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**Idaho National
Engineering Laboratory
Radiological Control
Performance Indicator Report**

**Fourth Quarter – Year-End Report
Calendar Year 1995**

Lockheed
Idaho Technologies Company

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INEL-95/0274 (4th QTR)

**Idaho National Engineering Laboratory
Radiological Control Performance Indicator Report**

**Fourth Quarter - Year-End Report
Calendar Year 1995**

R. Reavis

Published March 1996

**Idaho National Engineering Laboratory
Radiological Control
Lockheed Idaho Technologies Company
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Idaho National Engineering Laboratory
Radiological Control Performance Indicator Report

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INEL Radiological Control Performance Indicator Overview **Fourth Quarter 1995**

		<u>Actual</u>	<u>Goal or Average</u>
Collective Year-to-Date Penetrating Radiation Dose		286 person-rem	354 person-rem (Goal)
Year-to-Date Average Worker Dose		0.181 rem	0.149 rem (3 Year Average)
Maximum Year-to-Date Penetrating Dose to a Worker		1.844 rem	* 1.5 rem (Goal)
Maximum Year-to-Date Neutron Dose to a Worker		0.159 rem	0.112 rem (3 Year Average)
Year-to-Date Skin Contaminations		28	27 (3 Year Average)

Legend

Needs Attention

OK

Good

* Some construction personnel associated with the ICPP Tank Farm Valve Box Upgrade Project were approved to receive up to 2 rem of exposure during 1995.

		<u>Actual</u>	<u>Goal or Average</u>
Year-to-Date Clothing Contaminations		41	72 (3 Year Average)
Year-to-Date Airborne Events		0	12 (3 Year Average)
Year-to-Date Radioactive Material Intakes		10	11 (3 Year Average)
Contamination Area		196,567 ft ²	200,610 ft ² (3 Year Average)
High Contamination Area		297,663 ft ²	304,418 ft ² (3 Year Average)
Airborne Radioactivity Area		84,712 ft ²	80,033 ft ² (3 Year Average)
Year-To-Date Spills		21	241 (3 Year Average)

INEL Facility Radiological Control Performance Indicator Overview

Fourth Quarter 1995

Legend

Needs Attention

OK

Good

	CFA	ICPP	PBF	RWMC	TRA	TAN/SMC
Year-to-Date Clothing Contaminations	0	19	0	0	22	0
Year-to-Date Airborne Events	0	0	0	0	0	0
Year-to-Date Radioactive Material Intakes	0	4	0	0	0	6
Contamination Area - ft ²	17,105	65,319	7,378	0	52,516	54,249
High Contamination Area - ft ²	372	251,961	2,288	29,525	1,991	11,526
Airborne Radioactivity Area - ft ²	0	82,712	2,000	0	0	0
Year-to-Date Spills	0	15	0	0	4	2

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Executive Summary

Radiological Control Performance Indicator Report

Fourth Quarter 1995

This report provides an analysis of the Radiological Control Program for Calendar Year 1995 (CY-1995), at the Idaho National Engineering Laboratory (INEL). The INEL is under the direction of Lockheed Idaho Technologies Company (LITCO). The Radiological Control Performance Indicator Report is provided in accordance with Article 133 of the INEL Radiological Control Manual (RCM).

- Total INEL penetrating radiation exposure through the end of the fourth quarter was 286 person-rem (p-rem).
- Average penetrating radiation dose to an INEL radiation worker through the end of the fourth quarter was 0.181 rem.
- Maximum penetrating radiation dose to an INEL worker through the end of the fourth quarter was 1.844 rem.
- Maximum neutron radiation dose to an INEL worker through the end of the fourth quarter was 0.159 rem.
- The total number of INEL skin contaminations through the end of the fourth quarter was 28, of which 21 resulted in Occurrence Reports (ORs).
- The total number of INEL clothing contaminations through the end of the fourth quarter was 41, of which 24 resulted in ORs.
- Total number of airborne radioactivity events exceeding 10% Derived Air Concentrations (DAC) through the end of the fourth quarter was zero.
- Total number of radioactive material intakes assigned a dose of 10 mrem or more was 10. No intakes met Department of Energy reportable criteria.
- Total INEL Contamination Area was 196,567 square feet, total High Contamination Area was 297,663 square feet, and total Airborne Radioactivity Area was 84,712 square feet.
- The total number of radioactive spills or releases was 21, of which 13 resulted in ORs.

