBF	Contains the data elements for the Federal IC form (identification certification) and related data elements from the state forms.
EGM.DBF	Contains the data elements for the Federal GM form and related data elements from the state forms.
EOI.DBF	Contains the data elements for the Federal OI form and related data elements from the state forms.
EPS.DBF	Contains the data elements for the Federal PS form and related data elements from the state forms.
EWR.DBF	Contains the data elements for the Federal WR form (waste received from off site) and related data elements from the state forms.
E1WM.DBF	Contains the data elements for the Federal WM Part 1 form (waste minimization) and related data elements from the state forms.
E2WM.DBF	Contains the data elements for the Federal WM Part 2 form and related data elements from the state forms.
ERECYCLE.DBF	Arizona recycling codes.
EPROCESS.DBF	South Carolina waste process codes.

First, we created the EPAID.DBF data base to store the USEPA ID code, addresses and point-of-contact information for all TSDRs. All the forms carried some element of this information, whether it was for generator, storer, transporter,

recycler or some combination thereof. We created the EPAID.DBF data base to consolidate and store that information, thereby reducing the total size of the files and eliminating multiple data entry and opportunities for error (see Appendix C for the file structure).

For future development, the information in the EPAID.DBF file could be made available as part of a pop-up menu while entering facility numbers in other forms. That approach would allow the user to select the correct receiving or hauling facility without error.

Our main effort addressed the EGM.DBF file because the most essential data on hazardous waste reside there. That file can be used as a data source for generating manifests because the format accommodates by-shipment data. Those quantities can be aggregated for those states that use the Federal concept of totaling the waste streams by waste code during the period; a further refinement is the format programming needed to portray multiple waste streams on a single form as is required by Oklahoma. All of this is done from the same data structure and a single format for data input. The file could be further refined to one more level of detail to track individual waste containers. Alternately, the data base could reside on top of a tracking system and act as a manifest and reports generator simply by modifying the data structure to match that of the waste tracking system.

As indicated in the descriptions in Table 1, most of the other data bases address the data needed to fill out selected Federal forms. Most of the USEPA identification data have been extracted from the other forms and stored in the EPAID.DBF data base, with only the EPAID.DBF itself being retained in all forms as the link. Further refinements would eliminate other sources of duplication.

We created two files that address state-unique reporting requirements. The first, ERECYCLE.DBF, contains the USEPA ID code and quantity recycled for the state of Arizona. Since Arizona had special codes that did not easily fit into any of the other tables, we created this file. The second, EPROCESS.DBF, holds South Carolina state-specific process codes; again, we were unable to easily combine the data elements here with any of the other files.

In addition to the data bases and the output format files, we also developed a simple shell program to allow pre-structured queries. That program allows people who are not familiar with data bases (as opposed to report generators) to see how all

these disparate data can be combined into meaningful information. A HAZDAT program listing is provided in Appendix D, and the use of that program is explained in Appendix E.

The pre-structured queries can be expanded upon with minimal programming effort. However, the true power of a data base that resides on a personal computer is its ability to be queried directly in an unstructured manner. For that reason, we used the dBASE format so that users could absorb the files either directly or by conversion into their own data base management systems. Using the data base structure, the Federal and state forms, and the list of data bases, anyone who is familiar with the data base management system and who knows the usage and meaning of the data elements can pose ad hoc inquiries to the data base.

DATA ANALYSIS

In Appendix E, we present some informal instructions on the use of the consolidated files. We did not develop an elaborate user interface and manual because of the ad hoc nature of the queries and because the effort was aimed at rapidly defining the parameters that should be incorporated into the larger Army data systems under development.

We have developed some basic queries that can be made of the data base; those routines are included in the program file HAZDAT.PRG listed in Appendix D and provided with the data disks delivered with this report. Those queries are intended to show the capabilities of the data base; they are not meant to be an inclusive set of all possible queries. We prepared the data base in dBASE format and the structure is provided in Appendix A; users with a basic knowledge of dBASE can develop their own queries. The objective of this product is to make the information accessible rather than have it locked up in a proprietary system. We also intend to show that powerful data operations are possible without relying on extensive and costly custom applications.

THE VALUE OF A DATA BASE SYSTEM

Although the biennial reporting process was intended by the USEPA to minimize the workload for the TSDR, the discontinuity between events has the opposite effect. Because the Army views that biennial document as a *report* and not as a *window* into a serviceable data base, for each reporting period it has to relearn a

cumbersome process for generating reports. If it were considered a normal part of the Army's planning and management operations, the rush to "get it out" every other year would no longer disrupt other planned activities and the installations would have greater incentive to report accurately.

Until now, we have discussed the need for standard data that would make the system useful at higher levels. However, to be effective and maintained, a data base system must offer some value to the person who must maintain it.

Perhaps the most important application was revealed in the 1991 edition of the USEPA's waste-reporting guidelines.⁴ Several changes were made to the USEPA forms, largely consolidation of data from several forms to the GM form. As a result, new reporting formats are required although the actual information reported has hardly changed. If an automated data system were used to generate the forms, only very minor programming changes would be needed and the data in the underlying system would continue to be collected and available to managers with no change. For the user in the field, no change would be apparent; the computer-generated report would simply look slightly different.

At the installation level, a data base can be queried in the same manner as at a higher level. Questions such as "Do we have any hazardous waste shipments for which we have not received a return copy of the manifests yet?" can be answered directly. By linking the information in the tracking data base to other installation information systems, we can ask, for instance, "Which waste stream is costing us the most?"

At the more basic level, the data base system can be used to print information in a variety of formats while requiring that it be entered only once. The most obvious need for that feature is created because Army staffs require different information than the States do. At present, Army and state reports are compiled manually onto the prescribed forms from other records. Aside from transcription errors, errors may occur in interpretation. Training people to report properly is a challenge because of the numbers of different formats and the limited number of people using any one format. However, setting up a standard waste-tracking system on which all appropriate Army employees can be trained would allow effective training on the

⁴U.S. Environmental Protection Agency. OMB Report No. 2050-0024 (Revised). 1991 *Hazardous Waste Report*. 1991.

physical use of the data system and a much better insight into the meaning of each of the data items. The computer could then be programmed to generate the appropriate reports without any action by the employee other than selecting the proper program routine.

Table 2 shows the contents of the first few records of the consolidated EGM.DBF data base for an installation in Oklahoma. Most elements are required by both the state and Federal Governments; the rest are required by one or the other but not both. Once we format the data consistently, some gaps appear in the required data. For instance, where did the variable EPAID1TSDR (marked with an asterisk in the Table) in Record 2 go? Is that variable in Records 3 through 5 correct?

TABLE 2
FIRST SIX OKLAHOMA DATA RECORDS

Element	Record 1	Record 2	Record 3	Record 4	Record 5	Record 6
QTR	0	0	0	0	0	0
EPAID_FAC						
EPAID_GEN	OK4213720846	OK4213720846	OK4213720846	OK4213720846	OK4213720846	OK4213720846
PAGE	1	2	3	2	1	2
DESCR	Lithium batteries	Ammo boxes -- not reg. not applicable	T18 PD-INT	T18 O8-POWDER	DS-2	Xylene
EPACODE1	D003	D003	D003	D003	D002	F003
EPACODE2						
EPACODE3						
EPACODE4						
STATECODE1						
STATECODE2						
SITE PROCE						
DOT WASTE	1415		1415		1719	1307
DOT STATE						
SIC						
SOURCECODE						
WSTFRMCODE						
ORIGCODE						
ORIGSYST						
TRICODE						
CASNUM1						
CASNUM2						
CASNUM3						
CASNUM4						
CASNUM5						
QTY_PREV	0	0	0	0	0	0
QTY_CURR	97	42,900	324	86,951	431	38
UOM	P	P	P	P	P	P
DENSITY	0.00	0.00	0.00	0.00	0.00	0.00
DENSUNIT						
ONSITE	N	N	N	N	N	N
SYS1TYPE						
QTY51_CURR	0	0	0	0	0	0
EPAID1_TR	OK9D81605363	OK9D81605363				OKD981605363
EPAID2_TR						

TABLE 2
FIRST SIX OKLAHOMA DATA RECORDS (Continued)

Element	Record 1	Record 2	Record 3	Record 4	Record 5	Record 6
SYS2TYPE						
QTY52_CURR	0	0	0	0	0	0
SHIPOFF	N	N	N	N	N	N
EPAID1TSOR*	NC0000648451		1916901	1916901	1916901	TND034547141
STID1TSOR						
SITE1SYS						
QTY SITE1	0	0	0	0	0	0
DATESHIP	/ /	/ /	/ /	/ /	/ /	/ /
MANIFEST						
AUTHORIZE						
HC1						
EPAID2TSOR						
STID2TSOR						
SITE2SYS						
QTY_SITE2	0	0	0	0	0	0
HC2						
WASTEMIN	N	N	N	N	N	N
WMACT1						
WMACT2						
WMACT3						
WMACT4						
WMEFFECT	N	N	N	N	N	N
NEWRECYCLE	0	0	0	0	0	0
WMINDEX	0.00	0.00	0.00	0.00	0.00	0.00
QTY_RED	0	0	0	0	0	0
COMMENT	Lithium batteries	reg. not applicable	T18 PD-INT	T18 OS-POWDER	DS-2	Xylene

In Figure 1, we show the data from Table 2 as represented on a Federal form; in Figure 2, we show the same data on the Oklahoma form. As a further demonstration of this approach, we have provided a printout of Wisconsin hazardous waste records using Federal format (Figure 3) and the same Wisconsin data in the Oklahoma format (Figure 4). The point here is not that the data can be printed in the wrong State's format; it is to show that the use of a single data base allows all of the data to be printed out in any desired format without requiring recalculation and transcription by the user. Figures 1 through 4 clearly show how the same data can be manipulated by the system without having to be re-entered by the operator. In addition, the forms shown here are the result of merely a few hours' programming; should this approach be selected, a small investment at the Army level in programming time and form generation software would result in report forms that were indistinguishable from the originals. The forms shown in the figures are reproductions of actual printouts using the program code presented in Appendix D, not formats engineered with the word processor.

SITE: WI3210020563

FORM
GM

U.S. ENVIRONMENTAL
PROTECTION AGENCY
1990 HAZARDOUS WASTE REPORT

Sec. 1	A. Waste Description: HEXACTHORYA CLOTTEANE (LINDANE)				
B. EPA hazardous waste codes: U129			C. State Hazardous Waste Codes:		
D. SIC Code: 9999		E. Source Code:		F. Form Code:	G. Origin: Code: 1 System: M141
H. TRI Constituent: 1		I. CAS numbers: 1. 2. 3. 4. 5.			
Sec. II	A. Quantity generated in 1989: 0	B. Quantity generated in 1990: 113	C. UOM: 1	D. DENSITY: 0.00 Units	E. Onsite: F
System 1			System 2		
System type Qty. treated, disposed, or recycled 0			System type Qty. treated, disposed, or recycled 0		
Sec. III	Was the waste shipped off site? Y				
Site 1	B. EPA ID No. of facility where waste was shipped: NCD000648451	C. System Type M043	D. Total Quantity Shipped in 1990 0		
Site 2	B. EPA ID No. of facility where waste was shipped:	C. System Type	D. Total Quantity Shipped in 1990 0		
Sec. IV	Waste minimization results 1990 N				
B. Activity		C. Other effects N	D. Quantity recycled 0	E. Activity/Prod. Index 0.00	F. Source Reduction Qty. 0
Comments:					

FIG. 1. OKLAHOMA DATA PRINTED IN FEDERAL FORMAT

Page No. 1

04/02/92

Waste Management Service
Industrial Waste Division
Oklahoma State Department of Health
P.O. Box 53551
Oklahoma City, Oklahoma 73154
(401) 271-5338

EPA ID No. WI3210020563

Quarter: 0

QUARTERLY REPORT
GENERATORS OF
CONTROLLED INDUSTRIAL WASTE

Entries grouped by DOT number:

DOT CODE	EPA WASTE NO.	HAULER EPA I.D. NO.	RECEIVING SITE EPA I.D. NO.	AMOUNT IN POUNDS
	D001		TND034547141	14427
DESCRIPTION: FLAMMABLE LIQUIDS, USED SOLVENTS, PAINT & RELATED MAT.				

DOT CODE	EPA WASTE NO.	HAULER EPA I.D. NO.	RECEIVING SITE EPA I.D. NO.	AMOUNT IN POUNDS
	D002		TND034547141	10149
DESCRIPTION: CORROSIVES				

DOT CODE	EPA WASTE NO.	HAULER EPA I.D. NO.	RECEIVING SITE EPA I.D. NO.	AMOUNT IN POUNDS
	D003		NCD000648451	4353
DESCRIPTION: BATTERIES LITHIUM				

DOT CODE	EPA WASTE NO.	HAULER EPA I.D. NO.	RECEIVING SITE EPA I.D. NO.	AMOUNT IN POUNDS
	D004		TND034547141	17
DESCRIPTION: INDUSTRIAL DUST W/ARSENIC				

DOT CODE	EPA WASTE NO.	HAULER EPA I.D. NO.	RECEIVING SITE EPA I.D. NO.	AMOUNT IN POUNDS
	D008		TND034547141	4613
DESCRIPTION: PAINT & PAINT WASTE CONTAINING LEAD				

DOT CODE	EPA WASTE NO.	HAULER EPA I.D. NO.	RECEIVING SITE EPA I.D. NO.	AMOUNT IN POUNDS
	D013		TND034547141	30
DESCRIPTION: WASTE PESTICIDE CONTAINING LINDANE				

FIG. 2. OKLAHOMA DATA PRINTED ON OKLAHOMA REPORT

SITE: OK4213720846	U.S. ENVIRONMENTAL PROTECTION AGENCY 1990 HAZARDOUS WASTE REPORT
	FORM GM

Sec. I	A. Waste Description: LITHIUM BATTERIES				
B. EPA hazardous waste codes: D003			C. State Hazardous Waste Codes:		
D. SIC Code:		E. Source Code:		F. Form Code:	G. Origin: Code: System:
H. TRI Constituent:		I. CAS numbers: 1. 4. 2. 5. 3.			
Sec. II	A. Quantity generated in 1989: 0	B. Quantity generated in 1990: 97	C. UOM P	D. DENSITY 0.00 Units	E. Onsite F
System 1 System type Qty. treated, disposed, or recycled			System 2 System type Qty. treated, disposed, or recycled		
Sec. III	Was the waste shipped off site? N				
Site 1	B. EPA ID No. of facility where waste was shipped: NC0000648431	C. System Type		D. Total Quantity Shipped in 1990 0	
Site 2	B. EPA ID No. of facility where waste was shipped:	C. System Type		D. Total Quantity Shipped in 1990 0	
Sec. IV	Waste minimization results 1990 N				
B. Activity		C. Other effects N	D. Quantity recycled 0	E. Activity/ Prod. Index 0.00	F. Source Reduction Qty. 0
Comments: LITHIUM BATTERIES					

FIG. 3. WISCONSIN DATA USING THE WISCONSIN AND FEDERAL FORMAT

Page No. 1

04/02/92

Waste Management Service
Industrial Waste Division
Oklahoma State Department of Health
P.O. Box 53551
Oklahoma City, Oklahoma 73154
(401) 271-5338

EPA ID No. OK4213720846

Quarter: 0

QUARTERLY REPORT
GENERATORS OF
CONTROLLED INDUSTRIAL WASTE

Entries grouped by DOT number:

DOT CODE	EPA WASTE NO.	HAULER EPA I.D. NO.	RECEIVING SITE EPA I.D. NO.	AMOUNT IN POUNDS
1415	D003	OK9D81605363	NC0000648451	97
DESCRIPTION: LITHIUM BATTERIES				

DOT CODE	EPA WASTE NO.	HAULER EPA I.D. NO.	RECEIVING SITE EPA I.D. NO.	AMOUNT IN POUNDS
				42900
DESCRIPTION: AMMO BOXES - NOT REG. NOT APPLICABLE				

DOT CODE	EPA WASTE NO.	HAULER EPA I.D. NO.	RECEIVING SITE EPA I.D. NO.	AMOUNT IN POUNDS
	D003		1916901	324
DESCRIPTION: T18 PD-TNT				

DOT CODE	EPA WASTE NO.	HAULER EPA I.D. NO.	RECEIVING SITE EPA I.D. NO.	AMOUNT IN POUNDS
	D003		1916901	86951
DESCRIPTION: T18 OB-POWDER				

DOT CODE	EPA WASTE NO.	HAULER EPA I.D. NO.	RECEIVING SITE EPA I.D. NO.	AMOUNT IN POUNDS
1719	D002	OKD981605363	TND034547141	431
DESCRIPTION: DS-2				

DOT CODE	EPA WASTE NO.	HAULER EPA I.D. NO.	RECEIVING SITE EPA I.D. NO.	AMOUNT IN POUNDS
1307	F003	OKD981605363	TND034547141	38
DESCRIPTION: XYLENE				

FIG. 4. WISCONSIN DATA PRINTED IN OKLAHOMA FORMAT

A data base system offers other capabilities as long as centralized control of the basic data definitions is maintained. For instance, by requiring that all data entries be consistent, the Army can calculate totals across installations. At present, the Federal Government and many states allow different reporting quantities to be used, and those quantities cannot be compared unless they are in common units of measure. If, however, the Army prescribes a certain standard unit, it is a simple programming task to convert the data into whatever other unit of measure is required for the local format.

