ORNL/TM-13194

PACKAGING- AND TRANSPORTATION-RELATED OCCURRENCE REPORTS

FY–1995 ANNUAL REPORT

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March 1996

Prepared for the
Office of Environment, Safety and Health
HA 01 20

Prepared by the
Oak Ridge National Laboratory
Oak Ridge, Tennessee 37831-6495
managed by
Lockheed Martin Energy Research Corp.
for the
U.S. DEPARTMENT OF ENERGY
under contract DE-AC05-96OR22464

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ACRONYMS

ALO	Albuquerque Operations
ANLE	Argonne National Laboratory—East
BNI	Bechtel National, Inc.
BNL	Brookhaven National Laboratory
BPOI	Bechtel Petroleum Operations, Inc.
CFR	Code of Federal Regulations
CH	Chicago Operations
CY	Calendar year
DoD	U.S. Department of Defense
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
DP	Defense Programs
EE	Energy Efficiency and Renewable Energy
EG&G	EG&G Idaho, Inc.
EGGM	EG&G Mound Applied Technologies, Inc.
EGGR	EG&G Rocky Flats, Inc.
EH or ES&H	Office of Environment, Safety and Health
EM	Environmental Management
ER	Energy Research
FAA	Federal Aviation Administration
FE	Fossil Energy
FERM	Fernald Environmental Restoration Management Corp.
FMCSR	Federal Motor Carrier Safety Regulation
FY	Fiscal year
GE/KN	General Electric Knolls Atomic Power Laboratory
HQ	DOE Headquarters
ID	Idaho Operations
INEL	Idaho National Engineering Laboratory
KCP	Kansas City Plant
KEH	Kaiser Engineers Hanford
LANL	Los Alamos National Laboratory
LITC	Lockheed Idaho Technologies Corp. (operator of INEL)
LLNL	Lawrence Livermore National Laboratory
LLW	Low-level waste
LMES	Lockheed Martin Energy Systems, Inc.
MHSM	Mason & Hanger, Silas-Mason Co., Inc.
MKFO	MK-Ferguson
NE	Nuclear Energy
NN	Nuclear Non-Proliferation
NOC	Nature of Occurrence

NRC	Nuclear Regulatory Commission
NVO	Nevada Operations
OAK	Oakland Operations
OR	Occurrence report
ORNL	Oak Ridge National Laboratory
ORO	Oak Ridge Operations
ORPS	Occurrence Reporting and Processing System
PANX	Pantex Plant
PATS	Packaging and Transportation Safety
PCB	Polychlorinated Biphenyl
PGDP	Paducah Gaseous Diffusion Plant
PNL	Pacific Northwest Laboratory
PORTS	Portsmouth Gaseous Diffusion Plant
PPPL	Princeton Plasma Physics Laboratory
REECO	Reynolds Electrical & Engineering Company
RFO	Rocky Flats Office
RL	Richland Operations
RW	Radioactive Waste Management
SARP	Safety Analysis Report for Packaging
SMAC	Shipment/Mobility Accountability Collection
SNL/A	Sandia National Laboratory–Albuquerque
SNL/L	Sandia National Laboratory–Livermore
SR	Savannah River Operations
UMTRA	Uranium Mill Tailings Remedial Actions Project
USEC	United States Enrichment Corporation
WHC	Westinghouse Hanford Company
WIPP	Waste Isolation Pilot Plant
WSRC	Westinghouse Savannah River Company
WVNS	West Valley Nuclear Services, Inc.
Y-12	Oak Ridge Y-12 Plant

EXECUTIVE SUMMARY

The Oak Ridge National Laboratory, through its support to the U.S. Department of Energy's (DOE's) Office of Facility Safety Analysis, EH-32, retrieves reports and information pertaining to transportation and packaging occurrences from the centralized Occurrence Reporting and Processing System (ORPS) database. These selected reports are analyzed for trends, impact on packaging and transportation operations and safety concerns, and "lessons learned" in transportation and packaging safety. Some selected reports are reviewed to evaluate the corrective actions being conducted.

This report contains an analysis of 230 occurrences selected during fiscal year (FY) 1995, with supporting data from calendar year (CY) 1991 through 1995 which provide the basis for trending. The overall number of packaging- and transportation-related occurrences remains a small, steady percentage (~3%) of the total occurrences in the DOE system. There does not appear to be a correlation between the total number of offsite hazardous materials shipments and the number of reported occurrences. The offsite occurrences, while few in number, are consistent for the major shippers and contractors.

In FY 1995, the major nature of occurrence offsite was modal safety; this was followed closely by shipping preparation. The major nature of occurrence onsite was contamination caused by a packaging or transportation incident. Examination of the root cause assigned by the occurrence reporters showed consistency with causes of occurrences in previous years in that "personnel error" and "management problems" were the most common causes identified.

The effectiveness of the corrective actions proposed to address occurrences were examined for 21 of the total 230 reports. This included the one emergency occurrence of FY 1995 and all occurrences categorized as unusual. Eighty-one percent of the occurrence reports (ORs) corrective action were evaluated as satisfactory. Reviewing the summaries of corrective actions provides a glimpse of the lessons learned process and could lead transportation professionals to recognize potential problems and how they may apply preventive measures. Based on ORPS data and site contact and follow-up, the PATS program developed two lessons-learned bulletins and a pilot lessons learned newsletter during the year.

This report, which was prepared in FY 1996, was limited in preparation time and funding because of the reduced budget for this FY. At this time, it is not clear that a program for surveillance of the occurrences as reported on ORPS will be continued.

1. INTRODUCTION

The U.S. Department of Energy (DOE) Occurrence Reporting and Processing System (ORPS) is an interactive computer system designed to support DOE-owned or operated facilities in the reporting and processing of information concerning occurrences related to facility operations. The requirements for reporting and the extent of the occurrences to be reported are defined in DOE Order 5000.3B, "Occurrence Reporting and Processing of Operations Information." (DOE Order 5000.3B was revised September 30, 1995, as DOE Order 232.1.) The centralized database, managed through the Idaho National Engineering Laboratory (INEL), provides computerized support for the collection, distribution, updating, analysis, and sign-off of information in the occurrence reports.

The Oak Ridge National Laboratory (ORNL) Packaging and Transportation Safety Program (PATS) has been charged with the responsibility of retrieving reports and information pertaining to transportation and packaging incidents from the centralized ORPS database. These selected reports are analyzed for trends, impact on packaging and transportation operations and safety concerns, and "lessons learned." Moreover, the selected occurrence reports (ORs) are reviewed to see if the DOE Order 5000.3B requirement to provide for appropriate corrective actions is complied with. This task is designed (a) to keep the DOE Office of Facility Safety Analysis, EH-32, aware of what is occurring on DOE sites and what potential transportation and packaging problems may need attention and (b) to develop and distribute "lessons learned" to the Operations Offices.

This annual report details (1) the methodology that PATS uses to conduct searches of the ORPS for pertinent information and the form of reporting to EH-32, (2) major shippers of hazardous materials and major reporters of occurrences, (3) review and examination of trends observed in ORs analyzed by the nature of occurrence (NOC) codes of PATS, (4) a presentation and discussion of the root-cause codes of ORPS, and (5) evaluation of ORs that were categorized on the ORPS as emergency or unusual to determine whether the actions taken to close out the occurrences are sufficient to assure remediation of the incident and prevent recurrence.

Though this report will present an analysis of the ORs that occurred during fiscal year (FY) 1995 as reported to DOE-Headquarters (HQ) in the Weekly Reports, it will also use historical ORs to analyze for trends and patterns. Based on Weekly Reports OR-94-40 (starting October 2, 1994) through OR-95-39 (ending September 30, 1995), 230 ORs were selected of the 7,182 total occurrences reported in FY 1995 to the ORPS. One hundred and eleven of the 230 packaging and transportation-related ORs have been finalized. Up to October 1, 1994, 708 ORs had been previously selected, some of which were not reported in the weekly reports and, hence, are designated as historical. Therefore, including the ORs reported last year, 938 ORs (of which 640 are finals) will be reviewed for this report, with emphasis on the occurrences of FY 1995. Figure 1 shows the number of packaging- or transportation-related ORs that have been selected from the ORPS, by FY. The total number of occurrences reported during previous FYs by ORPS are fewer than the amounts reported previously in the annual reports because some ORs have been

canceled or deleted from ORPS since the ORs originally posted them. The total occurrences per FY represents the number of ORs that a query reveals is currently present in the ORPS.

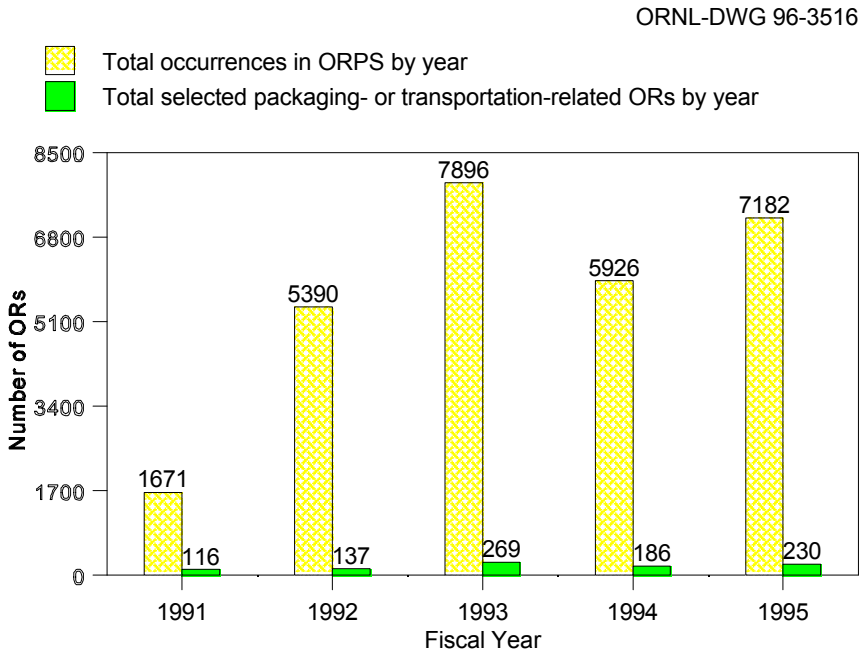

Fig. 1. Packaging- and transportation-related ORs selected by FY.

1.1 METHODOLOGY AND REPORTING

ORNL PATS staff conducted daily searches of ORPS to scan and retrieve summaries of ten-day reports (and updates to the ten-day reports) and reviewed each to identify those that have packaging and transportation significance. Final reports are also scanned to update previously selected occurrences.

Once the ORPS system has been scanned and the applicable ORs have been selected, these selected ORs are then independently checked by another transportation specialist to verify the selection. The selected ORs are compiled into a table that lists (1) report date, (2) discovery date of the occurrence, (3) ORPS number, (4) occurrence type, (5) nature of the packaging and transportation safety concern, (6) damage and injury resulting from the occurrence, (7) and follow-up action to be taken. This tabular listing of the selected ORs is compiled weekly and transmitted electronically to key personnel of EH-32 for review and further direction to PATS for follow-up. The electronic mailing list also includes those Field Offices and contractors who indicated a need for the information contained in the weekly reports. This annual report is the third annual report of this program.

1.2 CATEGORIZATION OF OCCURRENCES

DOE Order 5000.3B categorizes ORs into three types: emergency, unusual, and off-normal. For packaging and transportation concerns, DOE Order 5000.3B defines these categories (under Group 6 of Appendix 1) as:

1. Emergency. An offsite transportation event involving the release of a reportable quantity of hazardous substance (per 49 CFR Part 171.8) which is transported in support of departmental operations.

2. Unusual. An offsite transportation event involving the release of hazardous material in a quantity greater than limited quantities (or any release of radioactive material) or any shipment of radioactive material or hazardous waste that arrives at its destination (1) with a nonreconcilable shipping paper discrepancy or unaccounted-for package related to material quantity or (2) with radiation or contamination levels in excess of U.S. Department of Transportation (DOT) allowable limits. Violations of Federal Motor Carrier Safety (FMCS) Regulations or Federal Aviation Administration (FAA) regulations involving a release of hazardous material are also included. Onsite “unusual occurrences” are defined similarly for releases.

3. Off-normal. An offsite event involving a release of hazardous material other than radioactive that does not exceed a limited quantity. Violations of marking, labeling, placarding, routing, separating, and segregating materials are included in the criteria as is any transportation event involving departmental property resulting in vehicular or aircraft damage of more than $5,000 (or total losses). Included in this definition are also violations of DOT FMCS or FAA regulations, evidence of improper classification of hazardous materials, improper selection or assembly of a hazardous material package, cargo that has shifted during transport, or transportation activities performed by unqualified personnel. Onsite "off-normal” events are defined similarly.

Of the occurrences reported during FY 1995, only one occurrence was listed as "emergency," and 20 were listed as "unusual." The emergency-categorized OR has not been finalized, and only 11 of the unusual ORs have been finalized. A summary of these 21 ORs along with an evaluation of the effectiveness of the reported respective corrective actions can be found in Appendix 1.

2. MAJOR SHIPPERS AND REPORTERS OF OCCURRENCES

The Shipment Mobility/Accountability Collection (SMAC) is DOE's unclassified, computer-based historical transportation information system. SMAC provides centralized collection, analysis, and reporting of transportation data for shipments made by and on behalf of DOE. SMAC is operated for DOE by Science Applications International Corporation. The SMAC system is funded by Environmental Management through the DOE Oak Ridge Operations Office. The SMAC system contains data concerning shipments made on behalf of DOE, with the exception of parcel post and certain United Parcel Service shipments. Currently, SMAC contains information on more than two million DOE shipments.