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

Radiological Control Performance Indicator Charter

The INEL Radiological Control Performance Indicator Report is provided quarterly in accordance with Article 133 of the INEL RCM. Indicators are used as a measure of performance of the Radiological Control Program and as a motivation for improvement, not as a goal in themselves. These indicators should be used by management to assist in focusing priorities and attention and adherence to As-Low-As-Reasonably-Achievable (ALARA) practices.

The ALARA Committees establish ALARA goals for the INEL based on anticipated radiological work activities with the assistance of the facility organizational managers and supervisors.

Performance goals are realistic and measurable. Stringent goals are set at least annually to reflect expected workloads and improvement of radiological performance. Goals may be set higher than previous goals, due to changes in work scope or mission. The INEL Radiological Control Performance Indicators consist of:

- Collective dose in person-rem.
- Average worker dose, maximum dose to a worker, and maximum neutron dose to a worker.
- The number of skin and clothing contaminations, including the number of contaminated wounds and facial contaminations.
- The number of radioactive material intakes resulting in a dose assessment of 10 mrem or more.
- The area of Contamination, High Contamination, and Airborne Radioactivity Areas in square feet.
- Airborne radioactivity events and spills.

These indicators also provide tracking and trending for the previous three years (where information is available). Other Radiological Control indicators suggested in the Radiological Control Manual are tracked and trended in other reports.

- The volume and radioactivity content of radioactive waste are reported by the Shipping and Material Management Department, found in the INEL Quarterly Waste Reduction Report and on the Radioactive Waste Management Information System (RWMIS).
- Releases of liquid and airborne radioactivity discharges are reported by the Environmental Protection Department in the INEL Environmental Monitoring Report and the INEL National Emission Standard for Hazardous Pollutants - Radionuclide Annual Report.

Radiological Control Performance Indicator Report Criteria

The INEL Radiological Control Performance Indicator Report is comprised of a description of the indicator and the criteria used for measurement.

Collective Radiation Dose -

The INEL collective total penetrating radiation exposure received and the associated quarterly and annual ALARA goals.

Average Worker Radiation Dose -

The average penetrating radiation dose based on collective dose and the total number of personnel receiving measured radiation exposure.

Maximum Radiation Dose to a Worker -

The highest penetrating radiation dose received by a worker at the INEL.

Maximum Neutron Dose to a Worker -

This indicator reports the highest neutron radiation dose received by a worker.

Number of Skin Contaminations -

The total number of radioactive skin contaminations and the number of those contaminations resulting in an Occurrence Report, the number of facial contaminations and the number of contaminated wounds.

Number of Clothing Contaminations -

The total number of radioactive clothing contaminations and the number of those contaminations resulting in an Occurrence Report.

Airborne Events -

The number of occupied facility areas not posted as Airborne Radioactivity Areas that exceed 10% of the Derived Air Concentrations (DAC).

Total Radiological Intakes -

The number of positive bioassay results that indicate an intake of radioactive material and result in a dose assessment of 10 mrem or more from an INEL occupational exposure. The total number of positive bioassays that resulted in an Occurrence Report and those that resulted in a dose assessment of 10 mrem or greater are tracked and trended.

Contamination Area -

The total area in square feet that falls within the description of a Contamination Area as defined in Table 2-3 of the INEL RCM.

High Contamination Area -

The total area in square feet that falls within the description of a High Contamination Area as defined in Table 2-3 of the INEL RCM.

Airborne Radioactivity Area -

The total area in square feet that falls within the description of an Airborne Radioactivity Area as defined in Table 2-3 of the INEL RCM.