By calculating the total amount of waste generated, the user can provide the data needed to meet the ACTS hazardous waste reporting requirement. Our data system does not allow for the complete integration of ACTS requirements because we focused on the state and Federal reporting requirements; however, the addition of a few fields to the data structure would take care of that need.

Our data system is by no means complete. It simply shows what can be accomplished by integrating noncompatible data into a single format. We provide it to illustrate the need for (and power of) simple, easily developed, easily used tools. With such tools, installations can make use of their data and submit required reports easily and accurately with tremendous savings in time and effort.

CONCLUSIONS AND RECOMMENDATIONS

The data submitted with this report have been provided by the installations. In many cases, the data are incomplete or inaccurate, and not all installations submitted data. In short, the data can neither be used to draw conclusions about the general condition of hazardous waste operations across the Army nor, in many cases, to draw conclusions about those installations that did report.

The data would have been more accurate and complete if a single data collection protocol and reporting system had been available. With multiple reporting systems required, the Army must impose its own discipline on the data if those data are to be useful. Our approach demonstrates that with relatively little effort, one can establish a common data recording system that will still produce all required reports. We recommend that the data system developed for this report (or a refined version) be provided to all installations as a tool. Whether or not the installations choose to use the tool, a data base of mandatory information in a prescribed format should be

required from each installation annually. In that way, the Army will have a consistent data set.

Our demonstration package of formats has been developed only for the state of Oklahoma, selected because it had the most difficult output format to reproduce. Our master files incorporate only those elements required for the 21 states for which reports were received by USATHAMA (shown in Table 3). Although the program uses an industry standard data base management system, casual users will have difficulty constructing their own input and output forms. We recommend that before our data base system is fielded by the Army, input and output formats for all states and territories be made available.

TABLE 3
STATES INCORPORATED IN CONSOLIDATED FORMAT

Federal format	Unique format
New York, ^a Pennsylvania, Georgia, Washington, Louisiana, Texas, California, Kentucky, Michigan, Hawaii, New Jersey, North Carolina, Kansas, Colorado, Wisconsin, Alaska	Virginia, New York, ^a Arkansas, Arizona, Oklahoma, Missouri

^a Some states use both Federal and unique forms.

The Army needs to ensure that this application in particular, and other applications in general, are maintained routinely at the installation level in order to be accurate. Annual crash drills requiring installations to transfer large amounts of information from paper in one form to a computer report in a different format create many errors. This application, in a final form, can be adapted easily to meet the data definition requirements of forthcoming Army-sponsored data systems; however, those systems are often unable to accept external data. We recommend that the developers of the Automated Army Environmental Management Information System (AAEMIS) and other Army environmental data systems be required to enable installation data bases to be incorporated into those systems rather than requiring manual transcription.

APPENDIX A

FEDERAL HAZARDOUS WASTE FORMS

BEFORE COPYING FORM, ATTACH SITE IDENTIFICATION LABEL
OR ENTER

SITE NAME

FORT CARSON, COLORADO 80913

EPA ID NO.

C0221002011510

EPAID-GEN



U.S. ENVIRONMENTAL
PROTECTION AGENCY

1990

1989 Hazardous Waste Report

EGM.DBF

WASTE GENERATION AND
MANAGEMENT

FORM
GM

INSTRUCTIONS: Read the detailed instructions beginning on page 14 of the 1989 Hazardous Waste Report booklet before completing this form.

Sec. I	A. Waste description Instruction Page 15 DESCR CONTAINERS, 1 gallon or larger which contain or previously contained P listed wastes				
B. EPA hazardous waste code Page 15	EPA CODE 1 EPA CODE 2		EPA CODE 3 EPA CODE 4		C. State hazardous waste code Page 16 STATE CODE 1 STATE CODE 2
PDK		INIA		INIA	
D. SIC code Page 16 SIC 1917111	E. Source code Page 16 SOURCE CODE 1A1DK		F. Form code Page 16 WSTFORM CODE 1B131018		G. Origin Page 16 Code L System type MI INIA ORIGSYST
H. TRI constituent Page 17 TRICODE 1	I. CAS number Page 17 CAS NUM 1 CAS NUM 2 CAS NUM 3 CAS NUM 4 CAS NUM 5				

Sec. II	A. Quantity generated in 1989 Instruction Page 17 QTYL PREV	B. Quantity generated in 1990 Instruction Page 17 QTYL CURR	C. UOM Page 18 UOM	D. Density Page 18 DENSITY DENSITY	E. Was this waste treated, disposed or recycled on site or discharged to a sewer/POTW? Page 18 ONSITE ☐ 1 Yes (CONTINUE TO SYSTEM 1) ☒ 2 No (SKIP TO SEC. III)
SYSTEM 1 System type Page 18 SYSTTYPE MI		SYSTEM 2 System type Page 18 SYSTTYPE MI		Quantity treated, disposed or recycled in 1989 Page 18 QTYSL CURR	

Sec. III	A. Was this waste shipped off site? Instruction Page 18 ☒ 1 Yes (CONTINUE TO BOX B) ☐ 2 No (SKIP TO SEC. IV) SHIPOFF				
Site 1	B. EPA ID No. of facility to which waste was shipped Instruction Page 18 EPAID1TSR LTINID10101016114131211	C. System type Page 18 SITE1SYS MI DPK	D. Total quantity shipped in 1989-1990 Page 18 QTY SITE1 1515		
Site 2	EPAID2TSR	SITE2SYS MI	QTY SITE2		

Sec. IV	A. Waste minimization results in 1989-1990 Instruction Page 20 ☐ 1 Yes (CONTINUE TO BOX B) ☒ 2 No (THIS FORM IS COMPLETE) WASTEMIN				
B. Activity Page 21 WMACT1 WMACT2 WMACT3 WMACT4	C. Other effects Page 21 WMEFFECT ☐ 1 Yes ☒ 2 No	D. Quantity recycled in 1989 due to new activities Page 21 NEWRECYCLE	E. Activity/Production Index Page 21 WMINDEX	F. Source Reduction Quantity Page 22 QTY-RED	

Comments:

COMMENT

BEFORE COPYING FORM ATTACH SITE IDENTIFICATION LABEL
OR ENTER:

SITE GEN

SITE NAME HQ Fort Carson & 4th Inf Div (Mech)

Fort Carson, CO 80913-5023

EPAID-GEN

EPA ID NO.

C 0 1 2 2 1 0 0 2 0 1 5 0



U.S. ENVIRONMENTAL
PROTECTION AGENCY

1990
Hazardous Waste Report

FORM

OI

OFF-SITE IDENTIFICATION

EOI.DBF

INSTRUCTIONS: Read the detailed instructions on the back of this page before completing this form.

Site 1	A. EPA ID No. of off-site installation or transporter EPAID-TSDR <u>C 1 0 1 8 5 7 1 2 9 1 2 1 4 9 2 1 8</u>	B. Name of off-site installation or transporter FIRM-TSDR U.S. AIR FORCE ACADEMY
C. Handler type (CHECK ALL THAT APPLY) ☒ Generator GENERATOR ☐ Transporter TRANSPORTER ☐ TSDR TSDR		D. Address of off-site installation STR-TSDR USAF ACADEMY, CO City CITY-TSDR State <u>C.O.</u> Zip Code <u>8 0 1 8 1 4 0</u>
Site 2	A. EPA ID No. of off-site installation or transporter <u>C 1 0 1 5 7 1 1 5 2 1 4 1 3 1 0</u>	B. Name of off-site installation or transporter LOWRY AIR FORCE BASE
C. Handler type (CHECK ALL THAT APPLY) ☒ Generator ☐ Transporter ☐ TSDR		D. Address of off-site installation Street <u>LOWRY AFB, CO</u> City _____ State <u>C.O.</u> Zip Code <u>8 0 1 2 1 3 1 0</u>
Site 3	A. EPA ID No. of off-site installation or transporter <u>C 0 1 9 5 7 1 1 9 2 4 1 0 1 1</u>	B. Name of off-site installation or transporter PETERSON AIR FORCE BASE
C. Handler type (CHECK ALL THAT APPLY) ☒ Generator ☐ Transporter ☐ TSDR		D. Address of off-site installation Street <u>PETERSON AFB, CO</u> City _____ State <u>C.O.</u> Zip Code <u>8 0 9 1 4</u>
Site 4	A. EPA ID No. of off-site installation or transporter <u>C 0 1 7 5 7 1 1 5 9 0 1 0 3 1 6</u>	B. Name of off-site installation or transporter CHEYENNE MOUNTAIN AIR FORCE BASE
C. Handler type (CHECK ALL THAT APPLY) ☒ Generator ☐ Transporter ☐ TSDR		D. Address of off-site installation Street <u>CHEYENNE MT. AFB, CO</u> City _____ State <u>C.O.</u> Zip Code <u>8 0 9 1 4</u>
Site 5	A. EPA ID No. of off-site installation or transporter <u>C 0 1 8 2 1 1 3 1 8 2 0 7 2 1 5</u>	B. Name of off-site installation or transporter PUEBLO DEPOT ACTIVITY
C. Handler type (CHECK ALL THAT APPLY) ☒ Generator ☐ Transporter ☐ TSDR		D. Address of off-site installation Street <u>PUEBLO DEPOT ACTIVITY</u> City <u>PUEBLO</u> State <u>C.O.</u> Zip Code <u>8 1 1 0 0 1</u> - <u>5 0 0 0</u>

Comments:

BEFORE COPYING FORM, ATTACH SITE IDENTIFICATION LABEL
OR ENTER

SITE NAME HQ Fort Carson & 4th Inf Div (Mech)

Fort Carson, CO 80913-5023

SITE-GEN

EPA ID NO

C 0 2 2 1 0 0 2 0 1 5 0

EPAID-GEN



COLORADO DEPARTMENT
OF HEALTH
HAZARDOUS MATERIALS AND
WASTE MANAGEMENT DIVISION

1990

~~XXX~~ Hazardous Waste Report

EPS.DBF

FORM

PS

WASTE TREATMENT, DISPOSAL,
OR RECYCLING PROCESS
SYSTEMS

INSTRUCTIONS: Read the detailed instructions beginning on page 30 of the 1989 Hazardous Waste Report booklet before completing this form

Sec. I A. Waste treatment, disposal or recycling system description
Instruction Page 36

DESR-PS

Destruction, by thermal treatment, of excess (waste) propellant from live firing exercises. Thermal treatment conducted in burn trenches.

B. System type
Page 36

SYSTYPE-B

M11215

C. Regulatory status
Page 36

REGSTATUS

011

D. Operational status
Page 37

OPSTATUS

011

E. Unit types
Page 37

UNITTYPES

110

UNITTYPES2

Sec. II A. 1990
Total liquid quantity
Instruction Page 38

QTY1-LIQ

UOM1

DENSITY1

Total

111

2

111

RCRA

111

111

111

B. Maximum operational capacity
Page 38

CAPOML

Total

DK

RCRA

DK

RCRA-CAP

C. 1990
Total liquid effluent quantity
Page 40

QTY2-EFFL

UOM2

DENSITY2

Total

N/A

N/A

N/A

RCRA

N/A

N/A

N/A

D. 1990
Total solid/sludge residue quantity
Page 41

SLUDGE

UOM3

DEN3

Total

DK

RCRA

DK

RCRA-SLUDGE

E. Limitations on capacity
Page 41

LOC1

LOC2

LOC3

104

2

2

F. Commercial availability code
Page 41

CACODE

1

G. Percent capacity commercially available
Page 42

CAPACITY

10 %

Sec. III A. Planned change in maximum operational capacity
Instruction Page 42

CHOPCAPACI

☐ 1 Yes (CONTINUE TO BOX B)

☒ 2 No (THIS FORM IS COMPLETE)

B. New maximum operational capacity
Page 42

NMAXTOT

UOM-MAX

Total

DK

RCRA

DK

RCRA-NEW

C. Planned year of change
Page 43

YR CHANGE

1991

D. Future commercial availability code
Page 43

FUTCACODE

1

E. Percent future capacity commercially available
Page 43

FUTPERCA

10 %

Comments:

Section IB: M125 is thermal treatment. See Section I, block A.

Unit type (Section I, Block E) is burn trenches located on the ground surface.

COMMENT-PS

BEFORE COPYING FORM, ATTACH SITE IDENTIFICATION LABEL
OR ENTER

SITE NAME U.S. ARMY GARRISON - PANAMA

SITE-GEN

EPA REGION 11

EPA ID NO

EPAID-GEN



U.S. ENVIRONMENTAL
PROTECTION AGENCY

1987 Hazardous Waste Generation
and Shipment Report

EIWM.DBF

WASTE MINIMIZATION

FORM
WM

PART I

WHO MUST COMPLETE THIS FORM?

Form WM Part I, describing efforts undertaken to implement waste minimization programs, must be completed by all generators required to file an Annual/Biennial Report. This requirement was established in response to statutory provisions included in the Hazardous and Solid Waste Amendments of 1984 (HSWA).

NOTE: Generators shipping hazardous waste off site are required to certify, on Item 16 of the Uniform Hazardous Waste Manifest, that they have a program in place to reduce, to the degree determined economically practicable, the volume and toxicity of hazardous waste generated. A similar certification must also be made by generators who have obtained a RCRA treatment, storage, or disposal permit. Consistent with these certification requirements, generators must report, on Form WM Part I, the efforts undertaken to implement waste minimization programs.

INSTRUCTIONS:

Please read the detailed instructions on page 25 of the 1987 Hazardous Waste Generation and Shipment Report Instructions booklet before completing this form.

Answer questions 1 through 10. Throughout this form enter "DK" if the information requested is not known or is not available, enter "NA" if the information requested is not applicable.

1. Did this site create or expand a source reduction and recycling program?

	Yes	No	Yes	No	Yes	No
YR1-Create Create	☐	☒	YR2-Create Create	☒	YR-Create Create	☒
YR1-Expand Expand	☐	☒	YR2-Expand Expand	☒	YR-Expand Expand	☒

2. Did this site have a written policy or statement that outlined goals, objectives and methods for source reduction and recycling of hazardous waste?

	1987 9	1986 8	Prior Years
YR1-YESNO Yes	☐	☐	☐
No	☒	YR2-YESNO Yes	YR-YESNO Yes
		☒	☒

3. What was the dollar amount of capital expenditures (plant and equipment) and operating costs devoted to source reduction and recycling of hazardous waste? ENTER ZERO (0) IF NONE.

	1987 9	1986 8	Prior Years
YR1-CE Capital expenditures	\$ 0.00	YR2-CE Capital expenditures \$ 0.00	YR-CE Capital expenditures \$ 0.00
YR1-OC Operating costs	\$ 0.00	YR2-OC Operating costs \$ 0.00	YR-OC Operating costs \$ 0.00

4. Did this site have an employee training program or provide incentives (bonuses, awards, personal recognition, etc.) to identify and implement source reduction and recycling opportunities and activities?

	Yes	No	Yes	No	Yes	No
YR1-TRAIN Training	☒	☐	YR2-TRAIN Training	☒	YR-TRAIN Training	☒
YR1-INCENT Incentives	☐	☒	YR2-INCENT Incentives	☒	YR-INCENT Incentives	☒

5 Did this site conduct a source reduction and/or recycling opportunity assessment or audit? Note: an opportunity assessment or audit is a procedure that identifies practices that can be implemented to reduce the generation of hazardous waste or the quantity which must subsequently be treated, stored or disposed.

		1987 9		1988 8		Prior Years		
		Yes	No	Yes	No	Yes	No	
YRI_SW	Site-Wide	☒	☐	YR2_SW	☐	☒	YR_PREVSW	☐
YRI_PS	Process-Specific	☒	☐	YR2_PS	☒	☐	YR_PREVPS	☐

6 Did this site identify or implement new SOURCE REDUCTION opportunities to reduce the volume and/or toxicity of hazardous waste generated at this site?

		1987 9		1988 8		Prior Years		
		Yes	No	Yes	No	Yes	No	
YRI_ID	Identify	☒	☐	YR2_ID	☒	☐	YR_PREVID	☒
YRI_IMP	Implement	☒	☐	YR2_IMP	☒	☐	YR_PREVIMP	☒

7 What factors have delayed or prevented implementation of SOURCE REDUCTION opportunities. MARK ☒ NEXT TO ALL THAT APPLY.