SMAC provides summaries for this project on hazardous materials shipments made by the DOE contractors during a specified time frame. SMAC data reveal Lawrence Livermore National Laboratory (LLNL) was the most active shipper with 2,995 of the total 22,778 hazardous material and waste shipments reported for the year. Second was Oak Ridge National Laboratory (ORNL) with 1,977 shipments. Figure 2 presents those contractors who reported more than 900 shipments to SMAC in FY 1995. The number of packaging- and transportation-related ORS that the sites reported to ORPS is indicated in a line below the sites to offer a comparison with the number of hazardous material and waste shipments conducted.

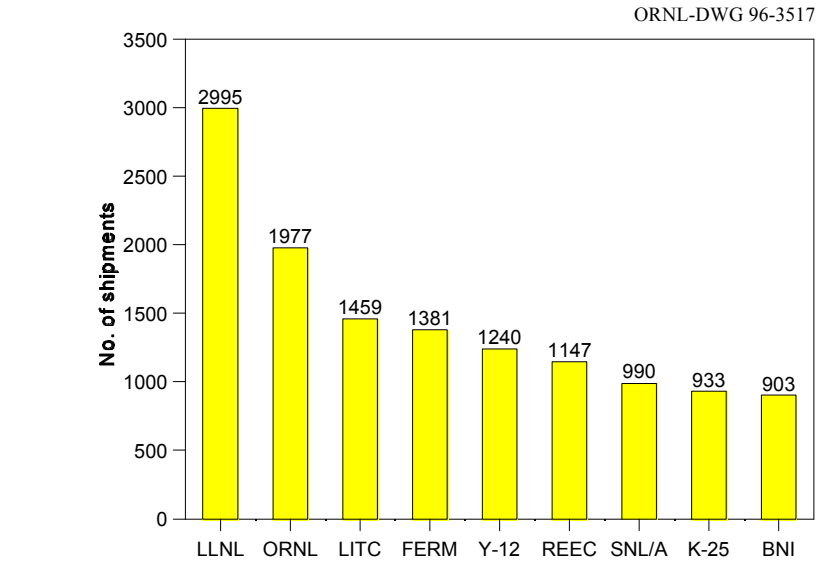

Fig. 2. Contractors conducting over 900 shipments during FY 1995 (SMAC data).

Figure 3 presents those contractors who reported more than 300 but fewer than 900 shipments to SMAC during FY 1995. (The acronym list in the front matter of this report contains the full names of the contractors indicated in these figures.) Table 1 lists the number of packaging- and transportation-related ORs of shippers who reported more than 300 hazardous materials shipments during FY 1995 to SMAC. The shippers are listed in alphabetical order for ease of reference. Occurrences are categorized in Figs. 4, 5, and 6 into onsite, offsite, and others. Any occurrence that happens in an area which is within the boundaries of a DOE site or facility that is fenced or otherwise access-controlled is defined as an onsite occurrence. Offsite occurrences are those occurrences that happen in any area within or outside a DOE site to which the public has free and unlimited access. The category "others" is used by PATS to designate occurrences that were created by organizations other than the reporting group. This category ensures that occurrences are not charged to a contractor simply because the contractor properly discovered and reported it. Because onsite shipments are not reported to SMAC, comparisons should be related to offsite occurrences only, not the total occurrences reported by the site.

A quick review of Figs. 2 and 3 show that there is little correlation between the number of shipments per year and the number of reported occurrences. There may be several reasons for this, i.e., repeated numbers of similar shipments which reduces error by repetition, more diligence in reporting occurrences, and variations in interpretations of the reporting requirements.

Figures 4, 5, and 6 present the shippers that reported over 900 ORs to SMAC during FY 1995. Reference to these figures show that occurrences created by others decreased during FY 1995. This can also be verified by reviewing Table 1. However, the decreases may not be significant since the decreases were not seen at every reporting site. There was also a slight increase in the total number of occurrences reported by the contractors. This increase is probably a factor of more rigorous reporting practices than an actual increase in incidents. Hence, the number of ORs reported by Westinghouse Savannah River Company (WSRC) may well reflect the quality of their investigative and reporting program rather than any lack of quality or compliance in their packaging and transportation operations.

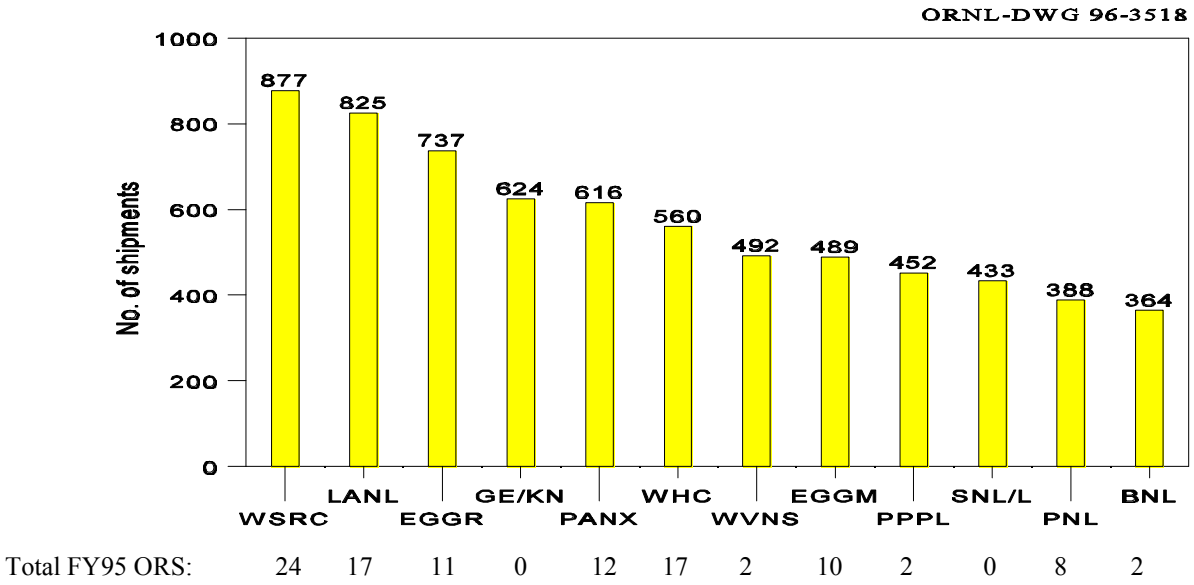

Fig. 3. Contractors with between 300 and 900 shipments during FY 1995 (SMAC data).

Table 1. ORS per year for contractors with >300 shipments during FY 1995

Contractor	Year	Onsite	Offsite	Others	Contractor	Year	Onsite	Offsite	Others
BNI	1991	0	0	0	EGGM	1991	0	0	2
	1992	0	1	0		1992	1	0	0
	1993	0	1	0		1993	1	0	1
	1994	0	0	0		1994	0	1	1
	1995	1	1	0		1995	3	4	3
EGGR	1991	0	0	2	FERM	1991	0	1	1
	1992	2	1	0		1992	1	2	3
	1993	5	2	0		1993	0	1	0
	1994	5	1	3		1994	1	3	9
	1995	9	3	0		1995	7	3	8

Table 1. ORs per year for contractors with >300 shipments during FY 1995 (continued)

Contractor	Year	Onsite	Offsite	Others	Contractor	Year	Onsite	Offsite	Others
GE/KN	1991	0	0	0	KCP	1991	0	0	0
	1992	0	0	0		1992	0	0	0
	1993	0	0	0		1993	0	1	0
	1994	0	0	0		1994	0	1	0
	1995	0	0	0		1995	1	0	0
K-25	1991	2	0	0	LANL	1991	2	0	0
	1992	5	1	3		1992	1	0	5
	1993	0	0	0		1993	15	7	15
	1994	2	1	0		1994	10	7	5
	1995	0	0	0		1995	6	7	4
LITC	1991	0	1	2	LLNL	1991	0	0	1
	1992	1	1	1		1992	0	0	0
	1993	2	0	0		1993	3	2	0
	1994	1	1	0		1994	2	2	5
	1995	5	3	1		1995	5	6	0
ORNL	1991	2	4	1	PANTEX	1991	0	0	2
	1992	1	2	0		1992	3	3	0
	1993	3	1	2		1993	2	4	0
	1994	2	3	3		1994	2	3	1
	1995	2	3	2		1995	11	1	0
PNL	1991	2	4	0	PPPL	1991	0	0	0
	1992	1	1	0		1992	0	0	0
	1993	2	1	0		1993	0	1	0
	1994	0	2	2		1994	0	0	0
	1995	4	4	0		1995	0	2	0
REECO	1991	0	3	0	SNL/A	1991	0	0	0
	1992	0	0	1		1992	0	1	0
	1993	4	2	0		1993	1	1	1
	1994	0	3	0		1994	3	2	0
	1995	1	3	1		1995	6	1	0

Table 1. ORs per year for contractors with >300 shipments during FY 1995 (continued)

Contractor	Year	Onsite	Offsite	Others	Contractor	Year	Onsite	Offsite	Others
SNL/L	1991	0	0	1	WHC	1991	8	5	2
	1992	0	0	0		1992	17	7	6
	1993	0	0	0		1993	26	3	3
	1994	0	0	0		1994	20	1	8
	1995	0	0	0		1995	16	1	3
WSRC	1991	5	0	1	WVNS	1991	1	0	0
	1992	5	5	0		1992	0	1	0
	1993	17	2	1		1993	0	1	7
	1994	8	3	4		1994	0	0	2
	1995	14	7	3		1995	0	1	1
Y-12	1991	7	1	0					
	1992	3	2	2					
	1993	2	3	2					
	1994	8	1	2					
	1995	0	1	2					

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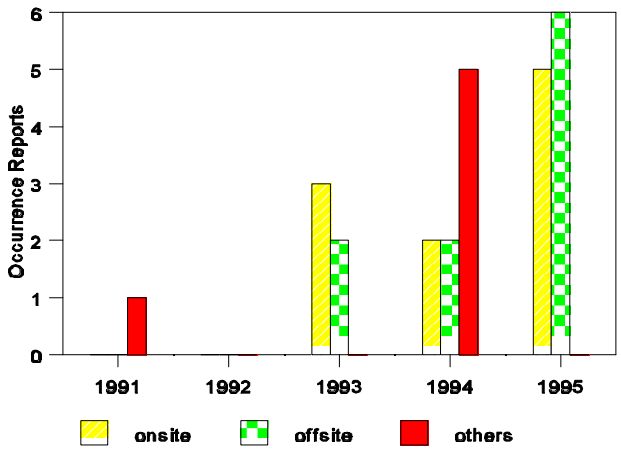
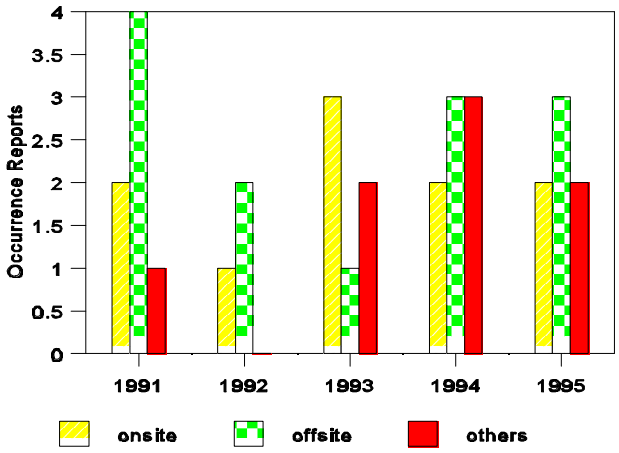
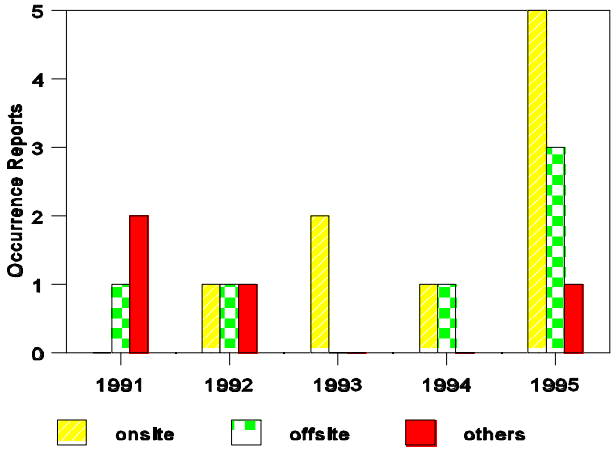


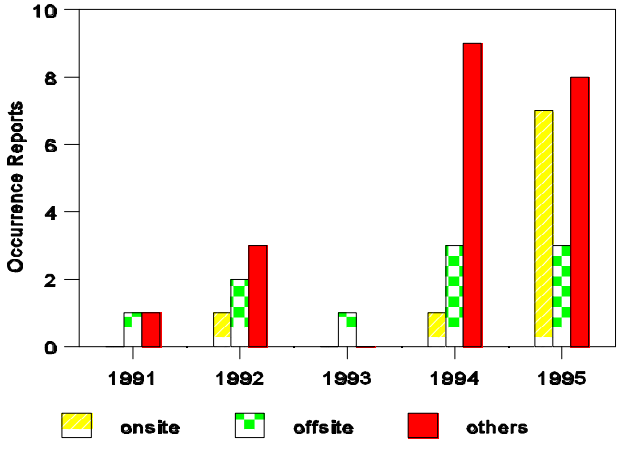
LLNL



ORNL

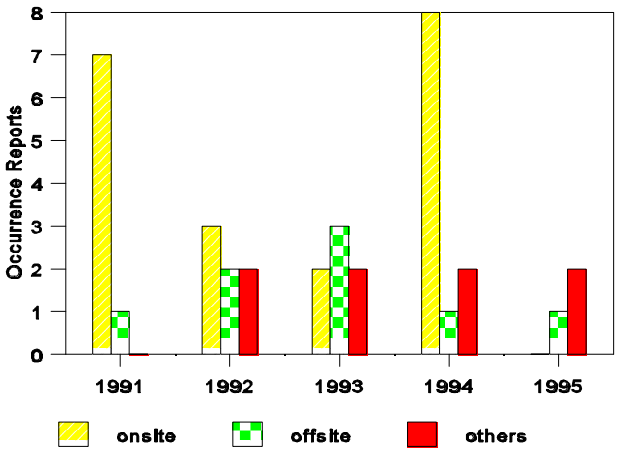


LITC (formerly INEL)