Radioactive Spills -

The total number of radioactive spills at the INEL. A spill is considered an inadvertent loss or release of radioactive contamination outside a Radiologically Controlled Area.

INEL Collective Year-to-Date Penetrating Radiation Dose CY-95

The DOE and LITCO policy is to maintain occupational radiation exposure ALARA. Measuring collective radiation exposure provides an indication of the effectiveness of the Radiological Control and ALARA Programs.

The CY-1995 ALARA goal for the INEL was 354 person-rem. The goal is adjusted quarterly to provide realistic values. Changes in work scope result in reevaluations and adjustments in the yearly and quarterly ALARA goals.

The INEL Performance Indicators continue to reflect a challenging yet positive control of occupational radiation exposure. The collective radiation exposure through the end of the fourth quarter of CY-1995 was 286 person-rem. The collective exposure represents 81 percent of the ALARA goal.

INEL Year-to-Date Average Worker Dose CY-95

Tracking the average worker occupational radiation exposure provides an indication of the effectiveness of the Radiological Control and ALARA Programs, and how well managers are managing their workers radiation exposure. Large increases are investigated, root causes determined and appropriate measures taken.

The average occupational radiation exposure for workers at the INEL was 0.181 rem through the end of the fourth quarter.

INEL Maximum Year-to-Date Penetrating Dose to a Worker CY-95

The maximum penetrating radiation dose to a worker provides an indication of how well occupational radiation exposure is being controlled. Managers should use these reports as an aid in administration of their workers occupational radiation exposure.

The maximum penetrating radiation dose to a worker through the end of the fourth quarter of CY-1995 was 1.844 rem. This individual was involved in construction activities related to the ICPP Tank Farm Upgrade Project.

Several construction personnel involved in the Tank Farm Project and the HLLW Evaporator Project were approved to receive up to two rem of occupational exposure due to project complexity and high radiation fields.

INEL Maximum Year-to-Date Neutron Dose to a Worker CY-95

Tracking the maximum neutron radiation dose to a worker provides an indication of how well occupational exposure to neutron radiation is managed. Quality factors of neutron radiation are not as well known as those of alpha, beta and gamma radiation. Neutron radiation is included in the total penetrating radiation dose, but is also tracked separately.

The INEL maximum neutron radiation dose to a worker through the end of the fourth quarter was 0.159 rem. This individual was involved in construction work activities at TRA.

INEL Year-to-Date Skin Contaminations CY-95

Skin contamination events are a measure of the effectiveness of the radiological protection program, specifically, how well radioactive contamination is controlled.

There were a total of twenty-eight skin contaminations at the INEL through the end of the fourth quarter. Twenty-one skin contaminations resulted in ORs. Eighteen skin contaminations occurred at the ICPP and ten occurred at TRA.

INEL Year-to-Date Clothing Contaminations CY-95

Clothing contamination events are a measure of the effectiveness of the radiological protection program, specifically how well radioactive contamination is controlled by safe radiological work practices.

There were a total of forty-one clothing contamination events at the INEL through the end of the fourth quarter. Of these, twenty-four resulted in ORs. Twenty-two clothing contaminations occurred at TRA and nineteen occurred at the ICPP.

INEL Year-to-Date Airborne Radioactivity Events CY-95

Air samplers monitor occupied facility areas to quantify concentrations of airborne radioactivity. The DOE unit of measure is a DAC. A DAC is the atmospheric concentration of a radionuclide which, if inhaled continually for one work year (2000 hours) would result in an internal dose of 5.0 rem Committed Effective Dose Equivalent (CEDE). An area which exceeds 10% of one DAC must be posted as an Airborne Radioactivity Area.

No airborne activity greater than 10% DAC was detected in areas not posted as Airborne Radioactivity Areas at the INEL during the fourth quarter.

INEL Year-to-Date Radioactive Material Intakes CY-95

This indicator depicts the total number of positive bioassay results that indicate an intake of radioactive material and result in an assigned CEDE of 10 mrem or greater.

The total number of positive bioassays resulting in a dose assessment of 10 mrem or more at the INEL through the fourth quarter was ten. Of these positive indications, none were reportable in accordance with DOE Order 5000.3B reportable criteria.