- Q7A

☐ a Insufficient capital to install new source reduction equipment or implement new source reduction practices
- Q7B

☐ b Lack of technical information on source reduction techniques applicable to my specific production processes
- Q7C

☐ c Source reduction is not economically feasible cost savings in waste management or production will not recover the capital investment
- Q7D

☐ d Concern that product quality may decline as a result of source reduction
- Q7E

☐ e Technical limitations of the production processes
- Q7F

☐ f Permitting burdens
- Q7G

☐ g Other (SPECIFY) PENDING ECONOMICAL ANALYSIS

8 Did this site identify or implement new RECYCLING opportunities to reduce the volume and/or toxicity of hazardous waste generated at this site or subsequently treated, stored, or disposed of on site or off site?

		1987 9		1988 8		Prior Years		
		Yes	No	Yes	No	Yes	No	
YRI_RID	Identify	☒	☐	YR2_RID	☒	☐	YR2_PREVRID	☒
YRI_RIMP	Implement	☒	☐	YR2_RIMP	☒	☐	YR2_PREVRIMP	☒

EPA ID NO

9 What factors have delayed or prevented implementation of on-site or off-site RECYCLING opportunities MARK ☒ NEXT TO ALL THAT APPLY.

- Q9A ☐ a Insufficient capital to install new recycling equipment or implement new recycling practices.
- Q9B ☐ b Lack of technical information on recycling techniques applicable to this site's specific production processes
- Q9C ☐ c Recycling is not economically feasible cost savings in waste management or production will not recover the capital investment.
- Q9D ☐ d Concern that product quality may decline as a result of recycling.
- Q9E ☐ e Requirements to manifest wastes inhibit shipments off site for recycling
- Q9F ☐ f Financial liability provisions inhibit shipments off site for recycling
- Q9G ☐ g Technical limitations of product processes inhibit shipments off site for recycling
- Q9H ☐ h Technical limitations of production processes inhibit on-site recycling
- Q9I ☐ i Permitting burdens inhibit recycling
- Q9J ☒ j Lack of permitted off-site recycling facilities
- Q9K ☐ k Unable to identify a market for recyclable materials
- Q9L ☒ l Other (SPECIFY) Unstable local private industry

10 Has this site requested or received technical information or financial assistance on source reduction and/or recycling practices from any of the following sources? MARK ☒ NEXT TO ALL THAT APPLY.

	19879		19888		Prior Years	
	Technical	Financial	Technical	Financial	Technical	Financial
a Local government	Q10A1 ☐	Q10A2 ☐	Q10A3 ☐	Q10A4 ☐	Q10A5 ☐	Q10A6 ☐
b State government	Q10B1 ☐	Q10B2 ☐	Q10B3 ☐	Q10B4 ☐	Q10B5 ☐	Q10B6 ☐
c Federal government	Q10C1 ☒	Q10C2 ☐	Q10C3 ☒	Q10C4 ☐	Q10C5 ☐	Q10C6 ☐
d Trade associations	Q10D1 ☐	Q10D2 ☐	Q10D3 ☐	Q10D4 ☐	Q10D5 ☐	Q10D6 ☐
e Educational institutions	Q10E1 ☒	Q10E2 ☐	Q10E3 ☐	Q10E4 ☒	Q10E5 ☐	Q10E6 ☐
f Suppliers	Q10F1 ☐	Q10F2 ☒	Q10F3 ☐	Q10F4 ☒	Q10F5 ☐	Q10F6 ☐
g Other parts of your firm	Q10G1 ☐	Q10G2 ☐	Q10G3 ☐	Q10G4 ☐	Q10G5 ☐	Q10G6 ☐
h Other firms/consultants	Q10H1 ☐	Q10H2 ☐	Q10H3 ☐	Q10H4 ☐	Q10H5 ☐	Q10H6 ☐
i No request made	Q10I1 ☐	Q10I2 ☐	Q10I3 ☒	Q10I4 ☐	Q10I5 ☒	Q10I6 ☐
j Other (conferences, literature, etc.)	Q10J1 ☐	Q10J2 ☐	Q10J3 ☐	Q10J4 ☐	Q10J5 ☐	Q10J6 ☐

Comments: No capital costs were incurred by this office. Hours dedicated to identify and implement source reduction and recycling opportunities were considered within the Environmental Program Management, and no separate count exists.

COMMENT

BEFORE COPYING FORM ATTACH SITE IDENTIFICATION LABEL
OR ENTER

SITE NAME U.S. ARMY GARRISON - Panama

SITE GEN EPA Region 11

EPA ID NO

EPA ID GEN



U.S. ENVIRONMENTAL
PROTECTION AGENCY

1987 Hazardous Waste Generation
and Shipment Report

E2WM.DBF

WASTE MINIMIZATION

FORM
WM

PART II

WHO MUST COMPLETE THIS FORM?

Form WM Part II must be completed only by generators that engaged in an activity during 1987 that resulted in waste minimization

Waste minimization means

- (1) reduction in the volume and/or toxicity of hazardous waste generated as a result of source reduction, and/or,
- (2) reduction in the volume and/or toxicity of hazardous waste subsequently treated, stored or disposed as a result of on-site or off-site recycling

NO WASTE MIN

☐

Mark ☒ and do not complete this form if no waste minimization results were achieved during 1987

INSTRUCTIONS:

Please read the detailed instructions beginning on page 26 of the 1987 Hazardous Waste Generation and Shipment Report Instructions booklet before completing this form

Make and complete a photocopy of this form for each hazardous waste minimized in 1987

Complete Sections I through IV Throughout this form enter "DK" if the information requested is not known or is not available, enter "NA" if the information requested is not applicable

Sec I		A EPA waste code Page 27		B State hazardous waste code Page 27		C Product or service description Page 27		D Product or service SIC code Page 27	
		EPA CODE 1 EPA CODE 2 EPA CODE 3 EPA CODE 4		STATE CODE 1 STATE CODE 2		DESCR - PROD		SIC	
E Waste form code Page 27		F UOW Page 28		G Density Page 28		H Source description Page 28		I Source code Page 28	
WASTE FORM CODE		UOW		DENSITY IN THERMIST		DESCR - S		SOURCE CODE	
Sec II		A 1986 quantity generated Page 29		B 1987 quantity generated Page 29		C Production index Page 29		D Toxicity change code Page 31	
		QTY - PREV		QTY - CURR		PROD INDEX		TOX - CODE	
E Waste minimization recycling Page 31		F Waste minimization source reduction Page 32		G Quantity recycled		H Quantity generated			
WM CODE 1 WM CODE 2		WM CODE 1 WM CODE 2 WM CODE 3		QTY - RYC		QTY - RED			
1 ☐ 2 ☐		1 ☐ 2 ☐ 3 ☐							
Sec III		A Narrative description of waste minimization project or activity and results achieved Instruction Page 36							
		WM DESCR 1 WM DESCR 2 WM DESCR 3 WM DESCR 4 WM DESCR 5							

E2WM.DBF

FORM WM - PART II

Sec.
IVInstructions: Answer questions 1 through 4. Mark ☒ next to the effects produced by the source reduction and/or recycling activity reported on this form in Sections I through III.

1. What effect did this site's source reduction and/or recycling activity have on the quantity of water effluent produced by hazardous waste generation processes during 1987?

- ☒ Q1A ☐ a. Increase in the quantity of water effluent
☐ Q1B ☐ b. Decrease in the quantity of water effluent
☐ Q1C ☐ c. No effect on the quantity of water effluent
☒ Q1D ☒ d. Don't know

2. What effect did this site's source reduction and/or recycling activity have on the toxicity of water effluent produced by hazardous waste generation processes during 1987?

- ☒ Q2A ☐ a. Increase in the concentration of hazardous constituents
☐ Q2B ☐ b. Decrease in the concentration of hazardous constituents
☐ Q2C ☐ c. No effect on the concentration of hazardous constituents
☒ Q2D ☒ d. Don't know

3. What effect did this site's source reduction and/or recycling activity have on the quantity of air emissions produced by hazardous waste generation processes during 1987?

- ☐ Q3A ☐ a. Increase in the quantity of air emissions
☐ Q3B ☐ b. Decrease in the quantity of air emissions
☐ Q3C ☐ c. No effect on the quantity of air emissions
☒ Q3D ☒ d. Don't know

4. What effect did this site's source reduction and/or recycling activity have on the toxicity of the air emissions produced by hazardous waste generation processes during 1987?

- ☐ Q4A ☐ a. Increase in the concentration of hazardous constituents
☐ Q4B ☐ b. Decrease in the concentration of hazardous constituents
☐ Q4C ☐ c. No effect on the concentration of hazardous constituents
☒ Q4D ☒ d. Don't know

Comm1
Comm2
Comm3
Comm4
Comm5

Comments: Hazardous wastes are not disposed of locally. All installations' effluents lead into Panama Canal waters; these waters serve navigation, recreation; and and potable water purposes. Although no specific figures are available, it is felt that any source reduction process diminishes the toxicity and quantity of the installation's water effluents.

- Phosphoric Acid solutions are neutralized prior to their discharge; sludges are disposed of at a local landfill.

- Spent lithium batteries are retrograded through private contractors.

1. Lithium Battery, EPA HW NO: D0003
2. Phosphoric Acid, EPA HW NO: D0002

BEFORE COPYING FORM, ATTACH SITE IDENTIFICATION LABEL
OR ENTER:

SITE NAME FORT CARSON, COLORADO 80913

EPA ID NO. C02210020150

EPA ID TSDR



U.S. ENVIRONMENTAL
PROTECTION AGENCY

1990

1989 Hazardous Waste Report

EWR.DBF

FORM

WR

WASTE RECEIVED FROM OFF SITE

INSTRUCTIONS: Read the detailed instructions beginning on page 27 of the 1989 Hazardous Waste Report booklet before completing this form.

Waste 1	A. Description of hazardous waste Instruction Page 27 WASTE NICKEL CADMIUM BATTERIES DESR	B. EPA hazardous waste code Page 28 D006 NA	C. State hazardous waste code Page 28 STATE CODE 1 STATE CODE 2
	D. Off-site source EPA ID No. Page 28 EPAID-GEN C09571024191	E. Quantity received in 1989X 1990 Page 28 QTY-REC 12	F. UCM Page 28 UCM-REC
H. Waste form code Page 28 WSTFRM CODE B309		I. System type Page 28 SYSTYPE M141	
G. Density Page 28 DENSITY NA ☐ 1 lb/gal ☐ 2 kg DENSITY 17			

Waste 2	A. Description of hazardous waste Instruction Page 27 WASTE MERCURY BATTERIES	B. EPA hazardous waste code Page 28 D009 NA	C. State hazardous waste code Page 28
	D. Off-site source EPA ID No. Page 28 ☒ Check if ID same as in Waste 1 C09571024191	E. Quantity received in 1989X 1990 Page 28 7	F. UCM Page 28 1
H. Waste form code Page 28 B309		I. System type Page 28 M141	
G. Density Page 28 NA ☐ 1 lb/gal ☐ 2 kg			

Waste 3	A. Description of hazardous waste Instruction Page 27	B. EPA hazardous waste code Page 28	C. State hazardous waste code Page 28
	D. Off-site source EPA ID No. Page 28 ☐ Check if ID same as in Waste 2 C09571024191	E. Quantity received in 1989X 1990 Page 28	F. UCM Page 28
H. Waste form code Page 28 B		I. System type Page 28 M	
G. Density Page 28 ☐ 1 lb/gal ☐ 2 kg			

Comments:

Comment

Page 147 of

153

completed

OMB# 2050-0024

Expires 3-31-82

BEFORE COPYING FORM, ATTACH SITE IDENTIFICATION LABEL OR ENTER:

SITE NAME FORT CARSON, COLORADO 80913

SITE-GEN

EPA ID NO. 902210020150

EPAID GEN



U.S. ENVIRONMENTAL PROTECTION AGENCY
1990
1989 Hazardous Waste Report

FORM

IC

IDENTIFICATION AND CERTIFICATION

EIC.DBF

INSTRUCTIONS: Read the detailed instructions beginning on page 7 of the 1989 Hazardous Waste Report booklet before completing this form.

SEC. I Site name and location address. Complete items A through H. Check the box ☒ in items A, B, D, E, F, G, and H if same as label; if different, enter corrections. If label is absent, enter information. Instruction page 7.

A. EPA ID No. Same as label ☒ or <u>902210020150</u>		B. Site/company name Same as label ☒ or <u>SITE-GEN</u> FORT CARSON, COLO 80913	
C. Has the site name associated with this EPA ID changed since 1987? ☒ 1 Yes ☐ 2 No <u>CHANGE</u>			
D. Street name and number. If not applicable, enter industrial park, building name or other physical location description. Same as label ☒ or <u>HQ Fort Carson & 4th Inf Div (Mech), ATTN: AFZC-FE-ENR (Bldg 303)</u> <u>STR-GEN</u>			
E. City, town, village, etc. Same as label ☒ or <u>FORT CARSON</u>	F. County <u>EL PASO</u>	G. State <u>C.O.</u>	H. Zip Code Same as label ☒ or <u>80913-15023</u> <u>21R-GEN</u>

SEC. II Mailing address of site. Instruction page 7.

A. Is the mailing address the same as the location address? ☒ 1 Yes (SKIP TO SEC. III) ☐ 2 No (COMPLETE SEC. II)	
B. Number and street name of mailing address	
C. City, town, village, etc.	E. Zip Code

SEC. III Name, title, and telephone number of the person who should be contacted if questions arise regarding this report. Instruction page 7.

A. Please print: Last name <u>TJERANDSEN</u>	First name <u>THEODORE</u>	ML <u>S</u>	B. Title <u>INSTALLATION HAZARDOUS WASTE MANAGER</u>	C. Telephone <u>719-579-4828</u> Extension <u>N/A</u>
---	-------------------------------	----------------	---	---

SEC. IV Enter the Standard Industrial Classification (SIC) Code that describes the principal products, group of products, produced or distributed, or the services rendered at the site's physical location. Enter more than one SIC Code only if no one industry description includes the combined activities of the site. Instruction page 8.

A. <u>917</u> <u>SIC1</u>	B. <u>INIA</u> <u>SIC2</u>	C. <u>INIA</u> <u>SIC3</u>	D. <u>INIA</u> <u>SIC4</u>
---------------------------	----------------------------	----------------------------	----------------------------

SEC. V I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. Number of form pages submitted Form IC <u>112</u> Form GM <u>067</u> <u>GMFORMS</u> Form WR <u>01718</u> <u>WRFORMS</u> OI: 4 Form PS <u>0102</u> <u>PSFORMS</u>			
B. Please print: Last name <u>BARBER</u>	First name <u>MARY</u>	ML <u>J</u>	C. Title <u>CHIEF, ENVIRONMENT, ENERGY & NATURAL RESOURCES</u>
D. Signature <u>Mary Barber</u>			E. Date of signature <u>03</u> <u>12</u> <u>91</u> MO. DAY YR.