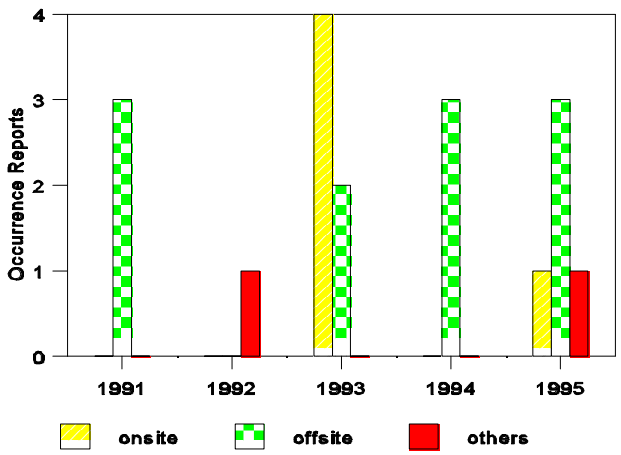


FERM

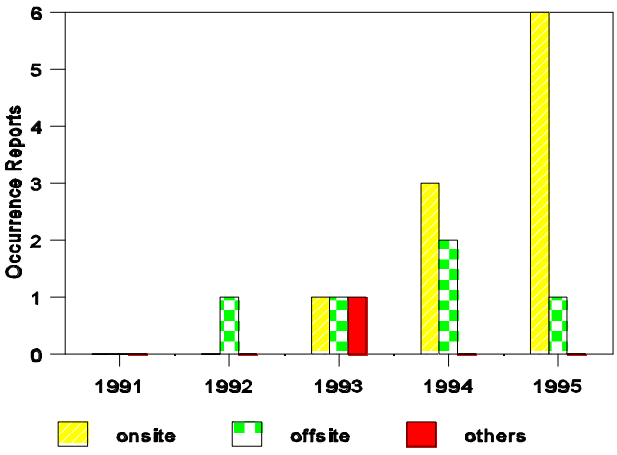
Fig. 4. ORs of shippers (LLNL, ORNL, LITC, FEMP) with greater than 900 shipments



Y-12

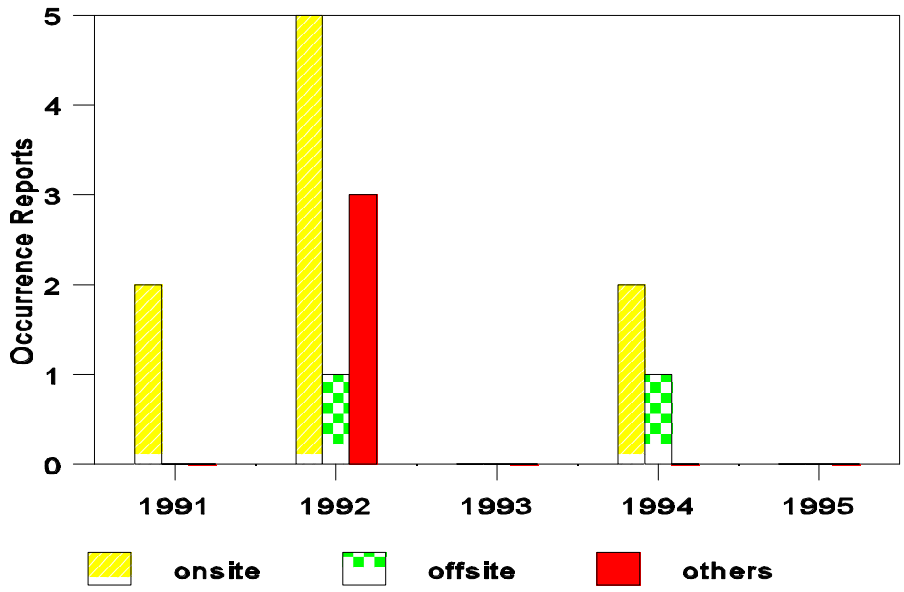


REECO

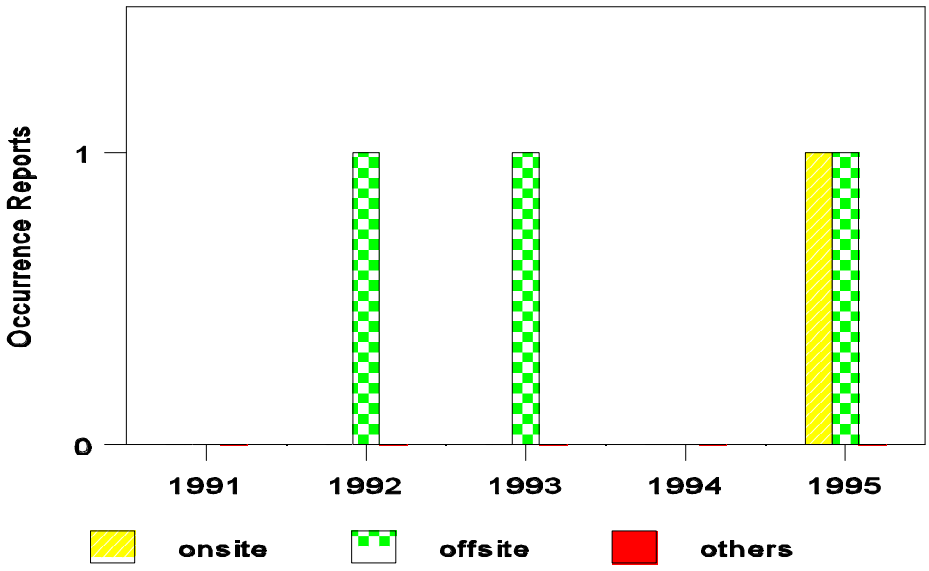


SNL/A

Fig. 5. ORs of shippers (Y-12, REECO, SNL/A) with greater than 900 shipments .



K-25



BNI

Fig. 6. ORs of shippers (K-25, BNI) with greater than 900 shipments.

3. THE NATURE OF OCCURRENCE OF THE INCIDENT

The PATS-assigned NOC basically seeks to define what occurred and to classify the incident according to specific packaging- and transportation-related safety issues rather than to use the more general ORPS NOC assigned to the incident (see ORPS User's Manual, DOE/ID-10319). NOC coding categorizes ORs by unique packaging- and transportation-related criteria to focus on patterns and useful information for Headquarter's use and "lessons-learned." (For a complete discussion of the selection criteria, please see the PATS ORPS MANUAL.) Table 2 presents a listing of the PATS-assigned NOC codes used.

The PATS_OR database was queried to obtain a grouping of the FY 1995 ORs by NOC classification and onsite or offsite designation. Again, any occurrence that happens in an area which is within the boundaries of a DOE site or facility that is fenced or otherwise access-controlled is defined as an onsite occurrence. Offsite occurrences are those occurrences that happen in any area within or outside a DOE site to which the public has free and unlimited access. Table 3 lists the results of the query for ORs that were reported during FY 1995. Table 4 lists the NOC classification of all ORs currently in the database, covering package- or transportation-related ORs selected from October 1, 1990, through September 30, 1995.

ORs created by others, NOC 8, of Table 3 show a marked decline from previous years. Table 3 does show, however, that the main categories of the selected ORs identified in FY 1995 are consistent with the reporting of previous years. Shipping preparation, vehicle or driver safety, and contamination/release are the main categories represented, each totaling 20% of the reported ORs or greater. The table further shows that, just as last year, most of the contamination ORs occurred onsite, whereas the shipping preparation and modal safety ORs are almost equally split between offsite and onsite (consistent with the tabulations of the last two years). The ORs caused by "others" in FY 1994 amounted to 26% of the occurrences. FY 1995 saw a significant drop in this category to 14% of the total ORs for FY 1995.

Complementing the general presentation of Table 4 is Table 5, which presents the PATS NOC categories on a percentage basis by FY. A decrease of contamination-related ORs from FY 1993 through FY 1995 is obvious from looking at the first row of the table. The only other outstanding deviations are the more-than- doubled increase in those ORs attributed to improper hazardous material characterization (NOC 4) and the already mentioned decline in occurrences created by others.

Previously, NOC 4 was designated as "improper waste characterization." Consideration determined that this category should be termed "improper hazardous material characterization" to show that it encompasses more than the strict definition of waste.. However, the increase of ORs categorized as involving improper hazardous material characterization from 7 last reporting period to 19 this period cannot be attributed solely to the broader scope of coverage allowed by the more-inclusive hazardous material term. Review of the ORs of FY 1994 and those of FY 1995 reveals that they are very similar. Hence, the change in this category for this FY has not resulted in significant change in reported data.

Table 2. PATS NOC categories

1. Contamination/release
   - 1A. Radioactive
     - 1A1. Environmental
     - 1A2. Personnel
     - 1A3. Equipment
   - 1B. Hazardous materials
     - 1B1. Environmental
     - 1B2. Personnel
     - 1B3. Equipment

2. Packaging
   - 2A. Damaged
   - 2B. Incorrect selection
   - 2C. Incorrect procedures

3. Storage Incident to Transport

4. Improper Hazardous Material Characterization

5. Shipment Preparation
   - 5A. Shipping papers
   - 5B. Marking
   - 5C. Labeling
   - 5D. Loading and tie-downs
   - 5E. Placards

6. Modal Safety
   - 6A. Motor or driver safety
   - 6B. Aircraft safety
   - 6C. Rail safety
   - 6D. Barge safety
   - 6E. Pipeline safety

7. Reserved

8. Occurrence Created by Others (non-DOE or DOE/Contractor)
   - 8A. Shipping preparation
   - 8B. Packaging
   - 8C. Reserved
   - 8D. Vehicle or driver safety
   - 8E. Contamination
   - 8F. Not otherwise specified (NOS)

Table 3. FY 1995 ORs classified by PATS NOC

PATS NOC categories, FY 1995			
NOC category	Onsite	Offsite	Total
Contamination/Release	41	5	46
Packaging	27	7	34
Storage Incident to Transport	0	0	0
Improper Hazardous Material Charcterization	7	12	19
Shipment Preparation	28	22	50
Vehicle or Driver Safety	24	25	49
Reserved	0	0	0
Occurrences Created by Others	4	28	32
Total ORs:	131	99	230

Table 4. ORs of PATS_OR database classified by PATS NOC

PATS NOC categories reported from 10/01/90 to 9/30/95			
NOC category	Onsite	Offsite	Total
Contamination/Release	192	44	236
Packaging	76	22	98
Storage Incident to Transport	15	2	17
Improper Hazardous Material Charcterization	18	22	40
Shipment Preparation	94	99	193
Vehicle or Driver Safety	93	85	178
Reserved	0	0	0
Occurrences Created by Others	10	166	176
Total ORs:	498	440	938

Table 5. Percentage of ORs by FY

PATS NOC	Percent totals by FY				
	1991	1992	1993	1994	1995
Contamination/Release	28.4	23.4	32.0	21.0	20.0
Packaging	6.9	11.7	7.1	11.3	14.8
Storage Incident to Transport	1.7	1.5	4.8	0.0	0.0
Improper Hazardous Material Characterization	3.4	2.9	2.2	3.8	8.3
Shipment Preparation	15.5	20.4	21.2	21.0	21.7
Vehicle or Driver Safety	23.3	18.2	17.1	17.2	21.3
Reserved	0.0	0.0	0.0	0.0	0.0
Occurrences Created by Others	20.7	21.9	15.6	25.8	13.9
Total ORs:	116	137	269	186	230

The total ORs per year are included in the bottom row of the table for a better representation of the relationship of the percentages. Comparing the NOC percentages per FY shows that occurrences continue to fall into same groupings. The historically consistent pattern of reporting to the ORPS validates the PATS methodology of assigning NOCs.

To present even more detail, all occurrences of the PATS_OR database were searched for the NOC by the FY quarter that they appeared in the PATS Weekly Report or—if historical ORs—by their notification dates. Since ORPS is notified of some reports on dates that are much later than the origination date of the occurrence, a possibility exists that the notification dates of some reports will not neatly lie within a reporting quarter. This overlap is often seen during the first and last week of a quarter. In anticipation of this conflict, PATS groups ORs by the report quarter that they were selected from ORPS as being packaging- or transportation- related, not by their notification dates. Hence, the report quarter that PATS selected the occurrence is used to compare the ORs whenever feasible. Figure 7, which represents Table 5, presents the total ORs for the period FY 1991–1995 on a percentage basis categorized by NOC. Tables 6–10 detail the occurrences by NOC for each category and by quarters of the respective FYs.