Four positive intakes occurred at the ICPP that resulted in a dose of 10 mrem or greater. Six positive intakes occurred at the SMC facility that resulted in 10 mrem or greater.

INEL Contamination Area CY-95

This indicator is used to report the total area designated as Contamination Area as defined in Table 2-3 of the INEL RCM.

Area is reported in units of square feet. The reported area is further separated into that area which is permanent and in-use. This establishes a baseline for future reporting and allows areas other than permanent and in-use to be evaluated for decontamination.

The total Contamination Area at the INEL at the end of the fourth quarter was 196,567 square feet. Of this area, 151,123 square feet were designated as permanent and in-use. 28,100 square feet of the contamination area were removed from the permanent and in-use listing and 12,500 square feet of contamination area have been successfully decontaminated and released.

INEL High Contamination Area CY-95

This indicator is used to report the total area designated as High Contamination Area as defined in Table 2-3 of the INEL RCM.

Area is reported in units of square feet. The reported area is separated into areas which are permanent and in-use. This establishes a baseline for future reporting and allows areas other than permanent and in-use to be evaluated for decontamination.

The total High Contamination Area at the INEL at the end of the fourth quarter was 297,663 square feet. Of this area, 296,641 square feet were designated as permanent and in-use.

INEL Airborne Radioactivity Area CY-95

This indicator is used to report the total area designated as an Airborne Radioactivity Area as defined in Table 2-3 of the INEL RCM. These areas are reported in units of square feet. The reported areas are also separated into permanent and in-use areas. This establishes a baseline for future reporting and allows areas other than permanent and in-use to be evaluated for decontamination.

The total Airborne Radioactivity Area at the INEL at the end of the fourth quarter was 84,712 square feet. Of this area 83,662 square feet is designated as permanent and in-use.

INEL Year-to-Date Spills CY-95

This indicator is used to report inadvertent loss or release of radioactive material. It includes all events, as well as those losses or releases of radioactively contaminated material that meet DOE reportable criteria.

The INEL had twenty-one loss of radioactive materials or spills through the end of the fourth quarter. Thirteen of the spills resulted in ORs. During the fourth quarter, one spill occurred at TRA, four spills occurred at the ICPP, and one spill occurred at TAN/SMC. All events were reportable.

Central Facility Area

The CFA report also includes
other outlying area information

CFA Collective Year-to-Date Penetrating Radiation Dose CY-95

The collective radiation exposure at CFA through the end of the fourth quarter was 4.448 person-rem.

Major activities contributing to the total radiation exposure include Decontamination and Decommissioning (D&D) activities and Environmental Restoration (ER) projects.

CFA Year-to-Date Average Worker Dose CY-95

The average worker radiation exposure provides an indication of the effectiveness of the Radiological Control and ALARA Programs.

The average CFA worker occupational radiation exposure through the end of the fourth quarter was 0.042 rem. Major sources of exposure involved D&D and ER radiological work activities.

CFA Maximum Year-to-Date Penetrating Dose to a Worker CY-95

The maximum penetrating radiation dose to a worker provides an indication of how well occupational radiation exposure is being managed.

The maximum penetrating radiation dose to a CFA worker through the end of the fourth quarter was 0.129 rem.

CFA Maximum Year-to-Date Neutron Dose to a Worker CY-95

The maximum neutron radiation dose to a worker provides an indication of how well occupational exposure to neutron radiation is managed.

The CFA maximum neutron radiation dose to a worker through the end of the fourth quarter was 0.059 rem.

CFA Year-to-Date Skin Contaminations CY-95

Skin contamination events are a measure of effectiveness of the radiological protection program, specifically, how well radioactive contamination is controlled.

There were no skin contaminations at CFA during the fourth quarter.

CFA Year-to-Date Clothing Contaminations CY-95

Clothing contamination events are a measure of the effectiveness of the radiological protection program, specifically, how well radioactive contamination is controlled and how well workers adhere to safe radiological work practices.