Page 1 of 153

Sec. VI	Generator Status	ECL DBF
A. 1989 generation (CHECK ONE BOX BELOW) Instruction page 8 GENCODE ☐ 1 No (CONTINUE TO BOX B) ☒ 2 LOG ☐ 3 SOG ☐ 4 CESOG (SKIP TO SEC. VII)		
B. Reason for not generating (CHECK ALL THAT APPLY) Page 10 NOGENRSN ☐ 1 Never generated ☐ 2 Out of business ☐ 3 Only excluded or delisted waste ☐ 4 Only non-hazardous waste ☐ 5 Periodic or occasional generator ☐ 6 Waste minimization activity ☐ 7 Other (SPECIFY IN COMMENTS)		

Sec. VII	On-Site Waste Management Status
A. Storage Instruction page 11 STORECODE 3	
B. RCRA treatment, recycling, or disposal Page 11 TRTCODE 3	
C. RCRA-exempt treatment, recycling, or disposal Page 12 EXEMPTCODE 3	

Sec. VIII	Waste Minimization Activity during 1988 or 1989
A. Did this site begin or expand a source reduction activity during 1988 or 1989? Instruction page 12 SOURCERED ☒ 1 Yes ☐ 2 No	
B. Did this site begin or expand a recycling activity during 1988 or 1989? Page 13 RECYCLEOD ☒ 1 Yes ☐ 2 No	
C. Did this site conduct a source reduction or recycling opportunity assessment during 1988 or 1989? Page 13 OPPASSES ☒ 1 Yes ☐ 2 No	
D. What factors have limited this site from initiating new source reduction activities during 1988 or 1989? (CHECK ALL THAT APPLY) Page 13 REDLIM ☒ 01 No factors have limited new source reduction activities. ☐ 02 Insufficient capital to install new source reduction equipment or implement new source reduction practices. ☐ 03 Lack of technical information on source reduction techniques applicable to the specific production processes. ☐ 04 Source reduction is not economically feasible: cost savings in waste management or production will not recover the capital investment. ☐ 05 Concern that product quality may decline as a result of source reduction. ☐ 06 Technical limitations of the production processes. ☐ 07 Permitting burdens. ☐ 08 Other (SPECIFY IN COMMENTS)	
E. What factors have limited this site from initiating new on-site or off-site recycling activities during 1988 or 1989? (CHECK ALL THAT APPLY) Page 13 RECYLIM ☒ 01 No factors have limited new recycling activities. ☐ 02 Insufficient capital to install new recycling equipment or implement new recycling practices. ☐ 03 Lack of technical information on recycling techniques applicable to this site's specific production processes. ☐ 04 Recycling not economically feasible: cost savings in waste management or production will not recover the capital investment. ☐ 05 Concern that product quality may decline as a result of recycling. ☐ 06 Requirements to manifest wastes inhibit shipments off site for recycling. ☐ 07 Financial liability provisions inhibit shipments off site for recycling. ☐ 08 Technical limitations of product processes inhibit shipments off site for recycling. ☐ 09 Technical limitations of production processes inhibit on-site recycling. ☐ 10 Permitting burdens inhibit recycling. ☐ 11 Lack of permitted off-site recycling facilities. ☐ 12 Unable to identify a market for recyclable materials. ☐ 13 Other (SPECIFY IN COMMENTS)	

Comments: 	COMMENTS
--------------------------	---

APPENDIX B

STATE HAZARDOUS WASTE FORMS

FORM IC: IDENTIFICATION AND CERTIFICATION

EIC.DBF

PART I

THIS FORM MUST BE COMPLETED BY ALL GENERATORS AND TSD FACILITIES

☐ THIS SITE GENERATES LESS THAN 220 POUNDS OF HAZARDOUS WASTE PER CALENDAR MONTH AND IS CONDITIONALLY EXEMPT.			
Section I:			
A. Site name USAG Fort Chaffee		B. EPA identification number AR9210020187	
C. Physical location address Hwy. 22 South		EPA ID: GEN	
D. City Fort Smith	E. County Sebastian	F. State AR	G. Zip code 72905-5000
CITY-GEN STR-GEN			
Section II:			
A. ☐ Mark here if mailing address is same as physical address.			
B. Mailing address Commander, USAG Fort Chaffee, ATTN: ATZR-ZF			
C. City Fort Chaffee	D. State AR	E. Zip code 72905-5000	
Section III:			
Print Company contact:			
A. Last name Coleman		POCNAME First name Bob	
B. Title Environmental Protection Specialist		C. Telephone (501) 484-2516	
POCPHONE			
Section IV:			
Print Standard Industrial Classification Code:			
1 SIC1 19711	2 SIC2	3 SIC3	4 SIC4
			5 SIC5

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

A. (Print) Last name	First name	Title
Bechel	Roy	Assistant Adjutant
B Signature		Date

FORM IC: IDENTIFICATION AND CERTIFICATION

PART II

EIC.DBF

A. Name change: <u>NA</u> previous name: _____ new name: _____		OLDNAME	SITE GEN
B. Ownership change: <u>NA</u>		OWNERCHG	
C. Date facility closed: <u>NA</u>		DATECLOSED	
D. Waste stream change: <u>NA</u>		WSTECHG	
E. Process change: <u>NA</u>		PROCESSCHG	
F. Generation status of this site for this reporting year <u>XX</u> Category 1 (generated 2200 pounds or more per calendar month) _____ Category 2 (generated between 220 pounds per calendar month) _____ Category 3 (generated less than 220 pounds per calendar month)		GENCODE	
G. Was hazardous waste generated as a one-time event during the reporting year? (spill clean-up, remedial actions, one-time elimination of on-site waste) <u>XX</u> Yes _____ No If yes, briefly describe actions taken. One pound of mercury waste resulting from spill clean-up. _____ _____ _____			
H. List total amount of hazardous waste generated during the reporting year. 6.23 Tons		QTYTOT-GEN	
I. List total amount of hazardous waste carried over from the previous year that was shipped in the reporting year. 2.29 Tons		QTYTOT-TR	

FORM GS: GENERATOR ACTIVITY REPORT

EGM.OBF

Section I: Generator identification

A EPA identification number AR9210020187 EPAID-GEN

B Name USAG Fort Chaffee SITE-GEN

Section II: Transporter identification

A EPA identification number NA EPAID-TR

name NA FIRM-TR

address NA STR-TR

city CITY-TR NA state STATE-TR zip ZIP-TR

Section III: TSD facility identification

A EPA identification number AR9210020187 EPAID-TSDR

name USAG Fort Chaffee - Storage FIRM-TSDR

address ATTN: ATZF-ZE Bldg 241 STR-TSDR

city Fort Chaffee CITY-TSDR state AR STATE-TSDR zip 72905-5000 ZIP-TSDR

B Amount of hazardous waste generated on-site and treated, stored, or disposed of on site: 6.25 Tons

Form WR, Part III must also be completed if on-site TSD took place.

Section IV: Waste identification

SOURCE CODE ORIG CODE SYS TYP

Waste description	SIC	WFC	SC	EPA WC	AMOUNT	UOM	D	OC	ST
Waste Combustible Liquid, n.o.s. NA 1993 <u>DESCR</u>	<u>SIC</u> 9711	B203	A05	<u>EPA CODE</u> D001	<u>QTY-CURR</u> 2.86	<u>UOM</u> T		A	M141
Waste Naptha, Flammable Liquid UN2553	9711	B203	A05	D001	0.06	T		A	M141
Waste Flammable Liquid, n.o.s. UN1993	9711	B203	A05	D001	0.68	T		A	M141
Waste Adhesive, Flammable Liquid UN1033	9711	B210	A57	D001	6.0	P		A	M141
Waste Calcium Hypochlorite Mixture Dry Oxidizer UN1748	9711	B319	A58	D001	0.24	T		A	M141
Waste Sulfuric Acid, Spent Corrosive Material UN1832	9711	B103	A55	D002	1.41	T		A	M141
Waste Lithium Batteries, for disposal ORM-C	9711	B309	A55	D003	0.28	T		A	M141
Hazardous Waste Solid, n.o.s. NA9189	9711	B407	A21	D006 D007 D008	111	P		A	M141

EPS.DBF

Page 2

FORM PS

Site name <u>USAG Fort Chaffee</u>		SITE GEN	
address <u>ATTN: ATZR-ZF</u>			
<u>Fort Chaffee, AR 72905-5000</u>			
Site EPA identification number <u>AR9210020187</u>		EPAID GEN	
Section I:			
A. Waste treatment, disposal, recycling system description The Fort Chaffee OB/OD unit performs thermal treatment of unused propellant increments (excess powder bags) by open burning. This waste is generated during artillery training.			
DESR-PS			
B. System type <u>M1 2 5</u> SYSTYPE-PS		C. Regulatory status <u>0 1</u> REGSTATUS	
D. Operational status <u>0 1</u> OPSSTATUS		E. Unit types <u>1 0</u> UNITTYPE1 UNITTYPE2	
Comments: The open burning thermal treatment unit at Fort Chaffee consists of three clay-lined burn lanes.			
COMMENTS-PS			

AR

EPS.DBF

Page 3

FORM PS

Section II:

A. 1989 influent quantity	
Total <u>0 4 6 5</u>	UOM <u>1</u> Density <u>DENSITY1</u>
RCRA <u>0 4 6 5</u>	(1) <u>lbs./gallon</u> (2) <u>sg</u> <u>DENSUNIT1</u>
<u>QTY1-INFL</u> <u>RCRA-1A</u>	
B. Maximum operational capacity	
Total <u>1 3 0 0</u>	<u>CAPON1</u>
RCRA <u>1 3 0 0</u>	<u>RCRA-CAP</u>
C. 1989 liquid effluent quantity	
Total <u>0 0 0 0</u>	UOM <u>2</u> Density <u>DENSITY2</u>
RCRA <u>0 0 0 0</u>	(1) <u>lbs./gallon</u> (2) <u>sg</u> <u>DENSUNIT2</u>
<u>QTY2-EFFL</u> <u>RCRA-2A</u>	
D. 1989 solid/sludge residual quantity	
Total <u>0 0</u>	UOM <u>S</u> Density <u>DENS</u>
RCRA <u>0 0</u>	(1) <u>lbs./gallon</u> (2) <u>sg</u> <u>DENSUNIT-S</u>
<u>SLUDGE</u> <u>RCRA-SLUDGE</u>	
E. Limitations on capacity	
<u>LOC1</u> <u>LOC2</u> <u>LOC3</u>	
(1) <u>0 1</u> (2) <u>0 5</u> (3) <u>---</u>	
F. Commercial availability code <u>1</u>	<u>CACODE</u>
G. Percent capacity commercially available <u>0 0</u> %	<u>CAPACITY</u>

AK

EPS,DBF

Page 4

FORM PS

Section III:

A. Planned changes in maximum operational capacity	
☐ YES (continue to box B)	
☒ NO (Form is complete; stop here)	
CHORAPACI	
B. New maximum operational capacity	
Total	NMAXTOT
UOM	UOM-MAX
RCRA	RCRA-NEW
C. Planned year of change	
YR-CHANGE	
D. Future commercial availability code	
FUTCA CODE	
E. Percent future capacity commercially available	
FUTPERCA	

FORM WR: FACILITY ACTIVITY REPORT

PART I

EIC.DBF

Section I

A Did this site TSD on-site in RCRA-regulated units: ☒ Yes ☐ No <u>FROM: 1. STORCLOS 2. TRLCLOS</u> <u>TSD-COMM</u> If yes, briefly describe the TSD methods used. Facility for container storage and a thermal treatment unit for the open burning and open detonation of waste explosives/munitions.	
B Was TSD for excluded wastes: ☒ Yes ☐ No <u>TSD-EX-WST</u> <u>TSD-EX-COM</u> If yes, briefly describe the TSD method used. Household waste was disposed of in a sanitary landfill. Domestic sewage was treated in lagoon system and discharged through a wastewater point source discharge.	
C Did TSD occur in exempt units: <u>EXEMPTCLOS</u> ☐ Yes ☒ No If yes, briefly describe the type of units. <u>TSD-XUN-CO</u>	
D Has this TSD site notified for closure: ☐ Yes ☒ No Date of closure <u>TSD-CL-DAT</u> <u>TSD-CLOSE</u>	
E Is this TSD site in closure/post-closure: ☐ Yes ☒ No <u>TSD-CLOSE2</u>	
F List the following cost estimates: Facility closure <u>NA</u> Post-closure monitoring and maintenance <u>NA</u> <u>FACCLOSTS</u> <u>POSTCLOST</u>	

* Although this State Form is called "Form WR", the data elements found on this Form are also on the Federal IC FORM, stored in EIC.DBF

FORM WR: FACILITY ACTIVITY REPORT PART I

EIC.DBF

Section II:

A. List storage amounts:			
	Handling Codes	Amounts	Units of Measure
January 1, 1989	S01	QTY TO TR 2.29	T UOM-TR
December 31, 1989	S01	QTY-STORED 1.32	T UOM-STORED

B. Describe briefly this site's groundwater monitoring activity and attach monitoring report for surface impoundment, landfill, or land treatment

NA

COMMENTS

A. Facility EPA Identification Number NA

B. Facility Name NA

Section II. Generator identification NA

A. Generator EPA Identification Number NA

Name NA

address NA

city NA state NA zip NA

Section III. Waste identification NA

No data elements were reported for this form so no data base was created for the data elements that exists here.

WASTE DESCRIPTION	WFC	EPA WC	AMOUNT	UOM	D	ST
	c					

FORM WR: FACILITY ACTIVITY REPORT PART III

This form should be completed by facilities who generated hazardous waste on-site and treated, stored, or disposed of the hazardous waste on-site. Do NOT include waste shipped off-site. Do NOT include waste received from an off-site generator.

ENR.DBF

Section I. Facility Identification

A Site EPA Identification Number	AR9210020187	EPA ID-GEN
Name	USAG Fort Chaffee - Storage	
Address	ATTN: ATZR-2P	
City	Fort Chaffee	State AR Zip 72905
	CITY-GEN	STATE-GEN

SITE-GEN
STR-GEN
ZIP-GEN

Section II. Waste Identification

Section II. Waste Identification				WSTFIRM CODE	SOURCE CODE	QTY & GEN DS	SYS TYPE	
WASTE DESCRIPTION	SIC	WIC	SC	EPA WC	AMOUNT	UOM	D	ST
Waste Combustible Liquid, n.o.s. NA 1993	SIC 9711	B203	A05	EPA CODE DC01	2.86	UOM T	GEN DS ✓	M141
Waste Napthal, Flammable Liquid UN2553	9711	B203	A05	DC01	0.06	T		M141
Waste Flammable Liquid, n.o.s. UN1993	9711	B203	A05	DC01	0.68	T		M141
Waste Adhesive, Flammable Liquid UN1033	9711	B210	A57	DC01	6.0	P		M141
Waste Calcium Hypochlorite Mixture dry Oxidizer UN1748	9711	B319	A58	DC01	0.24	T		M141
Waste Sulfuric Acid, Spent Corrosive Material UN1832	9711	B103	A55	DC02	1.41	T		M141
Waste Lithium Batteries, for disposal ORM-C	9711	B309	A55	DC03	0.28	T		M141
Hazardous Waste Solid, n.o.s. NA9189	9711	B407	A21	DC06 DC07 DC08	111	P		M141
Hazardous Waste Solid, n.o.s. NA9189	9711	B310	A53	DC08	0.30	T		M141
Hazardous Waste Solid, n.o.s. ORM-F	9711	B309	A55	DC09	54	P		M141
Waste Mercury, metallic ORM-B	9711	B302	A53	DC09	1.0	P		M141

EIC, DBF

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
GENERATOR ANNUAL HAZARDOUS WASTE REPORT FOR 1990
IDENTIFICATION AND CERTIFICATION

I. MINIMALLY REGULATED STATUS

Complete this Section I only if you did not generate regulated quantities of hazardous waste at any time during the 1990 calendar year. Circle the one code below that best describes your status during the entire year. See instructions for explanation of codes.)

STATE NO GEN

1. Non-handler (circle all that apply)
 - a. never generated
 - b. only generated excluded or delineated waste
 - c. only generated non-hazardous waste
 - d. periodic or occasional generator
 - e. result of waste minimization activity
 - f. other: be specific _____
2. Conditionally Exempt
3. 100-1000 kg Generator
4. Exempt according to instruction (D.1) or (D.2) (circle one).
5. Out of business
6. Transporter

II. GENERATOR'S USEPA ID NUMBER

This Establishment's Regulatory Status Is Expected To Apply:

AZ0510020434

EPAID-GEN

____ For 1990 only
☒ Permanently
____ Other _____

III. NAME OF ESTABLISHMENT

US Army Garrison - Fort Huachuca

- a. Has the name associated with the EPA ID changed since 1989?
Yes _____ No ☒ **CHANGE**

b. Enter the Standard Industrial Classification (SIC) code that describes the principal products, group of products, produced or distributed, or the services rendered at the establishment's physical location. Enter more than one SIC code only if no one industry description includes the combined activities of the establishment (optional, see appendix 2). 9 1 9 9

SIC

PAGE ____ of ____

EIC.DBF

IV. ESTABLISHMENT MAILING ADDRESS

STR GEN

Street or P.O. Box USAG - Fort Huachuca (ATTN: ATIS-EHB)

City or Town Fort Huachuca CITY GEN

County Cochise COUNTY State AZ Zip Code 85613

STATE GEN

ZIP GEN

V. LOCATION OF ESTABLISHMENT (If different from Section IV above)

Street or Route No. _____

City or Town _____

County _____ State _____ Zip Code _____

VI. ESTABLISHMENT CONTACT

Name (Last, First) Cochran Thomas E POCNAME

Title Division Chief

Phone Number (Area code and no.) 602-533-5215 POCPHONE

a. During 1990 this establishment had RCRA permitted storage on-site:

No _____

Yes ☒ _____, if yes, check the storage unit below that applies.

STORE CODE

- ☐ Tanks
- ☐ Containers
- ☐ Combination
- ☐ Other: be specific _____

b. During 1990 this establishment treated, recycled, or disposed of hazardous waste on-site.

No _____

Yes ☒ _____, if yes, check the appropriate statement below.

TRT CODE

- ☒ In a unit requiring a RCRA permit
- ☐ In a unit exempt from RCRA permitting requirements.

NUMBER OF PAGES SUBMITTED WITH THIS REPORT? _____

Part 1. Waste Minimization Efforts

This section requests information on the efforts and difficulties in implementing waste minimization.

SOURCE RED

1. Did this site begin or expand a source reduction activity during 1989 or 1990? X Yes, No.

Note: source reduction means the reduction or elimination of waste at the source, usually within a process. Source reduction measures include process modifications, feedstock substitutions, improvements in feedstock purity, housekeeping and management practices, increases in the efficiency of machinery, and recycling within a process. Source reduction implies any action that reduces the amount of waste exiting a process.

RECYCLED

2. Did this site begin or expand a recycling activity during 1989 or 1990? X Yes, No.

Note: recycling means the use or reuse of waste as an effective substitute for a commercial product, or as an ingredient or feedstock in an industrial process. It also refers to the reclamation of useful constituent fractions within a waste material or removal of contaminants from a waste to allow it to be reused. As used in this report, recycling implies use, reuse, or reclamation of a waste, either on site or off site, after it has been generated.