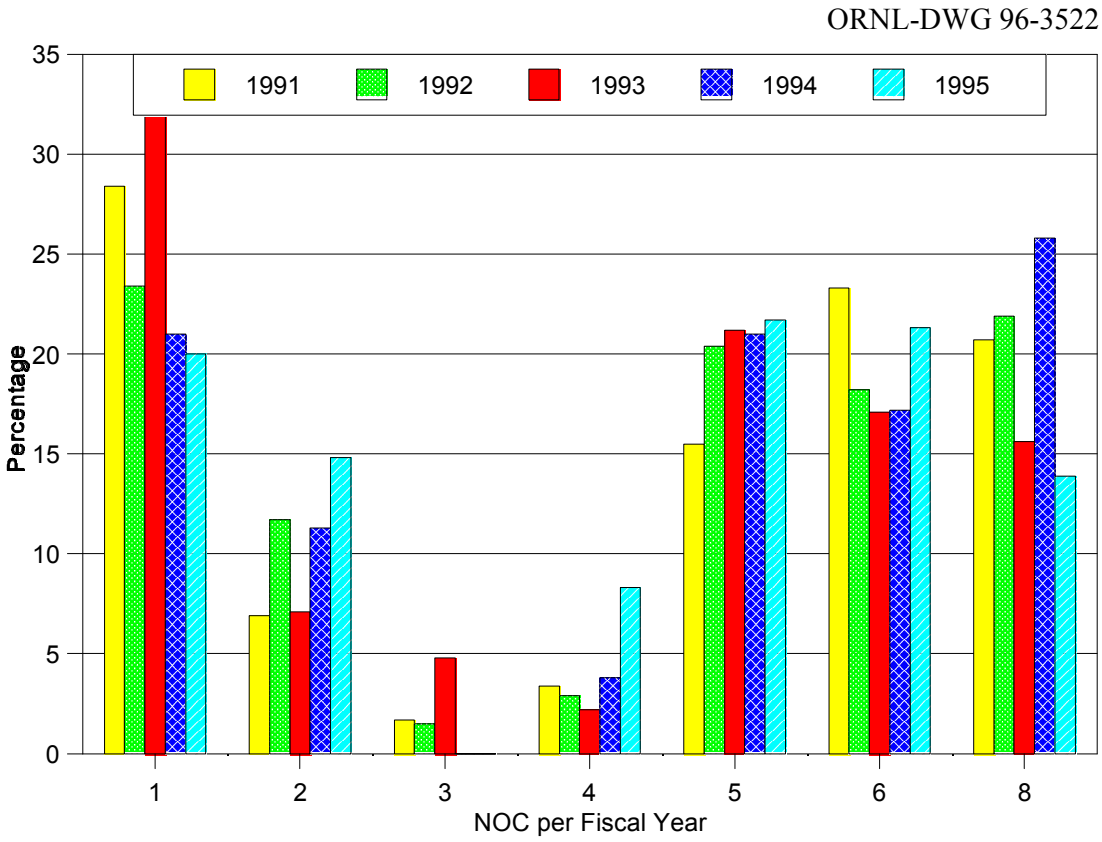


Fig. 7. Percent of ORs by FY, as categorized by NOC.

Table 6. ORs of FY 1991, as classified by NOC

	NOC category							
Quarter	1	2	3	4	5	6	8	Total
First	10	4	1	0	4	10	7	36
Second	13	2	0	1	5	7	8	36
Third	4	1	1	1	5	6	5	23
Fourth	6	1	0	2	4	4	4	21
NOC sum	33	8	2	4	18	27	24	116

Table 7. ORs of FY 1992, as classified by NOC

	NOC category							
Quarter	1	2	3	4	5	6	8	Total
First	8	4	0	1	8	6	7	34
Second	13	3	1	0	6	4	6	33
Third	9	6	1	1	9	7	7	40
Fourth	2	3	0	2	5	8	10	30
NOC sum	32	16	2	4	28	25	30	137

Table 8. ORs of FY 1993, as classified by NOC

	NOC category							
Quarter	1	2	3	4	5	6	8	Total
First	20	3	2	1	10	9	3	48
Second	24	6	9	3	17	7	13	79
Third	23	4	2	2	15	15	13	74
Fourth	19	6	0	0	15	15	13	68
NOC sum	86	19	13	6	57	46	42	269

Table 9. ORs of FY 1994, as classified by NOC

	NOC category							
Quarter	1	2	3	4	5	6	8	Total
First	10	3	0	0	11	9	17	50
Second	8	7	0	2	10	7	9	37
Third	8	6	0	0	11	6	12	45
Fourth	13	5	0	5	7	10	10	54
NOC sum	39	21	0	7	39	32	48	186

Table 10. ORs of FY 1995, as classified by NOC

	NOC category							
Quarter	1	2	3	4	5	6	8	Total
First	16	9	0	7	19	14	10	75
Second	6	9	0	3	10	14	8	50
Third	8	5	0	5	11	8	5	42
Fourth	16	11	0	4	10	13	9	63
NOC sum	46	34	0	19	50	49	32	230

The increase in ORs that involve improper hazardous material characterization has already been examined. The second most noticeable change that occurred in the level of reporting of occurrences is shown by the decrease in the amount of occurrences created by others. Figures 8 and 9 emphasize this trend (which has been previously discussed). Figures 8 and 9 present the ORs that were classified as created by others on a quarterly basis by the FY within which they occurred. Figure 8 presents this information based on the number of occurrences occurring, and Figure 9 presents the information via a percentage comparison.

Table 11 shows the number of ORs reported by contractors to their respective Program Offices during FY 1995. Table 12 shows this same number of ORs reported by the contractors to their respective Operations Offices during FY 1995. Figures 10 and 11 are graphical representations of these data.

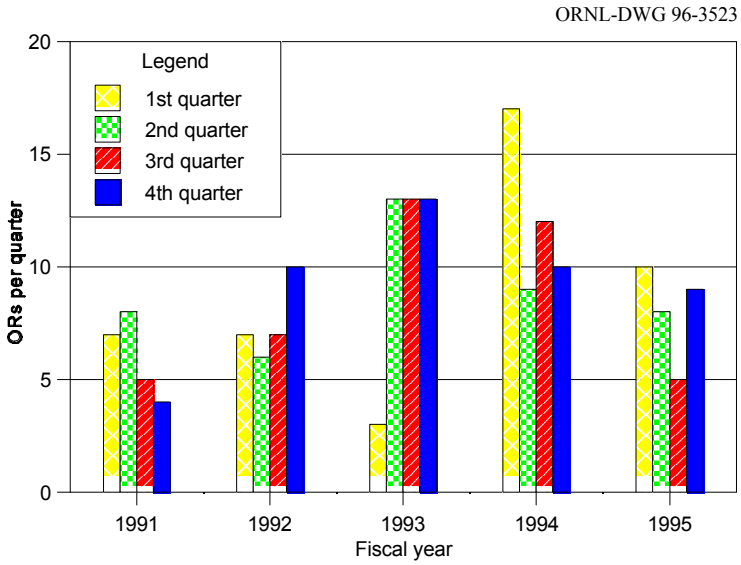


Fig. 8. Category 8 NOC by FY.

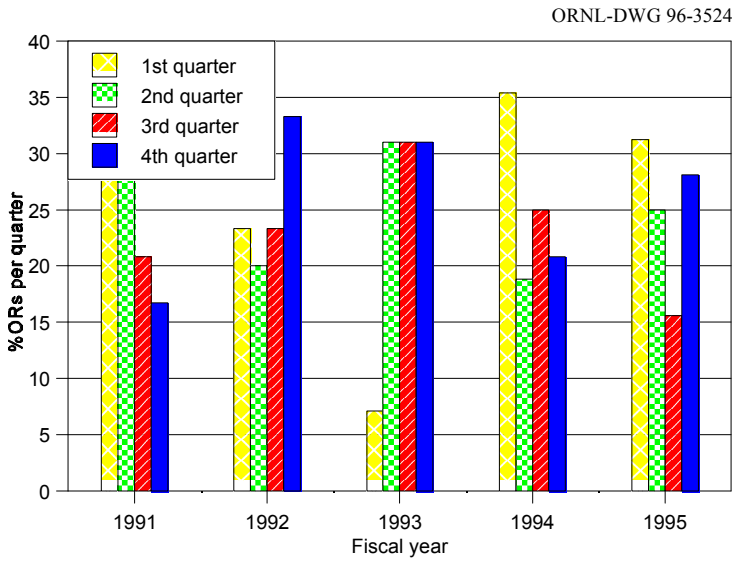


Fig. 9. Category 8 NOC by percentage.

Table 11 reveals that Environmental Management (EM), with 98 ORs for FY 1995, was the Program Office to which the most occurrences were reported (consistent with the last 2 years). The second largest receiver of ORs was Defense Program (DP), which had 78 (compared to 70 last FY). Consistent with last year, the Operations Office reporting the most occurrences to EM was Richland Operations (RL) with 23 ORs. (Thirty total ORs were reported last FY by RL; this year, 28.) The Operations Office under DP which received the most ORs from its contractors was Albuquerque Operations (ALO). (Last year 50 total ORs were reported by ALO; this year, 51.) The overall reporting of occurrences by Operations Offices is consistent with the previous FYs.

Table 11. OR distribution by DOE Program Office for FY 1995

Code	Description	No. of ORs	
		Owner	Others
DP	Defense Programs	66	12
EE	Energy Efficiency and Renewable Energy	1	0
EM	Environmental Management	85	13
ER	Energy Research	19	5
FE	Fossil Energy	18	0
NE	Nuclear Energy	5	0
RW	Radioactive Waste Management	3	1
NN	Nonproliferation and National Security	0	1
UE	Uranium Enrichment	1	0
	Sub Total	198	32
	Grand Total		230

Table 12. OR distribution by DOE Operations Office for FY 1995

Code	Description	No. of ORs	
		Owner	Others
ALO	Albuquerque Operations	46	5
CH	Chicago Operations	14	4
HQ	DOE-HQ	21	1
ID	Idaho Operations	8	1
NVO	Nevada Operations	6	1
OAK	Oakland	14	0
OH	Ohio	9	7
ORO	Oak Ridge Operations	20	7
RFO	Rocky Flats Operations	12	0
RL	Richland Operations	25	3
SR	Savannah River Operations	21	3
USEC	United States Enrichment Corporation	2	0
	Sub Total	198	32
	Grand Total		230

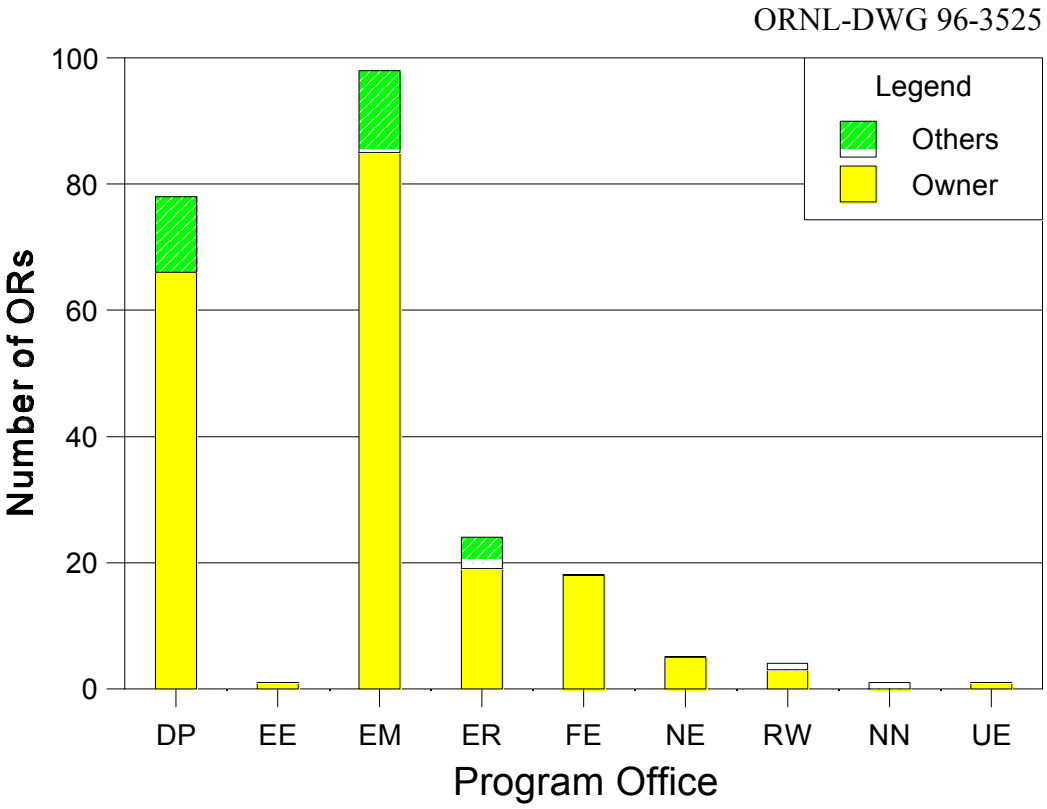


Fig. 10. OR distribution by DOE Program Office.