There were no clothing contaminations at CFA through the end of the fourth quarter.

CFA Year-to-Date Airborne Radioactivity Events CY-95

Air samplers monitor occupied facility areas to quantify concentrations of airborne radioactivity. The DOE unit of measure is a DAC. An area which exceeds 10% of one DAC must be posted as an Airborne Radioactivity Area.

No airborne activity greater than 10% DAC was detected at CFA during the fourth quarter.

CFA Year-to-Date Radioactive Material Intakes CY-95

This indicator depicts the number of positive bioassay results that indicate an intake of radioactive material and result in a dose assessment of 10 mrem or greater during radiological work activities.

There were no positive bioassays indicating an intake of radioactive material that resulted in a dose assessment of 10 mrem or greater at CFA during the fourth quarter.

CFA Contamination Area CY-95

This indicator is used to report the total area designated as Contamination Area as defined in Table 2-3 of the INEL RCM.

The total Contamination Area at CFA at the end of the fourth quarter was 17,105 square feet. None of this area was designated as permanent and in-use.

CFA High Contamination Area CY-95

This indicator is used to report the total area designated as High Contamination Area as described in Table 2-3 of the INEL RCM.

The total High Contamination Area at CFA at the end of the fourth quarter was 372 square feet. None of this area was designated as permanent and in-use.

CFA Airborne Radioactivity Area CY-95

This indicator is used to report the total area designated as Airborne Radioactivity Area as described in Table 2-3 of the INEL RCM.

The total Airborne Radioactivity Area at CFA at the end of the fourth quarter was zero square feet.

CFA Year-to-Date Spills CY-95

This indicator is used to report inadvertent loss or release of radioactive material.

CFA had no radioactive spills or loss of radioactive material through the end of the fourth quarter.

Idaho Chemical Processing Plant

ICPP Collective Year-to-Date Penetrating Radiation Dose CY-95

The ICPP collective occupational radiation exposure through end of the fourth quarter was 237 person-rem. The ICPP ALARA goal was adjusted to 279 person-rem.

Major contributors to the total penetrating radiation exposure received by personnel include the Tank Farm Valve Box Upgrade, the NWCF Turnaround, the HLLW Evaporator Installation, and fuel handling and transfer work activities.

ICPP Year-to-Date Average Worker Dose CY-95

The average worker radiation exposure provides an indication of the effectiveness of the Radiological Control and ALARA Programs.

The average occupational radiation exposure for ICPP workers through the end of the fourth quarter was 0.252 rem. Included in this average are all LITCO and construction personnel who received exposure at the ICPP.

ICPP Maximum Year-to-Date Penetrating Dose to a Worker CY-95

The maximum penetrating radiation dose to a worker provides an indication of how well occupational radiation exposure is being managed.

The maximum penetrating radiation dose to an ICPP worker through the end of the fourth quarter was 1.844 rem. This individual was involved in construction activities related to the Tank Farm Valve Box Upgrade Project.

Several construction personnel associated with the ICPP Tank Farm Valve Box Upgrade Project and the NWCF Turnaround were approved to receive up to two rem of exposure.

ICPP Maximum Year-to-Date Neutron Dose to a Worker CY-95

The maximum neutron radiation dose to a worker provides an indication of how well occupational exposure to neutron radiation is managed.

The ICPP maximum neutron radiation dose to a worker through end of the fourth quarter was 0.048 rem.

NOTE:

The ICPP maximum neutron exposure for the previous quarters of CY-95 was determined to be in error. The correct ICPP maximum neutron exposure was 0.048 rem.

ICPP Year-to-Date Skin Contaminations CY-95

Skin contamination events are a measure of the effectiveness of the radiological protection program, specifically, how well radioactive contamination is controlled.

Four skin contaminations occurred during the fourth quarter. All four skin contaminations resulted in ORs. Detailed information is contained in ORs ID-LITC-WASTEMNGT-1995-0034, ID-LITCO-WASTEMNGT-1999-0035 and ID-LITC-WASTEMNGT-1995-0039.