OPPA SSES

3. Did this site conduct a source reduction or recycling opportunity assessment during 1989 or 1990? X Yes, B No.

Note: opportunity assessment is a procedure that identifies practices that can be implemented to reduce the generation of hazardous waste or the quantity that must subsequently be treated, stored, or disposed.

RED LIM

4. What factors have limited this site from initiating new source reduction activities during 1989 or 1990?

(Check all that apply)

- A. X No factors have limited new source reduction activities
- B. Insufficient capital to install new source reduction equipment or implement new source reduction practices
- C. Lack of technical information on source reduction techniques applicable to my specific production processes
- D. Source reduction is not economically feasible: cost savings in waste management or production will not recover the capital investment
- E. Concern that product quality may decline as a result of source reduction

- F. ☐ Technical limitations of the production processes
G. ☐ Permitting burdens, including government agency's approval
H. ☐ Other, specify: _____

RECYCLIM

5. What factors have limited this site from initiating new on-site or off-site recycling activities during 1989 or 1990? (Check all that apply)
- A. ☒ No factors have limited new recycling activities
B. ☐ Insufficient capital to install new recycling equipment or implement new recycling practices
C. ☐ Lack of technical information on recycling techniques applicable to this site's specific production processes
D. ☐ Recycling is not economically feasible: cost savings in waste management or production will not recover the capital investment
E. ☐ Concern that product quality may decline as a result of recycling
F. ☐ Requirements to manifest wastes inhibit shipments off site for recycling
G. ☐ Financial liability provisions inhibit shipments off site for recycling
H. ☐ Technical limitations of product processes inhibit shipments off site for recycling
I. ☐ Technical limitations of production processes inhibit on-site recycling
J. ☐ Permitting burdens inhibit recycling
K. ☐ Lack of permitted off-site recycling facilities
L. ☐ Unable to identify a market for recyclable materials
M. ☐ Other, specify: _____

COMMENTS:

COMMENTS

E2WM.DBF

Part 2. Waste Minimization Report

This section requests information on the origin and characteristics of the waste for which your activities resulted in waste minimization during 1989.

If your waste minimization activities affect more than one waste stream, please provide waste minimization report for each type of waste. If necessary, make copies of this report form.

1. Describe the waste, citing the general type, source, type of hazard, and generic chemical name or primary hazardous constituents. Example: "Ignitable spent solvent from degreasing operation in tool production; mixture of mineral spirits and kerosene." In this example, note that the general type (spent solvent), source (degreasing operation in tool production), type of hazard (ignitability), and generic chemical names (mineral spirits and kerosene) have all been cited.

DESCR. PROD

Combustible Spent Solvent from degreasing operation in vehicle maintenance, mineral spirits

2. EPA hazardous waste code EPA CODE 1 DC01
3. Form code (see Appendix 3) WSTFRM CODE 6203
4. Source code (see Appendix 4) SOURCE CODE 419
5. SIC code related to generation of waste (see appendix 2) SIC 7535

6. Waste origin (choose one):

- A. ☒ The hazardous waste was generated on site from the production process, service activity, or management of nonhazardous waste
- B. ☐ The hazardous waste was received from off site and has not been recycled, blended, or otherwise treated on site
- C. ☐ The hazardous waste was a residual from the on-site treatment or recycling of previously existing hazardous waste. The system type that best describes the operation from which the waste is a residual is _____ (see Appendix 5)

7. Quantity generated in 1990 10076

QTY CURR

Unit of measure (choose one):

- A. ☒ pounds
- B. ☐ short tons (2,000 pounds)
- C. ☐ kilograms
- D. ☐ metric tons (1,000 kilograms)
- E. ☐ gallons, the density (pounds/gallon) is _____
- F. ☐ liters, the density (kilograms/liter) is _____

UOM

QTY_PREV

UOM

8. Quantity generated in 1989 10076 unit of measure P

9. Activities implemented to achieve waste minimization results for the waste described in nos. 1 thru 6 (Appendix 6): _____

W02

W42

WMCODE1

WMCODE2

WMCODE3

WMCODE4

10. Your best estimate of the reduction in 1990 quantity generated that resulted from the source reduction activities described in no. 10:

source reduction quantity _____ unit of measure F

QTY_RED

UOM_RED

11. a. Do the activities described in no. 10 increase the toxicity of the waste? _____ Yes X No

TOXICITYUP

b. Do the activities described in no. 10 increase the quantity or toxicity of emissions into air, water, or land? _____ Yes X No

TOXICITYD

12. Activity/production index (see Appendix 7):

PRODINDEX

COMMENTS:

Comm1

Comm2

Comm3

Comm4

Comm5

E2WM.DBF

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
GENERATOR HAZARDOUS WASTE IN 1990
(WASTE GENERATION)

EGM.DBF

EPADGEN

GENERATOR'S USEPA ID NUMBER AZ 0210020034

VIII.a WASTE GENERATED DURING 1990

	1ST Waste Stream	2ND Waste Stream	3RD Waste Stream	4TH Waste Stream
A. Description of waste	WASTE CLEANING COMPOUND (SOLVENT CLEANER)	WASTE PERFORMANCE WASTE (SOLVENT CLEANER)	DEBR	
B. DOT code	02	02	DOT STATE	
C. USEPA Waste number	F002	D001	EPACODE1	
D. Amount of Waste	207	10.076	QTY. (LBS)	
E. Unit	P	P	UOM	
F. SIC code associated with the generation of the waste.	3199	3199	SIC	
G. Source Code Associated with the Generation of the Waste	A73	A73	SOURCECODE	
H. Form code of the waste	B202	B202	WSTFRMCODE	

VIII b. Is this facility required to submit the Toxic Chemical Release Inventory (TRI) reporting (form R)?

☐ Yes
☒ No
☐ Do not know

TRICODE

If the answer to the above question is 'YES', does the waste listed in Section VIII.a contain TRI constituents?

The waste that contains TRI constituents:

1. Waste Code _____

CAS Numbers

CASNUM1
 CASNUM2
 CASNUM3
 CASNUM4
 CASNUM5

2. Waste Code _____

CAS Numbers

3. Waste Code _____

CAS Numbers

4. Waste Code _____

EPAID-GEN

41-2-10000 STR-TSDR
71000 CITY-TSDR STATE-TSDR
61000-11111 PHONE-TSDR

PAID TR	
Firm TR	
STR TR	
CITY TR	STATE
ZIP TR	

XIII. WASTE IDENTIFICATION | EGM.DBF

*For each additional facility to which waste was shipped, submit supplemental copies of this page.

B-22

EGM.DBF

ARIZONA DEPARTMENT OF ENVIRONMENTAL QUALITY
GENERATOR ANNUAL HAZARDOUS WASTE REPORT FOR 1990
(RECYCLING)

XV. WASTE DESIGNATED FOR RECYCLING

EPAID-GEN

GENERATOR'S USEPA ID NO. AZD9802897

A. USEPA WASTE NO.	B. AMOUNT OF WASTE	C. UNIT	D. ON- SITE	E. OFF- SITE	F. USEPA ID NUMBER NAME, ADDRESS (OFF SITE RECYCLING FACILITY)
--------------------------	--------------------------	------------	-------------------	--------------------	--

F002

207

P

X

AZD9802897
Safety-Gen Corp.
4161 E. Tennessee
Tucson, AZ 85714

EPA CODE 1

QTY CURR

UOM

ON SITE

←

EPAID 1 TSDR

0001

10,076

P

X

AZD9802897
Safety-Gen Corp.
4161 E. Tennessee
Tucson, AZ 85714

STATE OF MISSOURI
DEPARTMENT OF NATURAL RESOURCES
P O BOX 176
JEFFERSON CITY, MO 65102
(314) 751-3176

FACILITY QUARTERLY SUMMARY REPORT PART 2

Form DNR-50-1 Revised 12/96

READ INSTRUCTIONS AND EITHER PRINT OR TYPE

NOTE: This form must be completed quarterly by Missouri facilities that either treat, store, or dispose of hazardous waste. This form is designed to summarize individual on-site and off-site sources of waste. Section 2 sheets, Part 2 "LS" be completed for each source.

SECTION F - REPORT IDENTIFICATION

1. For the quarter ending <u>03/31/96</u>	2. Page <u>5</u> of <u>7</u>
3. QTR <u>Q1</u>	4. FACILITY NAME <u>STACID</u>
5. EPA ID NO. <u>MO0000000000</u>	6. Facility MO ID NO. <u>00000000</u>

SECTION G - GENERATOR IDENTIFICATION

4. Generator's name of wastes listed on this page: Resurrection, 1st Army Training Center Engineer and Force Support Group	5. If waste identified on this page was generated and managed on-site, type <u>EPAID-GEN</u>	6. generator's MO ID NO. <u>00000000</u>	7. generator's MO ID NO. <u>00000000</u>
8. generator's address (street, apt. no., city, state, zip code): ATTN: GEN-EE Fort Leonard Wood, MO 65473-5100	9. STR-GEN <u>STR-GEN</u>	10. CITY-GEN <u>CITY-GEN</u>	11. STATE-GEN <u>STATE-GEN</u>
	12. ZIP-GEN <u>ZIP-GEN</u>		

SECTION H - ON-SITE STORAGE TOTALS (complete this section only once)

8a. Amount of waste generated on-site and placed in storage during this reporting period: <u>97741</u>	8b. Qty-GENSTO <u>97741</u>	9a. Qty of waste in storage: <u>97722</u>	9b. Qty-GENSTO <u>97722</u>
10a. Total amount of waste in storage: <u>97722</u>	10b. Qty-STORED <u>97722</u>	11a. Qty of waste in storage: <u>97722</u>	11b. Qty-STORED <u>97722</u>

SECTION I - WASTE DESCRIPTION

11. Description of waste	12. EPA ID NO.	13. EPA FACILITY NAME TO WHICH WASTE IS SENT	14. TOTAL AMOUNT OF WASTE	15. WASTE OF REPORT	16. HAZARDOUS WASTE CODE
Waste Petroleum Naphtha, Solvent from Parts Washers - mixed Spill mixture	0.8	D001	12173	P	S.C.
Waste cleaning compound T.G. & Coolant 2. Material used for cleaning operations in vehicle maintenance operations	0.2	F002 F004	90	P	S.O.
Waste dry cleaning sludge from laundry operation (Pentachloroethylene mix with detergent effluents)	1.3	F002	540	P	S.O.
Wasteylene from the processing and staining of tissue cultures in the Hospital	0.8	F003 D001	324	P	S.O.
Medical waste from hospital, unused Quarantine Pharmaceuticals	1.3	P042 U129	25	P	S.O.
Waste Sulfuric Acid, spent from cleaned unsealed Lead Acid Batteries	0.2	D002 D006	3185	P	S.O.

SECTION J - COMMENTS

17. Items 11-1, 2, 3, 4 are Recycled OFF-Site.	COMMENTS
--	----------

47-15-17(11/90)

NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION
DIVISION OF HAZARDOUS SUBSTANCES REGULATION

GENERATOR ANNUAL REPORT

for the year ending December 31, 1990

Page

1 of 6

GENERATOR EPA I.D. NUMBER

EPAID-GEN

NY 912113720375

IF LABEL IS INCORRECT, ENTER
NAME AND ADDRESS CHANGES
BELOW

NAME

U.S. ARMY

SITE-GEN

STREET

FORT HAMILTON

STR-GEN

CITY

BROOKLYN

CITY-GEN

STATE

NY

ZIP CODE

11252

TREATMENT, STORAGE OR DISPOSAL FACILITY (TSDF)

EPA I.D. NUMBER

NY 9810785760

EPMDSDR

STATE-GEN

ZIP-GEN

NAME

SAFETY-KLEEN, CORPORATION

FIRM-TSDR

STREET

58-05 52ND AV.

STR-TSDR

CITY

WOODSIDE

CITY-TSDR

STATE-TSDR

STATE

NY

ZIP CODE

11377

ZIP-TSDR

WASTE INFORMATION

EPMODE1

WASTE
NUMBER

RC1

HANDLING
CODEQUANTITY (rounded
to tenth of ton)

WASTE DESCRIPTION

WASTE PETROLEUM NAPHTHA
COMBUSTIBLE LIQUID UN 1255

DEBR

D101011

R

11110.2

I hereby affirm under penalty of perjury that information provided on this form is true to the best of my knowledge and belief. False statements made
herein are punishable as a Class A misdemeanor pursuant to Section 210.46 of the Penal Law.

PRINT OR TYPE NAME

KAREN S. TATE

TITLE

CPT, ENR, DDEH (NYAC)

SIGNATURE

TELEPHONE

DATE / /

Waste Management Serv
Industrial waste division
Oklahoma State Department of Health
P O. Box 13351
Oklahoma City, Oklahoma 73154
(405) 271-5338

As

Report for Quarter Ending

M	J	S	D
A	U	E	E
R	N	P	C
X			

19 90

Q2TR

**QUARTERLY REPORT
GENERATORS OF
CONTROLLED INDUSTRIAL WASTE**

To be completed by generators of controlled industrial waste as defined by 63 O.S. 1981 § 1-2004 and rules and regulations promulgated pursuant thereto. This report is to be received by the Oklahoma State Department of Health, Industrial Waste Division, no later than thirty (30) days after the end of the quarter. (See reverse side for instructions.)

Business/Plant Name: U.S. Field Artillery Center & Ft. Sill Phone No. (405) 391-2714

Plant Location Bldg 1950, ATTN: ATZR-EC

Business Address Fort Sill, Oklahoma 73503-5100

Group entries by DUT number or use separate sheets for each.

Please type or write clearly.

Page No. ? of ?

COMMENT

40

[illegible]

RECEIVED

APR 27 1990

Waste Management Service

I hereby certify that the above record is accurate and correct to the best of my knowledge, and includes all controlled industrial wastes generated by the facility.

Signature of Authorized Agent

Date 24 APR 90

HAUGHTON P. CONLEY, Colonel, U.S. Army, Director of Engineering and Housing
Typed Name of Authorized Agent

NONFORM NO. 847
Revised 12/68

ODM FORM NO. 847
Revised 12/78

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
COMPUTERIZED HAZARDOUS WASTE REPORT

Certification and Activity Page

EIC.DBF

I. SC3210020449
USAIC AND FORT JACKSON
BUILDING 2562 ENGINEER ROAD
FORT JACKSON SC 29207
ATTN: WALLACE K BURGHARDT

- ☐ Enter 'X' here if _____ has waste activities.
☐ Enter 'X' here if your status listed below has changed from the previous report.

II. Important: Please complete the following information required in either Box 1, Box 2 or Box 3

Box 1	Fully Regulated Company's Report (Filing Reports Quarterly)	QTR NR/ma 7/70 Quarter & Year
Enter 'X' by each activity involving your company. Company is best described as:		
☒ Generator ☐ Transporter ☐ On-Site T.S.D.R. Facility ☐ Off-Site T.S.D.R. Facility		

Box 2	100-1000 kg/mo Generator (Filing Reports Quarterly)	1/1 Quarter & Year
☐ Generates more than 220 lbs but less than 2200 lbs per month		

Box 3	Otherwise Regulated Company's Report (Filing Reports Annually)
Your company is best described for the calendar year 199__ as: (Choose only one).	
☐ Conditionally Exempt Small Quantity Generator (Generates less than 220 lbs. per month of hazardous waste.)	
☐ Non-Generator (Generates no hazardous waste.)	
☐ Exempt (your operations are currently exempt from full regulation. Please cite specific exemption.)	

III. Company Contact Name, Title, and Telephone Number

W.A.L.L.A.C.E. K. B.U.R.G.H.A.R.D.T. C.H.I.E.F. E.N.R.D	DOCNAME	DOCPHONE
Name (First Name First) & Job Title		Telephone Number

IV. Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

I also certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and I have selected the method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment.

I also certify that out-of-state generators utilizing this facility have programs in place to reduce the volume or quantity and toxicity of waste using a method currently available which minimizes the present and future threat to human health and the environment.


Signature of Authorized Representative

LES G. SWEIGART, LTC, GS, DEH
Print/Type Name & Title

31 Jan 91
Date

**SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
COMPUTERIZED QUARTERLY HAZARDOUS WASTE REPORT**

E6M.DBF

Generation and On-Site Treatment, Storage, Disposal, and Recovery
 EPA/DHEC ID # (1-12) **EPAD-GEN** USATC 4 FORT JACKSON **SITE-GEN** 11/12/91 Quarter & Year
 EPA/DHEC ID # (1-12) **15C3310030442** Company Name **QTR** (13-15) **RE CURE** (16-17) **QTY-CURE**

II. ☒ Enter 'X' here if no hazardous waste generated, treated, stored, disposed of, recovered, or shipped off site during this quarter.