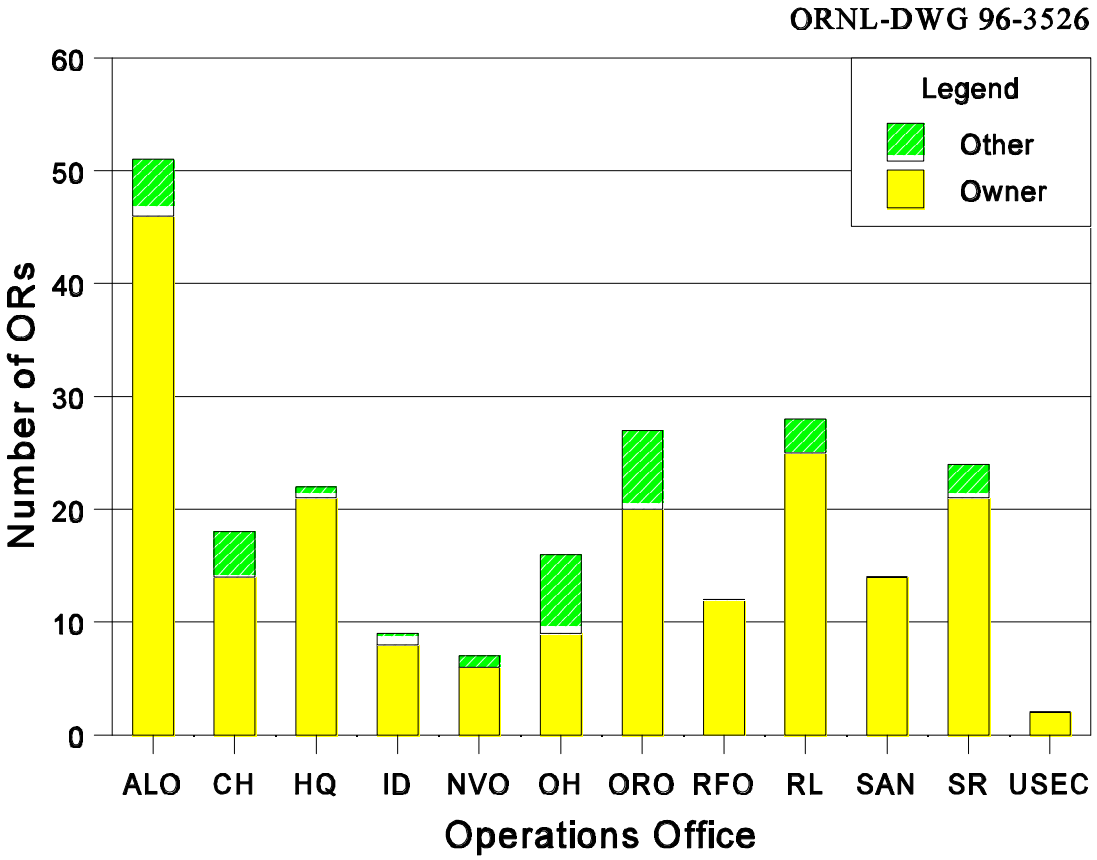


Fig. 11. OR distribution by DOE Operations Office.

4. ROOT-CAUSE ANALYSIS

Root cause is defined by DOE's Root Cause Analysis Guidance Document as

> ". . . the fundamental cause that, if corrected, will prevent recurrence of this or similar events. The root cause does not apply to this occurrence only, but has generic implications to a broad group of possible occurrences, and it is the most fundamental aspect of the cause that can logically be identified and corrected."

The root cause seeks to determine the "why" of an occurrence. Root-cause is assigned by the facility and reported to ORPS; in this report this process will be called "ORPS-assigned" root cause to distinguish it from PATS-assigned NOC coding. Table 13 presents the ORPS root-cause codes from DOE 5000.3B.

Occurrences were examined for the determination by the facility of the root cause. No changes or interpretations were made to the ORPS-assigned root cause. Root-cause assignment for ORs of FY 1995 in the PATS_OR database is given in Table 14. Because root-cause codes are generally assigned only to final reports, the reports listed in the table are final ORs. Table 15 gives a matrix of the PATS NOC codes and the ORPS root-cause codes for ORs selected during FY 1995. [Note that because the previous total number of ORs in the database includes ten-day reports as well as finals, earlier tables (such as Table 9) total more than the reports in Tables 14 and 15 whose total is limited to the finalized ORs.]

Table 14 shows that facilities have assigned almost equally personnel error and management problems as the most frequent root cause. The third highest cause of the incidents was assigned to equipment/material problems. These three predominant root causes were the same root causes that were assigned most in FY 1994 and, furthermore, are in the same sequence and nearly the same proportion. These three areas have historically been the three most likely causes of occurrences, and there appears to be no change in cause of occurrences. EH-32 is aware of this trend and will address its technical assistance programs to assist contractors with these problem areas.

Table 15 shows the PATS NOC codes cross-referenced with the ORPS-assigned root causes. This very useful table gives the analyst a lead as to the relationship between the “what” and the “why.” Hence, more information is available on which to (1) assess the effectiveness of the root-cause assignment, (2) judge the appropriateness of corrective actions, and (3) possibly use this additional information to prevent recurrence. The chart shows that 45% of contamination incidents (NOC code 1) have been caused mainly by management problems (root-cause code 6) and 19% of contamination incidents have been caused equally by equipment/material problems (root-cause code 1) and personnel error (root-cause code 3). Inadequate administrative control was the main reason given for management problems being selected as the root of the contamination incidents. Further, 32% of shipping preparation incidents (NOC code 5) have also been caused mainly by management problems (root-cause code 6) and 29% of shipping preparation incidents have been caused by personnel error (root-cause code 3).

Table 13. ORPS root-cause codes (ORPS User's Manual, DOE/ID-10319)

1. Equipment/material problem
   - 1A. Defective or failed part
   - 1B. Defective or failed material
   - 1C. Defective weld, braze, or soldered joint
   - 1D. Error by manufacturer in shipping or marking
   - 1E. Electrical or instrument noise
   - 1F. Contamination
2. Procedure problem
   - 2A. Defective or inadequate procedure
   - 2B. Lack of procedure
3. Personnel error
   - 3A. Inadequate work environment
   - 3B. Inattention to detail
   - 3C. Violation of requirement or procedure
   - 3D. Verbal communication problem
   - 3E. Other human error
4. Design problem
   - 4A. Inadequate man-machine interface
   - 4B. Inadequate or defective design
   - 4C. Error in equipment or material selection
   - 4D. Drawing, specification, or data errors
5. Training deficiency
   - 5A. No training provided
   - 5B. Insufficient practice or hands-on experience
   - 5C. Inadequate content
   - 5D. Insufficient refresher training
   - 5E. Inadequate presentation or materials
6. Management problem
   - 6A. Inadequate administrative control
   - 6B. Work organization/planning deficiency
   - 6C. Inadequate supervision
   - 6D. Improper resource allocation
   - 6E. Policy not adequately defined, disseminated, or enforced
   - 6F. Other management problem
7. External phenomenon
   - 7A. Weather or ambient condition
   - 7B. Power failure or transient
   - 7C. External fire or explosion
   - 7D. Theft, tampering, sabotage, or vandalism

Table 14. FY 1995 ORs of database classified according to root cause

No.	ORPS root-cause code	Onsite	Offsite	Total
1	Equipment/Material Problem	18	6	24
2	Procedure Problem	6	8	14
3	Personnel Error	21	33	54
4	Design Problem	4	3	7
5	Training Deficiency	3	1	4
6	Management Problem	26	16	42
7	External Phenomenon	0	1	1

Table 15. FY 1995 PATS NOC codes and ORPS root-cause codes

Root cause	PATS NOC code								Total
	1	2	3	4	5	6	7	8	
1	6	8	0	0	1	5	0	4	24
2	3	3	0	0	6	1	0	1	14
3	6	4	0	3	8	23	0	10	54
4	2	0	0	1	2	0	0	2	7
5	0	1	0	0	2	1	0	0	4
6	14	3	0	6	9	4	0	6	42
7	0	0	0	0	0	1	0	0	1
Total	31	19	0	10	28	35	0	23	146

Notes: ORPS Root-Cause Codes
1. Equipment/Material Problem
2. Procedure Problem
3. Personnel Error
4. Design Problem
5. Training Deficiency
6. Management Problem
7. External Phenomenon

PATS NOC Codes
1. Contamination/Release
2. Packaging
3. Storage Incident to Transport
4. Improper Hazardous Material Characterization
5. Shipment Preparation
6. Modal Safety
7. Reserved
8. Occurrences Created by Others

The overwhelming majority of the modal safety occurrences (66%) were caused by personnel error. Examination of the 23 occurrences caused by personnel error for modal safety revealed the following details:

Personnel error		Modal safety occurrences
3A	Inadequate work environment	0
3B	Inattention to detail	10
3C	Violation of requirement or procedure	6
3D	Verbal communication problem	0
3E	Other human error	7

This analysis gives a better picture of where the problems actually lie. Because this root-cause also contains the only reference to noncompliance (3C), it is also useful in determining the attitudes of personnel toward regulatory issues.

Of the 146 ORs assigned root-cause codes, 37% attribute personnel error as the cause, and 29% credit management problems as the root cause. The evaluation of Table 15 affords for our understanding the cause of some preventable occurrences and the means of addressing them. It also offers valuable guidance for program direction. Technical assistance programs should focus on the root causes of the most prevalent occurrences. Assessments by HQ and Operations Offices should look to the chart for clues as to any underlying problems of a particular site. Quality assurance (QA) programs and onsite assessment teams can use the chart to pin-point programmatic weaknesses and areas where violations are most likely to occur. Analysis of this chart can provide the basis for future programs, assuring that limited monies and technical resources are allocated to the areas which can be most productive in reducing deficiencies.

5. EVALUATION OF EFFECTIVENESS OF CORRECTIVE ACTIONS

To determine the appropriateness of reported corrective actions to remedy an occurrence and prevent recurrence, all corrective action of occurrences categorized in the ORPS as unusual or emergency were reviewed. It should be emphasized that more than reviewing a site's suggested corrective actions is required to determine whether an action is suitable to close out an OR and prevent recurrence. More details surrounding the closeout, an understanding of site procedure, and the occurrence history need to be known. Therefore, the evaluations made on the effectiveness of close-out must be seen as technical judgments based on a limited presentation of facts and information contained in the OR itself.

5.1 EVALUATION CRITERIA

To evaluate the effectiveness of proposed corrective actions, the following evaluation criteria have been established:

1. Satisfactory. The implementation of the corrective actions should correct the deficiency and significantly reduce the likelihood of recurrence;

2. Conditional. The implementation of the corrective actions should correct the deficiency but may not significantly reduce the likelihood of recurrence; or the actions may be sufficient, but more details and assurances are needed to positively make the determination; and

3. Unknown. The corrective actions do not appear to adequately resolve the deficiency and/or address recurrence; or more information is needed on the details of the corrective actions and their implementation plan.

The selection of a criterion is the technical judgment of the evaluator. Stating that effects of corrective actions are "unknown" does not imply that the contractor has failed to propose adequate steps to address the inadequacy; rather, it says that the contractor has not presented enough information or details to evaluate the incident based on the limited input of the OR. It is ultimately up to the contractor's Operation Office to make the determination of adequacy.

5.2 CORRECTIVE ACTION EFFECTIVENESS FOR EMERGENCY- AND UNUSUAL-CATEGORIZED ORS

In the following tables, the report number is followed by a very brief description of the incident and an evaluation of the proposed corrective actions based on the criteria described in Sect. 5.1. A more detailed description of the OR and its associated corrective actions can be found in Appendix A. The reports categorized as unusual are presented after the single emergency report.

Of the 21 reports selected to be examined, 17 were judged satisfactory, and 4 were considered to be conditional or unknown based on the detail presented in the proposed corrective actions.

Table 16. Evaluation of effectiveness of corrective actions for ORs categorized as emergency or unusual during FY 1995

Report No.	Description	Effectiveness
ORO--FERM-FEMP-1994-0074 [emergency]	A trailer carrying a sea/land container of low specific activity material overturned but did not contaminate.	Satisfactory
ALO-LA-LANL-MATWAREHS-1994-0010	Four shipping containers of SNM had excessive radiation levels for the shipment type and violated DOT regs.	Satisfactory
ALO-LA-LANL-SERVICESS-1995-0012	A government vehicle collided head-on with a private vehicle, resulting in minor injury to three people.	Satisfactory
ALO-PI-MMSC-PINELLAS-1995-0004	Standard gas bottles containing low-level tritium contamination were discovered to have been shipped offsite.	Satisfactory
ALO--UMTR-UMTRA-1995-0012	A haul unit overturned, spilling over 15 lb of low level tailings material on a road and some antifreeze.	Satisfactory
CH-AA-ANLE-ANLEEWM-1994-0005	Waste oil contaminated by PCBs was shipped to a waste oil reclaimer.	Satisfactory
HQ--BPOI-NPRC-1995-0021	During construction, earthmoving equipment struck an underground 12-in. pipeline, releasing 210 bbl of oil.	Unknown
HQ--BPOI-NPRC-1995-0022	During construction, a main oil transfer line was drilled into, releasing 130 bbl of oil.	Unknown
HQ--FDS-NPOSRCUW-1994-0006	Because of internal corrosion, an oil shipping line leaked 15 barrels of oil to the ground.	Conditional
HQ--SPR-WH-1995-0002	During a routine crude oil transfer, 500 bbl of oil escaped from an ultrasonic test pit.	Satisfactory
ID--LITC-LANDLORD-1994-0006	During a fuel inventory review, two shipping drums were found to be improperly marked.	Satisfactory
ID--LITC-TOWN-1995-0002	An onsite shipment was transferred offsite without limiting public access to its movement.	Satisfactory
OH-FN-FERM-FEMP-1995-0036	A limited-quantity shipment from a subcontractor had an excessive exterior surface radiation dose rate.	Satisfactory
OH-FN-FERM-FEMP-1995-0081	An exclusive-use transport vehicle with excessive contamination levels was received from a non-DOE shipper	Satisfactory
RFO--EGGR-UTILITIES-1994-0015	Scrap metal contaminated with uranium radioisotopes was sent to a local vendor.	Satisfactory
RL--PNL-PNLBOPEM-1995-0010	Capsules of cesium chloride were found to be leaking and contaminating a truck bed.	Satisfactory
RL--WHC-SOLIDWASTE-1995-0004	A documentation review of labpack waste indicated the potential for incompatible waste stored together.	Satisfactory
SAN--SU-SLAC-1994-0011	Loose and fixed radioactive contamination was found in a vehicle routinely used by health physics.	Satisfactory
SR--WSRC-CMD-1994-0008	Forty-five gallons of diesel fuel spilled after a fuel tank valve of a dump truck was broken by a piece of wood.	Satisfactory
SR--WSRC-RBOF-1994-0012	While fuel was being unloaded from a pegase cask located in an underwater cask basin, difficulties arose.	Satisfactory
SR--WSRC-WVIT-1995-0046	Mercury-contaminated water spilt from a temporary transfer line when a coupling broke as a result of corrosion.	Unknown

6. CONCLUSIONS

The PATS program selectively identifies ORs for their transportation or packaging impacts. During FY 1995, of the 7,182 total occurrences listed on the ORPS, 230 were identified as having had packaging or transportation impacts. This is a small percentage of the total occurrences, 3.2%. The percentages of the previous years for FY 1992– FY 1994 for packaging- and transportation-related occurrence were 2.5, 3.4, and 3.1, respectively. The percentages of transportation occurrences have never exceeded 6.9% (FY 1991), and the overall impacts to the safety of transportation and packaging operations has remained relatively constant.

To provide background data to enable program managers to reduce the number of occurrences further, this review has examined the major shippers and their occurrence rate, the specific nature of the occurrence in transportation terms, the root causes and their relationship to the nature of the occurrence, the corrective actions, and the lessons learned. Through this examination and evaluation, the major causes of problems and the corrective actions to prevent recurrence are being identified. These "safety concerns" and "solutions" are reported to the packaging and transportation community through lessons-learned bulletins and this annual report.

As a baseline for evaluation of the number of occurrences, the only data available are found in the DOE Shipment Mobility/Accountability Collection (SMAC), which maintains records on the total number of shipments performed by DOE contractors. Data for hazardous materials shipments conducted offsite may be selected. No similar data are available for onsite transfers. From the SMAC data, the major shippers of hazardous materials were determined, and the numbers of occurrences reported by the major shippers are tabulated by the onsite, offsite, or "others" occurrences. The SMAC data identified 21 contractor shippers who each had greater than 300 hazardous material shipments in FY 1995. The numbers of occurrences per major shipper are consistently low. Los Alamos National Laboratory and Westinghouse Savannah River Company had seven offsite occurrences each, the major shippers had one to six offsite occurrences attributed solely to their operations. The historical data from 1991 to 1994 indicate similar results.

Those shippers with the greatest total number of shipments are also the more experienced and may avoid occurrences because of this expertise. Also, some shippers tend to have repetitive types of material being shipped. Others, such as ORNL, have a great variety of hazardous materials and, consequently, require considerable training and expertise to package and ship this array of material correctly.

For more effective evaluation of the problems related to the transportation and packaging operations of DOE contractors, as reported on the ORPS incident reports, the PATS program developed a coding system for the identification of the transportation-oriented nature of occurrence. Through this coding system, it was determined that almost a third (21 of 71) of the offsite occurrences not caused by others were related to shipping preparation. The shipping preparation NOC includes regulatory noncompliances of shipping papers, marking, labeling,

placarding, loading, and tie-downs. Modal safety is the most common NOC for offsite occurrences (25 of 71 offsite occurrences). Onsite occurrences were coded most frequently as contamination resulting from a transportation-related occurrence (41 of 131 onsite occurrences), closely followed by occurrences related to packaging (27), shipping preparation (28), and modal safety (24). The totals of the historical data again are similar and support the results from FY 1995.

DOE Order 5000.3B requires that the occurrence-reporting facility assign a root cause to the occurrence as part of the finalization and closure of the reporting process. Analysis of this data provides more insights into the problems associated with transportation occurrences. Surprisingly, the root causes for onsite or offsite are the same. "Personnel error" and "management problems" overweigh all other causes of occurrences. The majority of modal safety occurrences (66%) were assigned a root cause of personal error. These 23 occurrences are further divided into three subcategories: inattention to detail (10), violation of requirement or procedure (6), and other human error (7).

The effectiveness of the corrective actions proposed to address occurrences were examined for 21 of the total 230 reports. This included the one emergency occurrence of FY 1995 and all occurrences categorized as unusual. Criteria were developed for judging the acceptability of the proposed actions; and the reports, corrective actions, and evaluations are summarized in an attachment to this report. Eight-one percent of the ORs were evaluated as satisfactory. The evaluation was based primarily on information obtainable directly from ORPS. Updates to some of the "conditional" or "unknown" may have been posted to the ORPS since this evaluation was completed, which could raise the total percentage of satisfactory closures. Reviewing the summaries of corrective actions provides a glimpse of the lessons learned process and could lead transportation professionals to recognize potential problems and how they may apply preventive measures (such as upgrading aging pipelines routinely rather than awaiting corrosion failure).

The purpose of the PATS program is to provide technical assistance and support to the DOE hazardous materials packaging and transportation programs. In fulfillment of that mission, an electronic bulletin board was created on the World Wide Web to allow users of the Internet to access the products of the PATS program, such as the annual and quarterly reports on related occurrences, the lessons learned bulletins, and reviews from the Federal Register. Through accessing other related servers and providers of related information, PATS provides the DOE community and associated users with a compendium of information pertinent to packaging and transportation concerns.

Based on ORPS data and site contact and follow-up, the PATS program developed two lessons-learned bulletins and a pilot lessons learned newsletter during the year. The bulletins were distributed to the DOE community through the PATS Special Interest Group, which is sponsored by EH-32 and posted to the PATS bulletin board on the World Wide Web. The subjects of these bulletins were:

PATS LL 3720-95-01, Sharing Site to Site
PATS LL:3720-95-02, Empty? Make Sure!
PATS LL:3720-95-03, Maintaining Protocol for Offsite Recovery.

As an overall conclusion, the packaging and transportation contractor operations have relatively few occurrences, given the large number of shipments and transfers that occur each year. The trends are showing consistency in the NOC and the root cause. A review of corrective actions indicates that the resolution of the occurrences is proceeding satisfactorily; more follow-up with site contact is suggested to determine if recurrence is actually prevented. The "lessons learned" bulletins from this project have been received enthusiastically by the operators in the field, who have encouraged the continuation of this program.

At this date, only minimal continuation of the program is foreseen. Budget cuts have eliminated the Weekly Reports and may impact data collection for the database to the extent such that an annual report will not be available for FY 1996. Continuation of lessons learned may be made possible through combined efforts of EM and EH. All resource avenues are being explored to keep this program viable.

Appendix A:

EVALUATION OF EFFECTIVENESS OF CORRECTIVE ACTIONS

ALO--LA-LANL-MATWAREHS-1994-0010

An emergency shipment of four shipping containers of special nuclear material was sent from IRT Corporation to Los Alamos for storage. The shipment, which was not shipped as "Exclusive Use" by the carrier, had radiation levels in excess of DOT allowable limits for its type. Additionally, none of the drums was marked "Reportable Quantity," and all of them were incorrectly labeled.

Corrective Actions: The drums were placed in a radiologically controlled vault and later relabelled and sent to the plutonium facility for storage. LANL sent a letter to the shipper describing the DOT noncompliances.

Evaluation of Proposed Action: Unknown. (The actions in and of themselves will not prevent recurrence, especially since the incident was caused by another party.)

ALO-LA-LANL-SERVICESS-1995-0012

A government-owned vehicle was involved in a head-on collision with a privately owned vehicle. Three of the four people involved in the accident were hospitalized with non-life-threatening injuries; the cost for repairs of the government vehicle was in excess of $5,000.

Corrective Actions: The incident was reviewed with the government driver, and appropriate personnel action was taken. Also, a safety meeting was held with other crew members to review the cause of the accident and to reinforce the job safety requirements. While personnel actions cannot be eliminated, enforcement of procedures and reinforcement of requirements should prevent a similar occurrence.

Evaluation of Proposed Action: Satisfactory

ALO-PI-MMSC-PINELLAS-1995-0004

Health Physics personnel discovered that standard gas bottles containing low-level tritium contamination had been sent to both DOE and non-DOE commercial facilities offsite. Because tritium smears do not involve a routine examination of gas bottles for internal contamination, some contaminated gas bottles may be released.

Corrective Actions: Health physics personnel smeared all gas bottles not connected to operational equipment for internal contamination. All bottles will be surveyed for internal tritium contamination. Shipper files are being researched to determine which bottles sent out of the plant have not been returned. Receiving sites were contacted and notified of the problem and advised of the corrective actions to follow. Corrections to updated procedures now recognize the potential for internal contamination that can be caused by using contaminated equipment. The contaminated mass spectrometer, which was the cause of the spread of contamination, was taken

out of service. Chemistry lab procedures were revised based on the results of walkdowns by health physics staff to identify radiological concerns. The Health Physics Department shall be required to sign-off all new and revised chemistry lab procedures.

Evaluation of Proposed Action: Satisfactory

ALO--UMTR-UMTRA-1995-0012

About 15 lb of low-level tailings material and 4 to 5 gal of antifreeze and hydraulic fluid were spilled onto an access road when a dump haul truck overturned. The haul truck slid, broke a power pole, and disrupted electrical service. The driver was cited for driving under the influence of alcohol and for careless driving.

Corrective Actions: The employee who had ignored training and violated the law was terminated for cause after drug screen test results showed the presence of alcohol. The incident was reviewed with other employees, and company procedures were emphasized. A further corrective action is to increase site management personnel oversight of contractor truck foremen and to assess drivers coming on-shift for signs of impairment.

Evaluation of Proposed Action: Satisfactory.

CH--AA-ANLE-ANLEEWM-1994-0005

A waste oil reclaimer, Enviropur, reported to Argonne's Waste Management Department that waste oil shipped from Argonne to Enviropur earlier was contaminated by PCBs. This claim was confirmed.

Corrective Actions: The direct cause of this occurrence was an inadequate procedure for sampling and analyzing waste oil. The major lesson learned was that historical waste which has been poorly tracked and documented has the risk of being improperly identified and disposed. The corrective actions include conducting a comprehensive inventory of PCB items and materials onsite including in-service, stored, historical, and orphaned items and materials that have a significant potential for PCB contamination. Additional guidelines for control and management of drums were developed. The lessons learned were incorporated into environmental, safety, and health (ESH) training for waste handling.

Evaluation of Proposed Action: Satisfactory.

HQ--BPOI-NPRC-1995-0021

Description: During the construction of a well pad for 278-10G, earthmoving equipment struck an unmarked, underground 12-in. sales pipeline that resulted in a crude oil spill of ~210 bbl of oil, 140 bbl of which were recovered.

Corrective Actions: The pipe was repaired, and cleanup operations were initiated.

Evaluation of Proposed Action: Unknown. (In addition to training, warning signs and markers need to be present to help preclude the occurrence of such an incident. Corrective actions not stated.)

HQ--BPOI-NPRC-1995-0022

Description: During construction of the well pad for 28-11G, a deadman anchor crew inadvertently drilled into a principal transfer line and caused a crude oil spill of approximately 130 bbl, 30 of which were recovered. The pipeline was marked on both the east and west sides of the well location, but it was still overlooked by the subcontractor performing the work.

Corrective Actions: The shipping pumps were shut down while cleanup and repair operations remediated the spill.

Evaluation of Proposed Action: Unknown. (Corrective actions not stated. No assurance given that the possibility of a future incident has been decreased significantly.)

HQ--FDS-NPOSRCUW-1994-0006

Because of internal corrosion during 20 years of use, an oil shipping line leaked 15 bbl of oil to the ground.

Corrective Actions: The wells were taken off line, the shipping pump was shut down, and the shipping line was isolated. Similar lines need to be evaluated and observed to allow timely replacement (as budget constraints allow) to help prevent leak recurrence and costly cleanup. A corrective action was written to replace the affected area of pipe with a 2-in. pipe so as to increase fluid velocities, which would help retard the degradation of pipes by preventing growth of bacteria colonies.

Evaluation of Proposed Action: Conditional (The effectiveness of the corrective actions will be largely determined by whether the budget allows the needed timely evaluations and replacements.)

HQ--SPR-WH-1995-0002

During a routine crude oil transfer, a field operator reported that oil was escaping from an ultrasonic test pit and flowing into a road ditch toward a local lake. About 500 bbl of oil were released.

Corrective Actions: The oil was completely contained onsite, and cleanup immediately began. Ultrasonic inspections shall be performed of all 2-in. drains on the north crude oil manifold and shall be repaired as needed. Another action calls for the development and implementation of a program that will flush 2-in. drains semiannually to remove trapped water (the specified root cause of this incident). A task to complete excavation and inspection of drains on the south crude oil header will be added to the life extension package.

Evaluation of Proposed Action: Satisfactory.

ID-LITC-LANDLORD-1994-0006

In violation of DOT regulations and internal procedures, two shipping drums were improperly marked "DOT L6" instead of the recognized "DOT 6L." This violation was discovered during fuel inventory review of stored material.

Corrective Actions: Any noncompliant conditions discovered during the site's 100% inventory verification will be corrected. To prevent non-specification DOT drums from being brought into the storage area, the fuel receipt and storage operating procedure will be revised to require operations personnel to verify the drum type of all drums brought into the area against a list of approved DOT drums. Plans are being made to remove the drums from storage, repack them into approved DOT 6M shipping drums, and return them to storage.

Evaluation of Proposed Action: Satisfactory.

ID--LITC-TOWN-1995-0002

Description: A shipment, intended to be transferred under onsite procedures, was not taken out of commerce by limiting public access to its movements; a shipment checklist was not completed as required by site procedures.