III. ☒ IV. ☒

ON-SITE TREATMENT, STORAGE, DISPOSAL & RECOVERY			Amount T.S.D.R. On-Site (in lbs) (24-32)
Waste Index Line # (18-20)	Handling Method (e.g. S01, S02) (21-23)	Waste Index Line # (18-20)	Amount T.S.D.R. On-Site (in lbs) (24-32)
SITE-ROUE	SITE-ROUE	QTY-CURE	
10511	10631	10631	1630
10631	10631	10631	32920
10631	10631	10631	24408
10091	10471	10471	
10471	10471	10471	
10481	10701	10701	
10701			

V. List below the name, address, and EPA/DHEC ID# of all the hazardous waste transporters used this quarter.

121	1050981605363	Environmental Transport Services	EPAD1-TR
121	155003286315	Crundall Corporation	EPAD2-TR
121	1100051060408	Safety-Kleen Corp.	

ERRORE SS.DBF

SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
COMPUTERIZED QUARTERLY HAZARDOUS WASTE REPORT

QTR

Hazardous Waste Index
SITE-GEN

01/16/91
Month Day Year

EPAID-GEN

1. SC3210020449

USATC & FORT JACKSON

Company Name

EPA/DHEC ID # (1-12)

II. 079 Line # (This line # will always represent this specific waste stream.)

SITE-PROCE

DESCR

WASTE INVENTORY CODE

Description of Hazardous Waste

(16-75)

Process Producing Waste:

COMMENT
Pest Management

EPA/DOE1 EPA/DOE2 EPA/DOE3 EPA/DOE4

(76-79) (80-83) (84-87) (88-91) (92-95)

SIC

777.9

SIC CODE

EPA/DHEC Waste Codes

II. Line # (This line # will always represent this specific waste stream.)

Description of Hazardous Waste

(16-75)

Process Producing Waste:

(76-79) (80-83) (84-87) (88-91) (92-95)

EPA/DHEC Waste Codes

SIC CODE

II. Line # (This line # will always represent this specific waste stream.)

Description of Hazardous Waste

(16-75)

Process Producing Waste:

(76-79) (80-83) (84-87) (88-91) (92-95)

EPA/DHEC Waste Codes

SIC CODE

EGM.DBF

Q TR

111 / 190 Quarter & 1 car (12-13)

PAID TSD2

(27-38)
 AUTHORIZED

(6-6) $\frac{1}{\text{magnification}}$

QTY-CVNR!

Amount (lbs.) (70-75)
344.0

Facility EPA/DHEC ID# (27-38)

5X-11074-0001 (59-67)
Authorization /

Amount (lbs.) (70-70)

Facility EPA/DHEC ID# (27-30)

[3K]-[7/076]-[0001]
 Authorization # (59-69)

1766.
Amount (lbs.) (70-78)

Facility EPA/DHEC ID# 07-38

5X-61076-7501
Authorization # (59-49)

Amount (lbs.) (70-79)

GENERATOR ANNUAL HAZARDOUS WASTE REPORT FOR 1990

This report is for the calendar year ending December 31, 1990
Read All Instructions Carefully Before Making Any Entries on Form

EIC.DBF

I. NON-REPORT STATUS

Complete this section only if you did not generate regulated large quantities of hazardous waste any time during the calendar year. Circle the one code at right that best described your status during the entire year (see instructions for code explanations).

- 1 Non-handler
- 2 Small Quantity Generator
- 3 Conditionally Exempt Small Quantity Generator
- 9 Out of Business

II. GENERATOR'S EPA I.D. NUMBER

Y48213720301

EPAID-GEN

III. GENERATOR'S SIC CODE(S)

9 1 9 9

SIC

IV. NAME OF ESTABLISHMENT

U.S. Army Transportation Center and Fort Eustis

V. ESTABLISHMENT MAILING ADDRESS

STR-GEN

ATZF-EHW

Street or P.O. Box

Fort Eustis

City or Town

CITY-GEN

STATE-GEN

State

ZIP-GEN

2304-5332

Zip Code

VI. LOCATION OF ESTABLISHMENT (if different from mailing address above)

Same

Street or Route Number

City or Town

State

Zip Code

VII. ESTABLISHMENT CONTACT

POCNAME

POCPHONE

Dumale

Last Name

Damon

First Name

(804) 878-4123

Phone (include area code)

VIII. CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Wesley J. McMillon

Signature

Print Name

Date

GENERATOR ANNUAL HAZARDOUS WASTE REPORT FOR 1990

(continued)

This report is for the calendar year ending December 31, 1990

Note 1 - This page must be repeated for each different facility to which waste is shipped.

EPAID DBF

X. GENERATOR'S EPA ID No.

VA 071372 23-01

EPAID-GEN

X. FACILITY NAME (Specify facility to all wastes on this page were shipped - use separate page for each facility)

FIRM-TSDR

G-SX Services, Inc.

XI. FACILITY'S EPA I.D. No.

NC D0000648451

EPAID-TSDR

XII. FACILITY ADDRESS

Worthington Rd. Rt. 11 Box 3
Reidsville NC 27320

STR-TSDR

CITY-TSDR

STATE-TSDR

ZIP-TSDR

XIII. TRANSPORTATION SERVICES USED

EPAID-TR

EPA I.D. NUMBERS DKD951005303

MDD950554653

NAMES

Environmental Trans. Svc.

G-SX Services, Inc.

FIRM-TR

FIRM-TR

EGM DBF

XIV. WASTE IDENTIFICATION

DESCR

EPA CODE 1 EPA CODE 2
EPA CODE 3 EPA CODE 4

QTY-LVR

UOM

	A. Waste Description	B. EPA Hazardous Waste Code(s)	C. Amount of Waste	D. Unit
1	Hazardous Waste, Solid, n.o.s.	D007 D008	3155	P
2	Waste Corrosive Liquid, n.o.s.	D002	506	G
3	Waste Paint	D001 D008 D007 D005	1777	G
4	Hazardous Waste, Liquid, n.o.s.	D007	720	G
5	Waste Calcium Hypochlorite, Mixture	D001	70	P
6	Waste Flammable Liquid, n.o.s.	D001	262	G
7	Waste Paint Related Material	F002 D007 D040 D001	468	G
8	Waste Combustible Liquid, n.o.s.	D001	1458	G
9	Waste Battery, Dry	D004	92	P
10	Waste Gasoline	D001	480	G
11	Waste Lithium Battery	D003	14	P
12	Waste Xylene	F003	27	G
13	Waste Hydrochloric Acid	D002	5	G

XV. COMMENTS (enter information by section number - see instructions)

Page ____ of ____

FORM
FW

EIC.DBF

BEFORE COPYING FORM, ATTACH SITE IDENTIFICATION

UNITED STATES ARMY FORT MCCOY
BUILDING 242
SPARTA, WISCONSIN 54656-5000
WI3210020563

SITE GEN

PAID GEN

INSTRUCTIONS: Read the detailed instructions beginning on page 42 of the 1989 Hazardous Waste Report booklet before completing this form. COMPLETE AND RETURN THIS FORM IF YOUR SITE GENERATED HAZARDOUS WASTE DURING 1989 IN THE QUANTITIES DESCRIBED ON PAGE 2 OF THE INSTRUCTIONS.

DO NOT SEND ANY MONEY AT THIS TIME. YOU WILL BE BILLED AT A LATER DATE.

SECTION I. Instructions on page 42.

1. Did you generate any hazardous waste in 1989?

☒ Yes ☐ No

If yes, how much hazardous waste did you generate?

1. 16,913.11 pounds

Proceed to question 2.

If no, enter "0" (zero) in box 1; skip to Section II below.

QTYTOT GEN

2. Please answer each question in this section:

- a. Was the hazardous waste recovered for recycling or reuse (including hazardous wastes incinerated for the purpose of energy recovery)?

☐ Yes ☒ No

If yes, how much?

2a. pounds

QTY RECYCL

- b. Was the waste leachate (which contained hazardous waste) transported to a wastewater treatment plant or discharged directly to a sewer pipe?

☒ Yes ☐ No

If yes, how much?

2b. 12,515.10 pounds

WWTR_QTY

- c. Was the hazardous waste removed from a site or facility to repair environmental pollution?

☐ Yes ☒ No

If yes, how much?

2c. pounds

QTYTOT TR

SECTION II. Instructions on page 43.

I certify under penalty of law that the information entered above is to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Please Print:	Last Name	First Name	Middle Initial	Title
Signature of Generator	Boland	Raymond	G	Colonel, U.S. Army, Commanding
	Raymond G Boland			Date Signed 10/4/03/9.01

APPENDIX C

DATA BASE STRUCTURES

DATA BASE STRUCTURES STRUCTURE OF EPAID.DBF

Number of data records: 153
Date of last update : 04/09/92

Field	Field Name	Type	Width	Dec	Description
1	EPAID GEN	Character	12		ALL
2	STID GEN	Character	12		MO
3	SITE GEN	Character	30		IC, ALL
4	STR GEN	Character	30		IC, ALL
5	CITY GEN	Character	30		IC, ALL
6	STATE GEN	Character	2		IC, ALL
7	ZIP GEN	Character	5		IC, ALL
8	POCNAME	Character	30		IC, ALL
9	POCPHONE	Character	10		IC, ALL
10	EPAID TR	Character	12		AZ, AR, VA
11	STID TR	Character	12		AZ, AR, VA
12	FIRM TR	Character	30		AZ, AR, VA
13	STR TR	Character	30		AZ, AR, VA
14	CITY TR	Character	30		AZ, AR, VA
15	STATE TR	Character	2		AZ, AR, VA
16	ZIP TR	Character	5		AZ, AR, VA
17	EPAID TSDR	Character	12		OI, AZ, AR, NY, VA
18	STID TSDR	Character	12		TX
19	FIRM TSDR	Character	30		OI, AZ, AR, NY, VA
20	STR TSDR	Character	30		OI, AZ, AR, NY, VA
21	CITY TSDR	Character	30		OI, AZ, AR, NY, VA
22	STATE TSDR	Character	2		OI, AZ, AR, NY, VA
23	ZIP TSDR	Character	5		OI, AZ, AR, NY, VA
24	PHONE TSDR	Character	10		OI, AZ

STRUCTURE OF EIC.DBF

Number of data records: 39
Date of last update : 04/09/92

Field	Field Name	Type	Width	Dec	Description
1	QTR_CODE	Logical	1		
2	QTR	Character	1		MO, SC
3	SITE_GEN	Character	30		ALL
4	STATE_GEN	Character	2		IC, AZ, MO, VA
5	EPAID_GEN	Character	12		ALL
6	STFACID	Character	6		MO
7	STGENIDNUM	Character	6		MO
8	CHANGE	Logical	1		IC, AZ
9	COUNTY	Character	20		IC, AZ
10	POCNAME	Character	25		IC, SC, AZ
11	POCPHONE	Numeric	10		IC, SC, AZ
12	SIC1	Character	4		IC, AR, AZ, VA
13	SIC2	Character	4		IC, AR
14	SIC3	Character	4		IC, AR
15	SIC4	Character	4		IC, AR
16	SIC5	Character	4		AR
17	YR_CURR	Numeric	2		MO, SC
18	WRFORMS	Numeric	3		IC
19	PSFORMS	Numeric	3		IC
20	GMFORMS	Numeric	3		IC
21	GENCODE	Numeric	1		IC
22	NOGENRSN	Numeric	1		IC
23	STATENOGEN	Character	2		AZ
24	STORECODE	Numeric	1		IC, AR, AZ
25	TRTCODE	Numeric	1		IC, AR, AZ
26	EXEMPTCODE	Numeric	1		IC, AR
27	SOURCERED	Logical	1		IC, AZ
28	RECYCLECOD	Logical	1		IC, AZ
29	UOM	Character	1		IC
30	OPPASSESS	Logical	1		IC, AZ
31	REDLIM	Character	7		IC, AZ
32	RECYLIM	Character	10		IC, AZ
33	COMMENT	Character	60		IC, AZ
34	OLDNAME	Character	30		AR
35	OWNERCHG	Logical	1		AR
36	DATECLOSED	Character	8		AR
37	WSTECG	Character	30		AR
38	PROCESCHG	Character	30		AR
39	ONETIME	Logical	1		AR
40	QTY_ONETIM	Numeric	10	3	AR
41	ACTIONS	Character	80		AR
42	QTYTOT_GEN	Numeric	10	2	IC, AR
43	UOM_GEN	Character	1		IC, AR

STRUCTURE OF EIC.DBF (Continued)

Field	Field Name	Type	Width	Dec	Description
44	QTY_STORED	Numeric	10	3	MO
45	UOM_STORED	Character	1		MO
46	QTY_GENSTO	Numeric	10	3	MO
47	UOM_GENSTO	Character	1		MO
48	QTYTOT_TR	Numeric	10	2	AR
49	UOM_TR	Characte	1		AR
50	TSD_COMM	Character	60		AR
51	TSD_EX_WST	Logical	1		AR
52	TSD_EX_COM	Character	60		AR
53	TSD_XUN CO	Character	60		AR
54	TSD_CLOSE	Logical	1		AR
55	TSD_CL DAT	Date	8		AR
56	TSD_CLOSE2	Logical	1		AR
57	FACCLOST5	Numeric	8		AR
58	POSTCLOST	Numeric	8		AR
59	WWTR_CODE	Logical	1		WI (FORM FW)
60	WWTR_QTY	Numeric	10	3	WI (FORM FW)

STRUCTURE OF EGM.DBF

Number of data records: 1373

Date of last update : 04/09/92

Field	Field Name	Type	Width	Dec	Description
1	QTR	Numeric	1		SC
2	EPAID_GEN	Character	12		ALL
3	PAGE	Numeric	3		ALL
4	DESCR	Character	60		GM, AR, AZ, MO, NY, OK, TX,
5	EPACODE1	Character	4		GM, AR, AZ, MO, NY
6	EPACODE2	Character	4		GM, AR, AZ, MO, NY
7	EPACODE3	Character	4		GM, AR, AZ, MO, NY
8	EPACODE4	Character	4		GM, AR, AZ, MO, NY
9	STATECODE1	Character	6		GM, TX
10	STATECODE2	Character	6		GM
11	SITE_PROCE	Character	6		SC
12	DOT_WASTE	Character	4		OK
13	DOT_STATE	Character	3		AZ
14	SIC	Character	4		GM, AR, AZ
15	SOURCECODE	Character	3		GM, AR, AZ
16	WSTFRMCODE	Character	4		GM, AR, AZ
17	ORIGCODE	Character	1		GM, AR
18	ORIGSYST	Character	4		GM
19	TRICODE	Character	1		GM, AZ
20	CASNUM1	Character	8		GM, AZ
21	CASNUM2	Character	8		GM, AZ
22	CASNUM3	Character	8		GM, AZ
23	CASNUM4	Character	8		GM, AZ
24	CASNUM5	Character	8		GM, AZ
25	QTY_PREV	Numeric	9		GM
26	QTY_CURR	Numeric	9		GM, AR, AZ, MO, NY, SC, TX, VA
27	UOM	Character	1		GM, AR, AZ, MO, NY, SC, TX, VA
28	DENSITY	Numeric	5	2	GM
29	DENSUNIT	Character	1		GM
30	ONSITE	Logical	1		GM, AZ
31	SYS1TYPE	Character	4		GM, AR
32	QTY1 CURR	Numeric	9		GM
33	EPAID1 TR	Character	12		OK, SC
34	EPAID2 TR	Character	12		SC
35	SYS2TYPE	Character	4		GM
36	QTY2 CURR	Numeric	9		GM
37	SHIPOFF	Logical	1		GM
38	EPAID1TSR	Character	12		GM, AZ, NY, OK, TX
39	STID1TSR	Character	12		TX
40	SITE1SYS	Character	4		GM, AZ
41	QTY SITE1	Numeric	9		GM, AZ, OK, TX
42	DATESHIP	Date	8		SC
43	MANIFEST	Character	8		SC
44	AUTHORIZE	Character	11		SC

STRUCTURE OF EGM.DBF (Continued)

Field	Field Name	Type	Width	Dec	Description
45	HC1	Character	3		NY, SC, TX
46	EPAID2TSDR	Character	12		GM, TX
47	STID2TSDR	Character	12		TX
48	SITE2SYS	Character	4		GM
49	QTY_SITE2	Numeric	9		GM, TX
50	HC2	Character	3		TX
51	WASTEMIN	Logical	1		GM
52	WMACT1	Character	3		GM
53	WMACT2	Character	3		GM
54	WMACT3	Character	3		GM
55	WMACT4	Character	3		GM
56	WMEFFECT	Logical	1		GM
57	NEWRECYCLE	Numeric	9		GM
58	WMINDEX	Numeric	5	2	GM
59	QTY_RED	Numeric	9		GM
60	COMMENT	Character	60		GM, NO, OK

STRUCTURE OF EOLDBF

Number of data records: 101

Date of last update : 02/11/92

Field	Field Name	Type	Width	Dec	Description
1	EPAID_GEN	Character	12		OI
2	PAGE	Numeric	3		
3	EPAID_TSDR	Character	12		OI
4	FIRM_TSDR	Character	30		OI
5	GENERATOR	Logical	1		OI
6	TRANSPORT	Logical	1		OI
7	TSDR	Logical	1		OI
8	STR_TSDR	Character	30		OI
9	CITY_TSDR	Character	30		OI
10	STATE_TSDR	Character	2		OI
11	ZIP_TSDR	Character	5		OI