Corrective Actions: Steps have been taken to modify internal company procedures to identify requirements for blocking access. A temporary order was signed Aug. 30, 1995, that states: "All radioactive shipments traveling to and from the Radioactive Waste Management Center (RWMC) will have a lead and trailing escort . . ."

Evaluation of Proposed Action: Satisfactory

OH--FN-FEMP-1995-0036

A radioactive material packaged shipped as a limited quantity from a subcontract lab was discovered to have exterior surface radiation dose rates in excess of DOT shipping regulations. The package was a 5-gal drum of unused samples that were being returned to the FEMP after analyses were performed.

Corrective Actions: Personnel moved the drum to a storage building within the controlled area of the facility. FEMP notified the subcontract lab of the incident. FEMP, which detected the violation but did not commit it, accepted reporting responsibility for the incident. The shifting of samples inside the cans to the outer side of the container produced the higher dose rate. The subcontract lab was told to package samples so that shifting of the inner containers do not occur.

Evaluation of Proposed Action: Satisfactory. (Severe corrective actions on the part of the non-DOE shipper are not warranted at this time.)

OH--FN--FERM-FEMP-0081

An exclusive-use transport vehicle carrying empty packages shipped as Radioactive Material Excepted Package-Empty Packaging was received from a non-DOE shipper with removable contamination levels in excess of DOT shipping regulations. The maximum removable contamination found was 32,000 dpm/100 cm^2 on the interior of the bed of the closed transport vehicle.

Corrective Action: The trailer was decontaminated and radiologically released. The shipper was notified of potential DOT violation. Though not committing the violation, FEMP did detect the potential violation (which reinforces the adequacy of its radiological control program) and accepted the reporting responsibility. A recommendation was made to the acquisitions manager to inform the vendor of pertinent contract requirements. Property Management will establish a tracking system to track nonconformances of DOT regulations by vendors.

Evaluation of Proposed Action: Satisfactory.

ORO--FERM-FEMP-1994-0074 [categorized as Emergency]

A tractor-trailer truck carrying a sea/land container full of low-specific activity (LSA) material struck a curb and overturned on an interstate highway. The intact sea/land container fell into the median.

Corrective Actions: The tractor trailer was removed, and later the unbreached sea/land container was removed with instructions from the FEMP emergency operations center. No contamination was present. FEMP management suspended all operations using the trucking company until a Motor Carrier Evaluation could be completed.

Evaluation of Proposed Action: Satisfactory

RFO--EGGR-UTILITIES-1994-0015

A shipment of scrap metal that had been sold to a local vendor was reported by the vendor as having alarmed the radiation detector at the entrance of the scrap yard. A radiation check indicated 1.25 mR per hour and identified the major peaks as radioisotopes in the uranium decay chain.

Corrective Actions: Procedures already identify and control radioactivity, which is a result of the various production processes which occur at the site, but this incident involved naturally occurring radioactivity in commercial items located outside radiologically controlled areas. A process will be put in place to ensure that every vehicle that contains excessed material leaving the site will be given an external scan for radioactivity using a sensitive radiation detection device. Permanent radiological scanners shall be installed at the pertinent weight scales.

Evaluation of Proposed Action: Satisfactory

RL--PNL-PNLBOPEM-1995--0010

Description: The bed of a truck which had transported two casks containing cesium chloride capsules was found to have beta-gamma contamination reading 150,000 dpm for a large smear. The casks were found to have contamination of 300,000 dpm per 100 cm^2. All four capsules were inside individual, mechanically-sealed overpacks loaded dry and then stored in a wet storage basin.

Corrective Actions: It was determined that failure of the mechanical seal of the overpacks allowed water to seep into the annulus between the overpack and the capsule during underwater basin storage, which led to corrosion of the copper seal. Facility procedures will be developed to address checking/draining residual water from the overpacks prior to shipment of the enclosed capsules. Documented training sessions will be conducted with all resident operators and radiological control staff to review this event and emphasize the need to report unusual conditions.

Evaluation of Proposed Action: Satisfactory.

RL--WHC-SOLIDWASTE-1995-0004

Description: A documentation review of two containers of stored, labpack waste indicates the potential for incompatible waste. This waste was similar to other waste which had formerly been rejected because it had been determined that it was incompatible. Further review has revealed other inconsistencies with stored waste, and this report serves as a roll-up account of them.

Corrective Actions: A treatment and segregation plan is nearing completion for the waste containers. Nondestructive evaluation is being performed on these containers to determine as much as possible about the current status and configuration of the internal containers. The other identified containers of discrepant waste have been corrected and stored in a RCRA complaint storage area. At this point in the verification process, Solid Waste Management feels that there is no incompatibility problem; however, there is an issue of waste not being fully characterized before packaging and shipment to the storage area. Criteria for compatibility will be established to provide screening tools for identifying potential issues. Personnel will be trained to increase their awareness of waste acceptance requirements. A new waste acceptance process will be implemented to improve efficiencies and provide a more thorough technical review of the waste. All labpacks will be screened by the generator and Waste Acceptance Services representatives who are knowledgeable of reaction chemistry.

Evaluation of Proposed Action: Satisfactory.

SAN-SU-SLAC-1994-0011

Description: Loose and fixed radioactive contamination was found in an Operational Health Physics vehicle. The contamination source was traced to the technician using his bare hands to place unpacked heat exchanger filters onto the truck.

Corrective Actions: Procedures for the filter exchange, pick-up, survey, and disposal will be developed, and the technicians shall receive contamination control training.

Evaluation of Proposed Action: Satisfactory.

SR--WSRC-CMD-1994-0008

Description: When a piece of wood struck a fuel tank valve and broke the valve connector, 45 gal of diesel fuel spilled on to the ground from a dump truck which was hauling soil to a landfill.

Corrective Actions: Approximately 30 cubic yards of contaminated soil were excavated and temporarily stored, to await transfer to bioremediation. The reoccurrence of such an incident is remote. Construction will continue to ensure that the landfill area is compacted and clear of all visible debris to help prevent reoccurrence. If future events are experienced, Construction will take the lead to reevaluate the design/guarding of the fuel lines on dump trucks.

Evaluation of Proposed Action: Satisfactory

SR--WSRC-RBOF-1994-0012

Description: Problems were encountered during the unloading of foreign fuel from a Pegase cask located underwater in the cask basin. One tube became free from the fuel assembly and settled to the floor of the cask basin. An improved fuel-handling tool was built and used to complete unloading of the cask. The tool used was not formally documented and had not received an engineering review before it was put to use.

Corrective Actions: The procedures for unloading Pegase and TN-7 casks were revised. The facility personnel were provided 8 h of formal training, including remedial training on a procedure to list all approved tools for fuel handling. The facility personnel have developed increased management oversight and coaching strategies to ensure that the lessons learned are being practiced by personnel in the field. A recommendation will be issued to shippers (a) to provide special loading conditions/procedures, subject to WSRC approval and (b) to make provisions for a WSRC representative to be present to observe cask loading.

Evaluation of Proposed Action: Satisfactory

SR--WSRC-WVIT-1995-0046

Description: A corroded, aluminum coupling fell from a temporary transfer line and allowed approximately 1 gal of mercury-contaminated water to spill.

Corrective Actions: The spill area was excavated, bagged, and removed to the RCRA-qualified Satellite Accumulation Area. The volume of the excavated material was less than 55 gal.

Evaluation of Proposed Action: Unknown (no corrective actions given).

Appendix B:

LIST OF OCCURRENCE REPORTS FOR FY 1995

Table B.1 ORs included in annual report for FY 1995

Report No.	Status	Category	NOC	Rep_Qt
ALO--GEO-GJO-1995-0003	F	O	6A	R9513
ALO--ROSS-TSS-1995-0001	T	O	6B	R9521
ALO--ROSS-TSS-1995-0002	N	O	6B	R9531
ALO--TSD-TSS-1994-0007	F	O	6	R9449
ALO--TSD-TSS-1995-0002	F	O	6A	R9509
ALO--TSD-TSS-1995-0004	F	O	2C	R9513
ALO--UMTR-UMTRA-1995-0012	N	U	6A	R9532
ALO--UMTR-UMTRA-1995-0016	N	O	6A	R9537
ALO--UMTR-UMTRA-1995-0017	N	O	1B2	R9539
ALO--WWID-WIPP-1994-0010	F	O	8A	R9440
ALO-AO-MHSM-PANTEX-1994-0192	T	O	5D	R9449
ALO-AO-MHSM-PANTEX-1995-0035	F	C	2C	R9508
ALO-AO-MHSM-PANTEX-1995-0036	U	O	2C	R9508
ALO-AO-MHSM-PANTEX-1995-0038	T	O	5C	R9510
ALO-AO-MHSM-PANTEX-1995-0055	F	O	6A	R9512
ALO-AO-MHSM-PANTEX-1995-0063	U	O	4	R9515
ALO-AO-MHSM-PANTEX-1995-0071	U	O	6A	R9517
ALO-AO-MHSM-PANTEX-1995-0120	T	O	5	R9530
ALO-AO-MHSM-PANTEX-1995-0144	T	O	5C	R9537
ALO-AO-MHSM-PANTEX-1995-0147	T	O	2C	R9537
ALO-AO-MHSM-PANTEX-1995-0152	N	O	5C	R9539
ALO-AO-MHSM-PANTEX-1995-0153	T	O	5A	R9539
ALO-DA-EGGM-EGGMAT02-1995-0001	T	O	5C	R9504
ALO-DA-EGGM-EGGMAT03-1994-0014	F	O	5A	R9440
ALO-KC-AS-KCP-1995-0002	F	O	5D	R9516
ALO-KO-SNL-2000-1995-0002	F	O	5	R9512
ALO-KO-SNL-2000TTR-1995-0001	F	O	6A	R9503
ALO-KO-SNL-7000-1994-0011	F	O	5E	R9441
ALO-KO-SNL-7000-1994-0014	F	O	5D	R9448
ALO-KO-SNL-7000-1995-0001	F	O	5	R9502

Notes:

1. Status: The report's notification status: notifiction (N), final (F), ten-day (T), or ten-day update (U).
2. Category: DOE Order 5000.3B categories: emergency (E), unusual (U), or off-normal (O). "C" signifies cancelled.
3. NOC: PATS Nature of Occurrence.
4. Rep_Qt: The Weekly Report in which the OR was reported to DOE-HQ (i.e., R9350 means Weekly Report No. 50 of 1993).

Table B.1 ORs included in annual report for FY 1995

Report No.	Status	Category	NOC	Rep_Qt
ALO-KO-SNL-CASITE-1994-0010	F	O	2A	R9448
ALO-KO-SNL-NMFAC-1994-0019	N	O	6A	R9451
ALO-LA-GOLA-FIREDEPT-1995-0004	T	O	6A	R9539
ALO-LA-LANL-ACCCOMPLEX-1994-0008	T	O	5	R9450
ALO-LA-LANL-FIRNGHELAB-1995-0005	F	O	5A	R9506
ALO-LA-LANL-LANL-1994-0018	T	O	5A	R9451
ALO-LA-LANL-MATSCCMPLX-1994-0003	F	O	5	R9443
ALO-LA-LANL-MATWAREHS-1994-0010	F	U	8A	R9447
ALO-LA-LANL-MATWAREHS-1994-0011	F	O	8	R9446
ALO-LA-LANL-MATWAREHS-1995-0002	F	O	5	R9510
ALO-LA-LANL-MATWAREHS-1995-0004	F	O	5A	R9522
ALO-LA-LANL-MATWAREHS-1995-0005	F	O	8A	R9529
ALO-LA-LANL-MATWAREHS-1995-0006	F	O	8A	R9532
ALO-LA-LANL-RADIOCHEM-1994-0009	U	O	5	R9442
ALO-LA-LANL-RADIOCHEM-1995-0002	T	O	5	R9518
ALO-LA-LANL-SERVICESS-1995-0012	F	U	6A	R9521
ALO-LA-LANL-TA55-1995-0011	T	O	5A	R9514
ALO-LA-LANL-TA55-1995-0015	T	O	5B	R9516
ALO-LA-LANL-TA55-1995-0032	F	O	5A	R9529
ALO-LA-LANL-TRITFACILS-1995-0006	N	O	2C	R9534
ALO-PI-MMSC-PINELLAS-1995-0004	F	U	1A3	R9509
CH--GOCH-NBL-1994-0004	T	O	8A	R9443
CH-AA-ANLE-ANLEEWM-1994-0005	F	U	4	R9440
CH-AA-ANLE-ANLEEWM-1994-0006	F	O	5	R9451
CH-BA-FNAL-FERMILAB-1995-0003	T	O	8A	R9530
CH-BH-BNL-AGS-1995-0004	T	O	1A1	R9529
CH-BH-BNL-BNL-1994-0018	F	O	2C	R9441
CH-BH-BNL-BNL-1994-0031	F	O	8A	R9450
CH-BH-BNL-BNL-1995-0002	F	O	8A	R9503
CH-BH-BNL-BNL-1995-0009	T	O	5	R9517

Notes:

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Report No.	Status	Category	NOC	Rep_Qt
CH-BH-BNL-BNL-1995-0012	T	O	4	R9521
CH-BH-BNL-BNL-1995-0014	T	O	6A	R9528
CH-BH-BNL-BNL-1995-0019	N	O	4	R9535
CH-BH-BNL-BNL-1995-0020	N	O	4	R9536
CH-BH-BNL-PE-1995-0008	T	O	1B1	R9523
CH-BH-BNL-PE-1995-0017	N	O	1B1	R9537
CH-NA-NREL-NREL-1994-0011	T	O	2A	R9445
CH-PA-PPPL-PPPL-1995-0006	T	O	6A	R9525
CH-PA-PPPL-PPPL-1995-0008	N	O	4	R9532
HQ--BPOI-NPRC-1994-0048	F	O	1B1	R9447
HQ--BPOI-NPRC-1994-0051	F	O	1B1	R9450
HQ--BPOI-NPRC-1994-0052	T	O	6A	R9450
HQ--BPOI-NPRC-1995-0005	T	O	6E	R9509
HQ--BPOI-NPRC-1995-0006	T	O	6E	R9509
HQ--BPOI-NPRC-1995-0021	T	U	1B1	R9529
HQ--BPOI-NPRC-1995-0022	T	U	1B1	R9531
HQ--BPOI-NPRC-1995-0025	N	O	1B1	R9534
HQ--BPOI-NPRC-1995-0026	N	O	6E	R9536
HQ--BPOI-NPRC-1995-0027	N	O	1B1	R9539
HQ--FDS-NPOSRCUW-1994-0006	F	U	6E	R9442
HQ--FDS-NPOSRCUW-1995-0004	T	O	6E	R9528
HQ--REYM-YMSGD-1995-0005	F	O	6A	R9512
HQ--REYM-YMSGD-1995-0007	T	O	6A	R9519
HQ--REYM-YMSGD-1995-0008	T	O	1B1	R9521
HQ--SPR-BH-1995-0005	F	O	6E	R9512
HQ--SPR-BM-1994-0006	F	O	1B1	R9441
HQ--SPR-BM-1994-0008	F	O	1B1	R9449
HQ--SPR-SJ-1994-0009	F	O	6A	R9444
HQ--SPR-SJ-1994-0011	F	O	6E	R9451
HQ--SPR-WH-1995-0002	T	U	1Ba	R9534

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Report No.	Status	Category	NOC	Rep_Qt
HQ--TRYM-YMSGD-1995-0001	F	O	8D	R9502
ID--LITC-ERP-1995-0003	T	O	1A3	R9525
ID--LITC-FLEET-1995-0001	T	O	6A	R9507
ID--LITC-LANDLORD-1994-0006	F	U	2B	R9448
ID--LITC-LANDLORD-1995-0007	F	O	1A3	R9512
ID--LITC-PBF-1995-0001	F	O	5	R9510
ID--LITC-SMC-1995-0001	F	O	8E	R9506
ID--LITC-TANLL-1994-0001	F	O	6A	R9450
ID--LITC-TOWN-1995-0002	N	U	2B	R9534
ID--LITC-WASTEMNGT-1995-0024	T	O	1A3	R9526
NVOO--LLNV-LLNV-1995-0001	T	O	6A	R9528
NVOO--REEC-ADMN-1995-0001	N	O	8A	R9531
NVOO--REEC-EMDO-1994-0006	F	O	2A	R9446
NVOO--REEC-EMDO-1994-0007	F	O	1A3	R9450
NVOO--REEC-OMDO-1994-0008	F	C	6	R9449
NVOO--REEC-OMDO-1995-0003	F	C	1B1	R9507
NVOO--WSIO-NTSO-1995-0001	N	O	6A	R9501
OH-FN-FERM-FEMP-1995-0036	F	U	8A	R9514
OH-FN-FERM-FEMP-1995-0078	U	O	1A3	R9528
OH-FN-FERM-FEMP-1995-0081	T	U	8E	R9528
OH-FN-FERM-FEMP-1995-0096	N	O	5A	R9533
OH-FN-FERM-FEMP-1995-0100	N	O	8E	R9533
OH-FN-FERM-FEMP-1995-0106	N	O	5A	R9537
OH-MB-EGGM-EGGMAT01-1995-0004	F	O	8	R9508
OH-MB-EGGM-EGGMAT01-1995-0022	N	O	8A	R9531
OH-MB-EGGM-EGGMAT03-1995-0002	F	O	8B	R9520
OH-MB-EGGM-EGGMAT03-1995-0004	F	O	2C	R9529
OH-MB-EGGM-EGGMAT03-1995-0005	F	O	2B	R9528
OH-MB-EGGM-EGGMAT03-1995-0007	F	O	5C	R9530
OH-MB-EGGM-EGGMAT03-1995-0009	N	O	2C	R9535

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Report No.	Status	Category	NOC	Rep_Qt
OH-MB-EGGM-EGGMAT04-1995-0014	N	O	6A	R9536
OH-WV-WVNS-CF-1995-0011	N	O	8A	R9517
OH-WV-WVNS-RC-1995-0001	N	O	4	R9518
ORO--BNI-FUSRAP-1994-0004	F	O	5D	R9448
ORO--BNI-FUSRAPMISS-1994-0001	F	O	6C	R9448
ORO--FERM-FEMP-1994-0068	F	O	5A	R9440
ORO--FERM-FEMP-1994-0070	F	O	8A	R9440
ORO--FERM-FEMP-1994-0074	T	E	6A	R9441
ORO--FERM-FEMP-1994-0078	T	O	5D	R9444
ORO--FERM-FEMP-1994-0080	T	O	5D	R9445
ORO--FERM-FEMP-1994-0085	T	O	5	R9448
ORO--FERM-FEMP-1994-0098	N	O	8A	R9450
ORO--FERM-FEMP-1995-0006	N	O	8A	R9503
ORO--FERM-FEMP-1995-0007	N	O	2A	R9503
ORO--FERM-FEMP-1995-0008	N	O	2A	R9503
ORO--MK-WSSRAP-1994-0043	F	O	1B1	R9448
ORO--MMES-PGDPENVRES-1994-0009	F	C	4	R9440
ORO--MMES-PGDPTECOPS-1994-0001	T	O	1B1	R9442
ORO--MMES-PORTENVRES-1995-0018	T	O	1A3	R9526
ORO--MMES-PORTENVRES-1995-0021	N	O	2A	R9532
ORO--MMES-X10BOPLANT-1995-0003	T	O	5	R9519
ORO--MMES-X10CHEMTEC-1995-0006	T	O	8E	R9537
ORO--MMES-X10FINMAT-1994-0003	F	O	5	R9443
ORO--MMES-X10FINMAT-1995-0003	N	O	8E	R9537
ORO--MMES-X10IANDC-1994-0003	F	O	6A	R9446
ORO--MMES-X10QUALITY-1994-0008	F	O	1A3	R9445
ORO--MMES-X10WSTEMRA-1995-0003	T	O	1A2	R9529
ORO--MMES-Y12DPMGMT-1995-0001	F	O	8D	R9510
ORO--MMES-Y12SITE-1995-0011	F	O	8D	R9514
ORO--MMES-Y12SITE-1995-0017	T	O	6A	R9529

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Report No.	Status	Category	NOC	Rep_Qt
RFO--EGGR-664OPS-1995-0001	F	O	5	R9509
RFO--EGGR-771OPS-1994-0076	T	O	4	R9450
RFO--EGGR-ANALYTOPS-1995-0025	T	O	2A	R9523
RFO--EGGR-SOLIDWST-1994-0093	F	O	4	R9443
RFO--EGGR-SOLIDWST-1994-0102	F	O	5A	R9447
RFO--EGGR-SUPPORT-1995-0009	F	O	2A	R9508
RFO--EGGR-UTILITIES-1994-0015	F	U	4	R9446
RFO--EGGR-UTILITIES-1995-0009	F	O	1B3	R9514
RFO--EGGR-UTILITIES-1995-0011	F	O	5A	R9517
RFO--EGGR-WSTREPACK-1994-0008	T	O	1B1	R9450
RFO--EGGR-WSTREPACK-1995-0003	T	O	2A	R9509
RFO--EGGR-WSTREPACK-1995-0004	T	O	1B1	R9525
RL--BHI-200AREAS-1994-0011	N	O	5	R9451
RL--BHI-DND-1995-0008	N	O	2B	R9538
RL--PNL-324-1994-0021	F	O	1A3	R9440
RL--PNL-324-1994-0025	F	O	1A3	R9444
RL--PNL-PNLBOPEM-1995-0005	F	O	2C	R9516
RL--PNL-PNLBOPEM-1995-0009	N	O	2A	R9531
RL--PNL-PNLBOPEM-1995-0010	N	U	1A3	R9533
RL--PNL-PNLBOPER-1995-0011	F	O	1B2	R9510
RL--PNL-PNLBOPER-1995-0025	F	O	4	R9526
RL--PNL-PNLBOPER-1995-0032	N	O	5	R9535
RL--WHC-300LEF-1995-0002	F	O	2C	R9520
RL--WHC-ANALLAB-1994-0024	T	O	2C	R9442
RL--WHC-GENERAL-1995-0004	T	O	6A	R9506
RL--WHC-GENERAL-1995-0006	T	O	5A	R9519
RL--WHC-KBASINS-1994-0039	F	O	4	R9444
RL--WHC-KBASINS-1995-0009	F	O	2	R9509
RL--WHC-KBASINS-1995-0012	F	C	8E	R9513
RL--WHC-PFP-1995-0011	F	O	4	R9509

Notes:

1. Status: The report's notification status: notifiction (N), final (F), ten-day (T), or ten-day update (U).
2. Category: DOE Order 5000.3B categories: emergency (E), unusual (U), or off-normal (O). "C" signifies cancelled.
3. NOC: PATS Nature of Occurrence.
4. Rep_Qt: The Weekly Report in which the OR was reported to DOE-HQ (i.e., R9350 means Weekly Report No. 50 of 1993).

Table B.1 ORs included in annual report for FY 1995

Report No.	Status	Category	NOC	Rep_Qt
RL--WHC-PFP-1995-0045	N	O	1A	R9535
RL--WHC-SOLIDWASTE-1994-0028	F	O	1A3	R9446
RL--WHC-SOLIDWASTE-1995-0004	U	U	4	R9507
RL--WHC-SOLIDWASTE-1995-0010	F	O	2C	R9521
RL--WHC-TANKFARM-1994-0054	F	O	2B	R9441
RL--WHC-TANKFARM-1995-0060	T	O	1B2	R9529
RL--WHC-TPLANT-1995-0001	F	O	1A3	R9504
RL--WHC-TPLANT-1995-0010	F	O	5	R9514
RL--WHC-TRANS&PKG-1994-0003	F	O	8B	R9445
RL--WHC-TRANS&PKG-1995-0001	T	O	8E	R9507
SAN--EMO-LEHR-1995-0002	T	O	1A2	R9526
SAN--GOSF-OAKLAND-1995-0002	T	O	6A	R9524
SAN--LLNL-LLNL-1994-0075	F	O	5A	R9450
SAN--LLNL-LLNL-1994-0076	F	O	6A	R9450
SAN--LLNL-LLNL-1994-0077	F	O	6A	R9450
SAN--LLNL-LLNL-1994-0079	F	O	1A3	R9450
SAN--LLNL-LLNL-1995-0011	F	O	6A	R9507
SAN--LLNL-LLNL-1995-0015	F	O	6A	R9508
SAN--LLNL-LLNL-1995-0017	F	O	4	R9510
SAN--LLNL-LLNL-1995-0038	T	O	5A	R9522
SAN--LLNL-LLNL-1995-0039	U	O	4	R9525
SAN--LLNL-LLNL-1995-0040	T	O	6A	R9526
SAN--LLNL-LLNL-1995-0052	N	O	1A	R9537
SAN--SU-SLAC-1994-0011	F	U	1A3	R9440
SR--WSRC-CMD-1994-0008	F	U	1B1	R9446
SR--WSRC-CSWE-1995-0008	N	O	5A	R9538
SR--WSRC-HBLINE-1995-0013	F	O	5C	R9511
SR--WSRC-HCAN-1995-0035	F	O	6A	R9524
SR--WSRC-HTANK-1995-0052	N	O	6A	R9534
SR--WSRC-HWFAC-1994-0017	F	O	5	R9448

Notes:

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3. NOC: PATS Nature of Occurrence.
4. Rep_Qt: The Weekly Report in which the OR was reported to DOE-HQ (i.e., R9350 means Weekly Report No. 50 of 1993).

Table B.1 ORs included in annual report for FY 1995

Report No.	Status	Category	NOC	Rep_Qt
SR--WSRC-LTA-1995-0026	F	O	1A3	R9511
SR--WSRC-LTA-1995-0092	N	O	4	R9533
SR--WSRC-RBOF-1994-0012	F	U	8B	R9442
SR--WSRC-RBOF-1994-0019	F	O	2C	R9448
SR--WSRC-RBOF-1995-0028	N	O	2C	R9535
SR--WSRC-REACK-1995-0005	F	O	6A	R9502
SR--WSRC-REACK-1995-0023	F	O	8A	R9520
SR--WSRC-REACP-1994-0027	F	O	1A3	R9450
SR--WSRC-RMAT-1994-0021	F	O	8B	R9450
SR--WSRC-SEPGEN-1995-0004	T	O	6A	R9533
SR--WSRC-SEPGEN-1995-0005	N	O	6A	R9538
SR--WSRC-SLDHZD-1994-0036	T	O	2A	R9446
SR--WSRC-SLDHZD-1994-0042	U	O	4	R9451
SR--WSRC-SLDHZD-1995-0001	T	O	2C	R9502
SR--WSRC-SLDHZD-1995-0028	N	O	2A	R9534
SR--WSRC-TD-1994-0005	F	O	6A	R9441
SR--WSRC-TRIT-1995-0008	F	O	5C	R9511
SR--WSRC-WVIT-1995-0046	N	U	1B1	R9532
USEC--MMUS-PADGENPLT-1995-0059	N	O	1A3	R9537
USEC--MMUS-PTSGENPLT-1995-0049	T	O	2A	R9521

Notes:

1. Status: The report's notification status: notification (N), final (F), ten-day (T), or ten-day update (U).
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