STRUCTURE OF EPS.DBF

Number of data records: 12

Date of last update : 04/08/92

Field	Field Name	Type	Width	Dec	Description
1	EPAID_GEN	Character	12		
2	PAGE	Numeric	3		
3	DESCR_PS	Character	60		PS, AR
4	SYSTYPE_PS	Character	4		PS, AR
5	REGSTATUS	Numeric	2		PS, AR
6	OPSTATUS	Numeric	2		PS, AR
7	UNITTYPES	Character	4		PS, AR
8	UNITTYPES2	Character	2		PS, AR
9	QTY1_INFL	Numeric	8		PS, AR
10	UOM1	Character	1		PS, AR
11	RCRA_1A	Numeric	8		PS, AR
12	DENSITY1	Numeric	5	2	PS, AR
13	DENSUNIT1	Character	1		PS, AR
14	CAPOPNL	Numeric	8		PS, AR
15	RCRA_CAP	Numeric	8		PS, AR
16	QTY2_EPFL	Numeric	8		PS, AR
17	UOM2	Character	1		PS, AR
18	RCRA_2A	Numeric	8		PS, AR
19	DENSITY2	Numeric	5	2	PS, AR
20	DENSUNIT2	Character	1		PS, AR
21	SLUDGE	Numeric	8		PS, AR
22	RCRA_SLUDG	Numeric	8		PS, AR
23	UOM_3	Character	1		PS, AR
24	DEN_S	Numeric	5	2	PS, AR
25	DENSUNIT_S	Character	1		PS, AR
26	LOC1	Character	2		PS, AR
27	LOC2	Character	2		PS, AR
28	LOC3	Character	2		PS, AR
29	CACODE	Character	1		PS, AR
30	CAPACITY	Numeric	4	2	PS, AR
31	CHOPCAPACI	Logical	1		PS, AR
32	NMAXTOT	Numeric	8		PS, AR
33	RCRA_NEW	Numeric	8		PS, AR
34	UOM_MAX	Character	1		PS, AR
35	YR_CHANGE	Numeric	2		PS, AR
36	FUTCACODE	Character	1		PS, AR
37	FUTPERCA	Numeric	4	2	PS, AR
38	COMMENT_PS	Character	60		PS, AR

STRUCTURE OF EWR.DBF

Number of data records: 306

Date of last update : 04/09/92

Field	Field Name	Type	Width	Dec	Description
1	EPAID_TSDR	Character	12		WR
2	PAGE	Numeric	3		
3	DESCR	Character	60		WR, AR
4	EPACODE1	Character	4		WR, AR
5	EPACODE2	Character	4		WR, AR
6	EPACODE3	Character	4		WR, AR
7	EPACODE4	Character	4		WR, AR
8	STATECODE1	Character	6		WR
9	STATECODE2	Character	6		WR
10	EPAID_GEN	Character	12		WR
11	SIC	Character	4		AR
12	QTY_GENDIS	Numeric	10	3	AR
13	UOM_GENDIS	Character	1		AR
14	QTY_REC	Numeric	10	3	WR
15	UOM_REC	Character	1		WR
16	DENSITY	Numeric	5	2	WR
17	DENSUNIT	Character	1		WR
18	WSTFRMCODE	Character	4		WR, AR
19	SYSTYPE	Character	4		WR, AR
20	COMMENT	Character	60		WR

STRUCTURE OF E1WM.DBF

Number of data records: 1
Date of last update : 02/06/90

Field	Field Name	Type	Width	Dec	Description
1	SITE	Character	30		WM
2	EPAID_GEN	Character	12		WM
3	YR1	Character	4		WM
4	YR2	Character	4		WM
5	YR1_CREATE	Logical	1		WM
6	YR1_EXPAND	Logical	1		WM
7	YR2_CREATE	Logical	1		WM
8	YR2_EXPAND	Logical	1		WM
9	YR_PREVCRE	Logical	1		WM
10	YR_PREVEXP	Logical	1		WM
11	YR1_YESNO	Logical	1		WM
12	YR2_YESNO	Logical	1		WM
13	YR_PREVYN	Logical	1		WM
14	YR1_CE	Numeric	8		WM
15	YR1_OC	Numeric	8		WM
16	YR2_CE	Numeric	8		WM
17	YR2_OC	Numeric	8		WM
18	YR_PREVCE	Numeric	8		WM
19	YR_PREVROC	Numeric	8		WM
20	YR1_TRAIN	Logical	1		WM
21	YR1_INCENT	Logical	1		WM
22	YR2_TRAIN	Logical	1		WM
23	YR2_INCENT	Logical	1		WM
24	YR_PREVTRA	Logical	1		WM
25	YR_PREVINC	Logical	1		WM
26	YR1_SW	Logical	1		WM
27	YR1_PS	Logical	1		WM
28	YR2_SW	Logical	1		WM
29	YR2_PS	Logical	1		WM
30	YR_PREVSW	Logical	1		WM
31	YR_PREVPS	Logical	1		WM
32	YR1_ID	Logical	1		WM
33	YR1_IMP	Logical	1		WM
34	YR2_ID	Logical	1		WM
35	YR2_IMP	Logical	1		WM
36	YR_PREVID	Logical	1		WM
37	YR_PREVIMP	Logical	1		WM
38	Q7A	Character	1		WM
39	Q7B	Character	1		WM
40	Q7C	Character	1		WM
41	Q7D	Character	1		WM
42	Q7E	Character	1		WM
43	Q7F	Character	1		WM
44	Q7G	Character	30		WM

STRUCTURE OF E1WM.DBF (Continued)

Field	Field Name	Type	Width	Dec	Description
45	YR1_RID	Logical	1		WM
46	YR1_RIMP	Logical	1		WM
47	YR2_RID	Logical	1		WM
48	YR2_RIMP	Logical	1		WM
49	YR_PREVRID	Logical	1		WM
50	YR_PREVRIM	Logical	1		WM
51	Q9A	Character	1		WM
52	Q9B	Character	1		WM
53	Q9C	Character	1		WM
54	Q9D	Character	1		WM
55	Q9E	Character	1		WM
56	Q9F	Character	1		WM
57	Q9G	Character	1		WM
58	Q9H	Character	1		WM
59	Q9I	Character	1		WM
60	Q9J	Character	1		WM
61	Q9K	Character	1		WM
62	Q9L	Character	35		WM
63	Q10A1	Character	1		WM
64	Q10A2	Character	1		WM
65	Q10A3	Character	1		WM
66	Q10A4	Character	1		WM
67	Q10A5	Character	1		WM
68	Q10A6	Character	1		WM
69	Q10B1	Character	1		WM
70	Q10B2	Character	1		WM
71	Q10B3	Character	1		WM
72	Q10B4	Character	1		WM
73	Q10B5	Character	1		WM
74	Q10B6	Character	1		WM
75	Q10C1	Character	1		WM
76	Q10C2	Character	1		WM
77	Q10C3	Character	1		WM
78	Q10C4	Character	1		WM
79	Q10C5	Character	1		WM
80	Q10C6	Character	1		WM
81	Q10D1	Character	1		WM
82	Q10D2	Character	1		WM
83	Q10D3	Character	1		WM
84	Q10D4	Character	1		WM
85	Q10D5	Character	1		WM
86	Q10D6	Character	1		WM
87	Q10E1	Character	1		WM
88	Q10E2	Character	1		WM
89	Q10E3	Character	1		WM

STRUCTURE OF E1WM.DBF (Continued)

Field	Field Name	Type	Width	Dec	Description
90	Q10E4	Character	1		WM
91	Q10E5	Character	1		WM
92	Q10E6	Character	1		WM
93	Q10F1	Character	1		WM
94	Q10F2	Character	1		WM
95	Q10F3	Character	1		WM
96	Q10F4	Character	1		WM
97	Q10F5	Character	1		WM
98	Q10F6	Character	1		WM
99	Q10G1	Character	1		WM
100	Q10G2	Character	1		WM
101	Q10G3	Character	1		WM
102	Q10G4	Character	1		WM
103	Q10G5	Character	1		WM
104	Q10G6	Character	1		WM
105	Q10H1	Character	1		WM
106	Q10H2	Character	1		WM
107	Q10H3	Character	1		WM
108	Q10H4	Character	1		WM
109	Q10H5	Character	1		WM
110	Q10H6	Character	1		WM
111	Q10I1	Character	1		WM
112	Q10I2	Character	1		WM
113	Q10I3	Character	1		WM
114	Q10I4	Character	1		WM
115	Q10I5	Character	1		WM
116	Q10I6	Character	1		WM
117	Q10J1	Character	1		WM
118	Q10J2	Character	1		WM
119	Q10J3	Character	1		WM
120	Q10J4	Character	1		WM
121	Q10J5	Character	1		WM
122	Q10J6	Character	1		WM
123	COMMENT	Character	30		WM

STRUCTURE OF E2WM.DBF

Number of data records: 2

Date of last update : 04/09/92

Field	Field Name	Type	Width	Dec	Description
1	SITE GEN	Character	30		WM
2	EPAID GEN	Character	12		WM
3	NOWASTMIN	Character	1		WM
4	EPACODE1	Character	4		WM, AZ
5	EPACODE2	Character	4		WM
6	EPACODE3	Character	4		WM
7	EPACODE4	Character	4		WM
8	STATECODE1	Character	6		WM
9	STATECODE2	Character	6		WM
10	DESCR_PROD	Character	60		WM, AZ
11	SIC	Character	4		WM, AZ
12	WSTFRMCODE	Character	4		WM, AZ
13	UOM	Character	1		WM, AZ
14	DENSITY	Numeric	5	2	WM
15	DENSUNIT	Character	1		WM
16	DESCR S	Character	60		WM
17	SOURCECODE	Character	3		WM, AZ
18	QTY_PREV	Numeric	8		WM, AZ
19	QTY_CURR	Numeric	8		WM, AZ
20	PRODINDEX	Numeric	4	2	WM, AZ
21	TC CODE	Character	1		WM
22	WMCODE1	Character	3		WM, AZ
23	WMCODE2	Character	3		WM, AZ
24	WMCODE3	Character	3		AZ
25	WMCODE4	Character	3		AZ
26	QTY_RCYC	Numeric	8		WM
27	WMRED1	Character	1		WM
28	WMRED2	Character	1		WM
29	WMRED3	Character	1		WM
30	WMRED4	Character	1		WM
31	QTY_RED	Numeric	8		WM, AZ
32	UOM_RED	Character	1		WM, AZ
33	WMDESCR1	Character	60		WM
34	WMDESCR2	Character	60		WM
35	WMDESCR3	Character	60		WM
36	WMDESCR4	Character	60		WM
37	WMDESCR5	Character	60		WM
38	TOXICITYUP	Logical	1		AZ
39	TOXICITYLO	Logical	1		AZ
40	Q1A	Character	1		WM
41	Q1B	Character	1		WM
42	Q1C	Character	1		WM
43	Q1D	Character	1		WM
44	Q2A	Character	1		WM
45	Q2B	Character	1		WM

STRUCTURE OF E2WM.DBF (Continued)

Field	Field Name	Type	Width	Dec	Description
46	Q2C	Character	1		WM
47	Q2D	Character	1		WM
48	Q3A	Character	1		WM
49	Q3B	Character	1		WM
50	Q3C	Character	1		WM
51	Q3D	Character	1		WM
52	Q4A	Character	1		WM
53	Q4B	Character	1		WM
54	Q4C	Character	1		WM
55	Q4D	Character	1		WM
56	COMM1	Character	60		WM, AZ
57	COMM2	Character	60		WM, AZ
58	COMM3	Character	60		WM, AZ
59	COMM4	Character	60		WM, AZ
60	COMM5	Character	60		WM, AZ

STRUCTURE OF ERECYCLE.DBF

Number of data records: 2

Date of last update : 02/11/92

Field	Field Name	Type	Width	Dec	Description
1	EPAID_GEN	Character	12		AZ
2	PAGE	Numeric	3		AZ
3	EPACODE	Character	4		AZ
4	QTY	Numeric	8		AZ
5	UOM	Character	1		AZ
6	SITEONOFF	Logical	1		AZ
7	EPAID_TSDR	Character	12		AZ

STRUCTURE OF EPROCESS.DBF

Number of data records: 15

Date of last update : 02/11/92

Field	Field Name	Type	Width	Dec	Description
1	EPAID_GEN	Character	12		SC
2	PAGE	Numeric	3		SC
3	QTR	Character	1		SC
4	SITE_PROCE	Character	3		SC
5	DESCR	Character	60		SC
6	EPACODE1	Character	4		SC
7	EPACODE2	Character	4		SC
8	EPACODE3	Character	4		SC
9	EPACODE4	Character	4		SC
10	SIC	Character	4		SC
11	COMMENT	Character	60		SC

APPENDIX D

HAZDAT PROGRAM LISTING

HAZDAT PROGRAM LISTING

```
* HAZDAT.PRG
* LOGISTICS MANAGEMENT INSTITUTE (LMI)
* 6400 GOLDSBORO ROAD
* BETHESDA, MD 20817-5886
```

```
SET TALK OFF
CLOSE ALL
CLEAR ALL
CLEAR
PUBLIC MPRINT
```

```
STORE .T. TO GO
DO WHILE GO
```

```
    CLEAR
```

```
    @ 5,13 SAY "HAZDAT Waste Management System"
```

```
    @ 8,11 SAY "1 - Maintain E.P.A. I.D. Data Base"
```

```
    @ 9,11 SAY "2 - Input Waste Management Information"
```

```
    @ 10,11 SAY "3 - Produce Annual/Biennial/Quarterly Reports"
```

```
    @ 11,11 SAY "4 - Database Statistics"
```

```
    @ 12,11 SAY "X - Exit"
```

```
    STORE " " TO SELECTION
```

```
    @ 14,11 SAY "Make Your Selection ->" GET SELECTION PICTURE
```

```
"X"
```

```
    READ
```

```
    DO CASE
```

```
        CASE SELECTION="1"
```

```
            DO NOTREADY
```

```
        CASE SELECTION="2"
```

```
            DO INPUT
```

```
        CASE SELECTION="3"
```

```
            DO OUTPUT
```

```
        CASE SELECTION="4"
```

```
            DO QUESTIONS
```

```
        CASE UPPER(SELECTION)="X"
```

```
            STORE .F. TO GO
```

```
            CLOSE ALL
```

```
            CLEAR
```

```
            LOOP
```

```
    ENDCASE
```

```
ENDDO
```

```
*****
*****
```

```
{ PROCEDURES }
```

PROCEDURE INPUT

CLEAR
SET CARRY ON
USE EGM
SET FORMAT TO GMIN
APPEND
CLOSE ALL
RETURN

PROCEDURE OUTPUT

STORE .T. TO OUT

DO WHILE OUT

CLEAR

@ 5,13 SAY "HAZDAT Waste Management Reporting System"

@ 8,11 SAY "1 - IC E.P.A. Forms"

@ 9,11 SAY "2 - GM E.P.A. Forms"

@ 10,11 SAY "3 - OI E.P.A. Forms"

@ 11,11 SAY "4 - PS E.P.A. Forms"

@ 12,11 SAY "5 - WM E.P.A. Forms"

@ 13,11 SAY "6 - WR E.P.A. Forms"

@ 14,11 SAY "7 - State Forms"

@ 15,11 SAY "X - Exit"

STORE " " TO SELECTION

@ 16,11 SAY "Make Your Selection ->" GET SELECTION PICTURE
"X"

READ

DO CASE

CASE SELECTION="1"

DO NOTREADY

CASE SELECTION="2"

DO MPRINTER

USE EGM

IF MPRINT="Y"

REPORT FORM GMRPTP TO PRINT

ELSE

REPORT FORM GMRPTS

ENDIF

CLOSE ALL

CASE SELECTION="3"

DO NOTREADY

CASE SELECTION="4"

DO NOTREADY

CASE SELECTION="5"

DO NOTREADY

CASE SELECTION="6"

DO NOTREADY

```

        CASE SELECTION="7"
        DO STATEFORMS
        CASE UPPER(SELECTION)="X"
        RETURN
    ENDCASE
    SET DEVICE TO SCREEN
ENDDO
RETURN

PROCEDURE STATEFORMS
CLEAR
STORE .T. TO GOSTATE
DO WHILE GOSTATE
    CLEAR
    STORE SPACE(2) TO SELECTION
    @ 10, 2 SAY "Enter State Code: " GET SELECTION
    @ 11, 2 SAY "(Enter 'X' To Exit)"

    READ
    DO CASE
        CASE SELECTION="WI"
            @ 18,1 SAY " "
            WAIT "There Are No Special State Forms for WISCONSIN - Use
E.P.A. Forms"
            CASE SELECTION="OK"
            CLEAR
            DO MPRINTER
            USE EGM
            IF MPRINT="Y"
                REPORT FORM OKGMS FOR EPAID_GEN="OK" TO PRINT
            ELSE
                REPORT FORM OKGMS FOR EPAID_GEN="OK"
            ENDIF
            CLOSE ALL
            CASE UPPER(SELECTION)="X"
            STORE .F. TO GOSTATE
            LOOP
        OTHERWISE
            @ 18,1 SAY " "
            WAIT "Form Structure For "+SELECTION+" Is Currently
Unavailable"
    ENDCASE
    SET DEVICE TO SCREEN
ENDDO
RETURN

```

PROCEDURE QUESTIONS

STORE .T. TO GOQUEST

DO WHILE GOQUEST

CLEAR

@ 5,13 SAY "HAZDAT Waste Management Database Statistics"

@ 8,11 SAY "1 - Total Hazardous Waste Generated By All Facilities"

@ 9,11 SAY "2 - Total Waste Generated By EPA Code"

@ 10,11 SAY "3 - Total Waste Generated By State"

@ 11,11 SAY "4 - Total Waste Generated By Source Code"

@ 12,11 SAY "X - Exit"

STORE " " TO SELECTION

@ 15,11 SAY "Make Your Selection ->" GET SELECTION PICTURE "X"

@ 20,10 SAY "WARNING! System Not Checking For Units of Measure or Density."

@ 21,14 SAY "TOTALS FOR DEMONSTRATION PURPOSES ONLY!"

READ

CLEAR

@ 20,10 SAY "WARNING! System Not Checking For Units of Measure or Density."

@ 21,14 SAY "TOTALS FOR DEMONSTRATION PURPOSES ONLY!"

DO CASE

CASE SELECTION="1"

STORE "EPAID_GEN" TO MFIELD

DO ALL

CASE SELECTION="2"

DO NOTREADY

CASE SELECTION="3"

STORE "STATE_GEN" TO MFIELD

DO ALL

CASE SELECTION="4"

STORE "SOURCECODE" TO MFIELD

DO ALL

CASE UPPER(SELECTION)="X"

STORE .F. TO GOQUEST

LOOP

ENDCASE

SET DEVICE TO SCREEN

ENDDO

RETURN

PROCEDURE NOTREADY

CLEAR

@ 10,1 SAY " "

WAIT "

RETURN

THIS SECTION TO BE COMPLETED"

```

PROCEDURE ALL
CLEAR
@ 10,2 SAY "PLEASE WAIT..."
DO MPRINTER
USE EGM
STORE "TMPNDX" TO XMTMPT
IF FILE(TRIM(XMTMPT) + ".NDX")
    DELETE FILE TMPNDX.NDX
ENDIF
INDEX ON &MFIELD TO TMPNDX
USE EGM INDEX TMPNDX

CLEAR
GO TOP
STORE 3 TO ROW
STORE 0 TO MVARSUM
STORE 0 TO MVARSUMTOT
DO WHILE .NOT. EOF()
    ENTRIES IN FIELD
    STORE &MFIELD TO MVAR
    STORE 0 TO MVARSUM
    DO WHILE .NOT. EOF() .AND. &MFIELD=MVAR
        POSSIBLE ENTRIES
        STORE QTY_CURR + MVARSUM TO MVARSUM
        STORE QTY_CURR + MVARSUMTOT TO MVARSUMTOT
        SKIP
        ENDDO
        @ROW, 1 SAY MVAR
        @ROW, 13 SAY MVARSUM PICTURE "999,999,999"
        DO ROWCHECK
        ENDDO
        @ROW, 1 SAY "TOTAL"
        @ROW, 13 SAY MVARSUMTOT PICTURE "999,999,999"
        IF UPPER(MPRINT)="N"
            WAIT
        ELSE
            EJECT
        ENDIF
    SET DEVICE TO SCREEN
    CLOSE ALL
    RETURN

PROCEDURE MPRINTER
CLEAR
STORE "N" TO MPRINT
@ 10,2 SAY "SEND TO PRINTER (Y/N)?"
@ 10,25 GET MPRINT PICTURE "I"
READ

```

```
IF UPPER(MPRINT)="Y"  
  SET DEVICE TO PRINT  
  EJECT  
ENDIF  
CLEAR  
RETURN
```

```
PROCEDURE ROWCHECK  
  IF UPPER(MPRINT)="Y"  
    IF ROW=55  
      EJECT  
      STORE 3 TO ROW  
    ELSE  
      STORE ROW+1 TO ROW  
    ENDIF  
  ELSE  
    IF ROW=18  
      STORE 3 TO ROW  
      WAIT "Press Any Key To Continue"  
      CLEAR  
    ELSE  
      STORE ROW+1 TO ROW  
    ENDIF  
  ENDIF
```

```
RETURN  
***** { END OF HAZDAT.PRG }  
*****
```

APPENDIX E

USER INSTRUCTIONS FOR THE HAZDAT.PRG (VERSION 0.0)

USER INSTRUCTIONS FOR THE HAZDAT.PRG (VERSION 0.0)

INTRODUCTION

The "HAZDAT" program (contained in the HAZDAT.PRG file) has been written for demonstration purposes only. The program and the accompanying data bases should not be used for reporting purposes or for conducting data analyses at this time, because the program does not contain data validity checks. Also, the data submitted by the Army's installations are laden with errors, which are also present in the current files. In this demonstration ("demo") form, the purpose of HAZDAT is to show the processing capabilities available with the use of a consolidated data base.

The data bases and program were created using dBASE IV; however, because dBASE IV is an accepted industry standard, the file structures can be transferred directly into dBASE III Plus and a number of other popular data base management system (DBMS) programs such as Foxbase, Paradox, or even Lotus 1-2-3.

We have provided a listing of the program file (in Appendix D) so that it can be replicated with adjustments for use in other noncompatible, programmable DBMSs. The use of a standard DBMS and the program listing allow the Army to build on the initial framework to develop the program into a useful reporting and management tool. In fact, the system — meaning the data structure — can be used in its present form and can be distributed to installations by the Army as a temporary reporting device until the formal Hazardous Waste Tracking System is introduced. However, analyses and reports should be obtained using the querying and reporting capabilities of dBASE III Plus or dBASE IV rather than using the demonstration modules of HAZDAT.

One of the key reasons that HAZDAT is not presently ready to be used for analyzing and reporting data is that modules for converting units of measurement and density have not been developed. Making HAZDAT fully ready for use requires expending time and resources necessary to write and test the source code.

INSTALLATION REQUIREMENTS

HAZDAT is configured to run on MS-DOS-based¹ computers. MS-DOS 3.1 (or higher) must be used. Also, users must have at least 1.7 megabytes of available hard disk space (for file storage and temporary file generation).

DATA ENTRY STEPS FOR THE DEMONSTRATION

Getting Started

The following instructions assume that your dBASE IV program resides on a C: drive and in a subdirectory called DBASE. If this is not the case, you must adjust your commands for the appropriate differences. (See the MS-DOS user guide that came with your computer if you need more help.)

1. Obtain the C: prompt.
2. Type **CD DBASE <Enter>** to access the DBASE subdirectory.
3. Type **DBASE <Enter>** to start the dBASE program.

System Response: A licensing agreement form displays.

4. Press **<Enter>** to begin dBASE operations.

System Response: When the screen display disappears, the dBASE dot prompt displays as follows: ●. Proceed to step 5.

Note: If a menu or a set of boxes displays instead of the dot (●) prompt, you have probably been sent directly to the "ASSIST" mode. Press **<Esc>**. Depending on your version of dBASE, you may be asked if you wish to abandon the ASSIST mode (in which case, press **<Y>**). The dot prompt should display. If a dot prompt still does not display, your dBASE program has been custom installed and you should consult either your dBASE user manual or your system administrator to learn how to abandon the ASSIST operation.

CAUTION: When working in dBASE, if you quit without going through standard termination procedures, the data file that you were working with may be left with an "open" flag and you will not be able to access that data file again. Once you begin working with dBASE or HAZDAT, **DO NOT** try to escape by

¹MS-DOS is the Microsoft Disk Operating System developed by Microsoft Corp., Bellevue, Wash. The MS-DOS requirement is generally referred to as "IBM compatibility."

rebooting the computer, by pressing the <Esc> key repeatedly, or by any other method.

Note: To exit dBASE safely (under any circumstances), type **CLOSE ALL** (at the dot prompt). Press <Enter>. Type **QUIT**. Press <Enter>. The C:> prompt redisplay.

Running the Demo

5. At the dot (●) prompt, type **DO HAZDAT** <Enter> to start the HAZDAT demo.

System Response: The computer indicates that it is compiling the code. Then, the "HAZDAT Waste Management System" (main menu) screen displays (Figure E-1).

Note: Due to differences in individual machines and the limitations of reproducing a computer screen on paper, your actual screen may look slightly different than the screens shown below.

HAZDAT Waste Management System

- 1. Maintain E.P.A. I.D. Data Base
- 2. Input Waste Management Information
- 3. Produce Annual/Biennial/Quarterly Report
- 4. Data Base Statistics
- X Exit

Make your selection - > ☐

FIG. E-1. HAZDAT WASTE MANAGEMENT SYSTEM - MAIN MENU SCREEN

6. Select any of the five displayed menu options: 1, 2, 3, 4, or X.
- a. If you press <1>, a message displays noting that this module has not been completed. Press any key to return to the main menu.
 - b. If you press <2>, the computer beeps, then the "Hazardous Waste Input Screen" displays (Figure E-2). Proceed to step 7 for instructions on using this form.
 - c. Proceed to step 8 to use option <3> and to step 9 to use option <4>.

Hazardous Waste Input Screen:

QUARTER: ☐

SECTION I

Generator's E.P.A. I.D. No.:

Description:

EPA Waste Codes:

State codes: SIC code: Source code: Form code:

Origin code: Origin System Type: TRI Constituent:

CAS Numbers:

SECTION II

Qty. Generated in Prev. Year: Qty. Generated this Year:

UOM: DENSITY: Unit: " " Waste Treated, Disposed, Recycled, On Site:

System 1: System Type: Qty. Generated: System 2: System Type: Qty. Generated:

SECTION III

FIG. E-2. HAZARDOUS WASTE INPUT (DATA ENTRY) SCREEN

d. To exit from the screen, simply press <Esc>.

System Response: The main menu redisplay.

Note: To exit from the main menu, press <X>. That terminates HAZDAT, and the dot prompt (●) displays.

During the input session, HAZDAT looks at the last recorded entry and automatically brings that data forward. This feature was developed because many of the data elements remain the same from record to record. Therefore, using this feature reduces data entry time and error. However, whenever the user starts the data entry routine, a new record is added. Initially, it contains all of the data from the previous record. Therefore, to avoid "double counting," the data entry form

(screen) must be filled out correctly, or filled out with zeros, or the user must press <Esc> to exit the routine before allowing a data form to be saved to the disk.

7. To use option <2>, "Input Waste Management Information":

CAUTION: If you wish to experiment with data entry, do NOT go to the end of the form. If you do, the test record is saved to the data base and a new form displays.

- a. Select option <2> from the main menu.
- b. Type the data required.

Note: If you press <Enter> on the first field without changing the data, dBASE assumes that you have finished editing. If you wish to accept the data in the first field, use the down arrow key [↓]. When the cursor moves to the end of the first screenful of data, the data record is saved. A new record is then presented for data entry.

- c. Press <Ctrl-W> to save your work.

Note: If you press <Esc>, only the record displayed on the screen is not added to the data base. All other records will already have been saved.

System Response: The main menu redisplay.

Printing Reports and Forms

8. To use option <3> on the main menu to see the reports module:

- a. Press <3>, "Produce Annual/Biennial/Quarterly Report."

System Response: The computer beeps and the HAZDAT report generation module menu displays (Figure E-3).

Note: Before continuing, verify that your printer is turned on and is "on line." Otherwise, you will receive an error message. If that happens, either select "Cancel," (HAZDAT will return to the dot prompt display), or turn on your printer, then select "Ignore" (the reports module continues to operate).

CAUTION: do NOT select "Suspend." If you do, you will be thrown into the dBASE environment with your files open and your HAZDAT program only partially completed.

Note: Currently, only selections <2> and <7> in this module are operational. Selecting any of the other options causes the display of a message indicating that the selected module has not been completed.

```

1.  IC E.P.A. Forms
2.  GM E.P.A. Forms
3.  OI E.P.A. Forms
4.  PS E.P.A. Forms
5.  WM E.P.A. Forms
6.  WR E.P.A. Forms
7.  State Forms
X   Exit

Make selection -- > 

```

FIG. E-3. HAZDAT REPORT GENERATION MODULE SCREEN

b. Press <2>, "GM E.P.A. Forms."

System Response: A message displays, giving you the option of sending the output to the screen instead of to the printer.

- Press <Y> (for yes) to send output to the screen or <N> (for no) to print normally.

System Response: The entire data base prints out (on the screen or on the paper) in the Federal GM form format. When the printout finishes, the HAZDAT report generation module screen displays (Figure E-3).

c. ● If you select <7>, "State Forms," the "State Format Selection" screen displays (Figure E-4) prompting you to identify the requisite State Code.

Note: You can type <X> to exit.

- To demonstrate the system's capabilities, make the following test entries:
 - ▶ Type <WI>.

System Response: A message displays stating that Wisconsin's forms are the same as the Federal forms. Press any key.

State Format Selection

Enter State Code: ☐

(Enter "X" to Exit)

FIG. E-4. STATE FORMAT SELECTION SCREEN

- ▶ Type <OK>.2

System Response: The entire data base prints out in the Oklahoma format.

Note: Printing the entire data base may seem excessive. However, each installation would only have its own records in the data base, and at MACOM and higher levels, printouts in state formats are not required. If you do not wish to print out the entire data base, press <Esc> to stop the printing. When the printout is interrupted, or when the printout is completed, the HAZDAT report generation module screen redisplay (Figure E-3).

- d. Press <X> to return to the HAZDAT opening main menu.

Data Base Queries

- 9. To use option <4> on the main menu to see the query module or data base statistics:

Press <4>, "Data Base Statistics."

System Response: The "HAZDAT Waste Management Data Base Statistics" screen displays (Figure E-5).

- a. If you press <1>, HAZDAT calculates all reported waste quantities by each waste generator's E.P.A. ID number. A message displays, giving you the option of sending the output to the screen instead of to the printer.
 - Press <Y> (for yes) to send output to the screen, or <N> (for no) to print normally.

²Only the Oklahoma (OK) state form is available now for this demo.

HAZDAT Waste Management Data Base Statistics

1. Total Hazardous Waste Generated By All Facilities
2. Total Waste Generated By EPA Code
3. Total Waste Generated By State
4. Total Waste Generated By Source Code

X Exit

Make your selection - > ☐

**WARNING! System Not Checking For Units of Measure or Density.
TOTALS FOR DEMONSTRATION PURPOSES ONLY!**

**FIG. E-5. HAZDAT WASTE MANAGEMENT DATA BASE STATISTICS
(DATA QUERY MODULE) SCREEN**

System Response: A listing prints out (on the screen or on the paper). When the printout finishes, the data query module screen displays (Figure E-5).

- b. If you press options <3> or <4> (see Figure E-5), HAZDAT performs the indicated waste calculation(s).

System Response: The totals figure display automatically. A prompt displays providing you with the option of obtaining a printout.

- Press <Y> (for yes) or <N> (for no).

System Response: Figure E-6 (an example of the hardcopy) prints out.

Code	Quantity
—	4,033,081
A01	34,433
A02	226
A03	67,119
A04	2,072
A05	22,565
A06	147,895
A08	70
A09	2,747
A19	301,710
A21	289,860
A29	390
A34	190
A35	7,424
A37	88,302
A38	5,796
A39	307
A41	1,817
A49	46,602
A50	150
A82	887,323
A89	609,506
TOTAL	12,501,262

Notes: Where the code is blank, no source code was provided on these forms.

FIG. E-6. PRINTOUT OF WASTE BY SOURCE CODE

Note: Option <2>, "Total Waste Generated By EPA Code," is not yet operational.

When the data routines are completed, the system automatically returns to the data query module menu (Figure E-5).

- Press <X> to return to the HAZDAT main menu. You have completed the demonstration of the HAZDAT.PRG.

Exiting the HAZDAT Program

10. To exit from the main menu (Figure E-1),

- a. Type <X>.

System Response: The dBASE dot prompt redisplay.

- b. Type <QUIT> to exit dBASE.

REPORT DOCUMENTATION PAGE

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13. ABSTRACT (Maximum 200 words) Army efforts to protect the environment are complicated by the large number of governmental agencies that exercise regulatory authority over military installations. With so many agencies involved, the amount and type of information needed and the formats in which the information are to be presented vary significantly. LMI has developed a prototype automated desktop information system that can be immediately useful to Army environmental managers. In addition to eliminating the burden of preparing reports by hand, the prototype system establishes a method for a complete and accurate accounting of the Army's hazardous waste generations and disposals and for a meaningful review of the data by Army managers. We recommend that the Army develop a hazardous waste information system like the one provided by this prototype, including establishing standardized data definitions and conventions, providing the installation environmental staff with tools to simplify the recording of data, and production of reports. Preformatted reports should be made available to installations, and the installations should be required to report to their higher headquarters on electromagnetic media using a single Army-wide format.					
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