There was one facial contamination and no contaminated wounds at the ICPP through the fourth quarter.

ICPP Year-to-Date Clothing Contaminations CY-95

Clothing contamination events are a measure of the effectiveness of the radiological protection program, specifically, how well radioactive contamination is controlled and how well workers adhere to safe radiological work practices.

Three clothing contaminations occurred during the fourth quarter at the ICPP. All three clothing contaminations resulted in ORs. Detailed information is contained in ORs ID-LITC-WASTEMNGT-1995-0038 and ID-LITCO-FUELCSTR-1995-0015.

**ICPP Year-to-Date
Airborne Radioactivity Events
CY-95**

Air samplers monitor occupied process and laboratory areas to quantify concentrations of airborne radioactivity. The DOE unit of measure is a DAC. An area which exceeds 10% of one DAC must be posted as an Airborne Radioactivity Area.

No airborne activity greater than 10% DAC was detected in ICPP areas not posted as Airborne Radioactivity Areas during the fourth quarter.

ICPP Year-to-Date Radioactive Material Intakes CY-95

This indicator depicts the number of positive bioassay results that indicate an intake of radioactive material and result in a dose assessment of 10 mrem or greater from an ICPP exposure during radiological work activities.

There were two positive bioassays indicating an intake of radioactive material that resulted in a dose assessment of 10 mrem or greater at the ICPP during the fourth quarter.

ICPP Contamination Area CY-95

This indicator is used to report the total ICPP area designated as a Contamination Area as defined in Table 2-3 of the INEL RCM.

The total Contamination Area at the ICPP at the end of the fourth quarter was 65,419 square feet. Of this area, 64,452 square feet were designated permanent and in-use.

ICPP High Contamination Area CY-95

This indicator is used to report the total ICPP area designated as High Contamination Area as defined in Table 2-3 of the INEL RCM.

The total High Contamination Area at the ICPP during the fourth quarter was 251,961 square feet. Of this area, 251,311 square feet were designated as permanent and in-use.

ICPP Airborne Radioactivity Area CY-95

This indicator is used to report the total ICPP area designated as Airborne Radioactivity Area as defined in Table 2-3 of the INEL RCM.

The total Airborne Radioactivity Area at the ICPP at the end of the fourth quarter was 82,712 square feet. Of this area, 82,062 square feet were designated as permanent and in-use.

ICPP Year-To-Date Spills CY-95

This indicator is used to report inadvertent loss or release of radioactive material.

The ICPP had four radioactive spills during the fourth quarter. One spill resulted in an OR. Detailed information is contained in ID-LITC-WASTEMNGT-1995-0033.

Power Burst Facility

Waste Reduction Operations
Complex

Waste Experimental Reduction Facility

PBF Collective Year-to-Date Penetrating Radiation Dose CY-95

PBF, WERF, and WROC collective radiation exposure through the end of the fourth quarter was 0.500 rem.

Major contributors to the fourth quarter penetrating radiation at PBF, WERF and WROC were waste sizing, shipping and receiving operations.

PBF Year-to-Date Average Worker Dose CY-95

The average worker radiation exposure provides an indication of the effectiveness of the Radiological Control and ALARA Programs.

The average PBF/WERF/WROC worker radiation exposure at the end of the fourth quarter was 0.017 rem. The major sources of exposure were related to waste sizing, shipping and receiving.

PBF Maximum Year-to-Date Penetrating Dose to a Worker CY-95

The maximum penetrating radiation dose to a worker provides an indication of how well occupational radiation exposure is being managed.

The maximum penetrating radiation dose to a PBF/WERF/WROC worker through the end of the fourth quarter was 0.096 rem.

**PBF Maximum Year-to-Date
Neutron Dose to a Worker
CY-95**

The maximum neutron radiation dose to a worker provides an indication of how well occupational exposure to neutron radiation is managed.

The PBF/WERF/WROC maximum neutron radiation dose to a worker through the end of the fourth quarter was zero rem.

PBF Year-to-Date Skin Contaminations CY-95

Skin contamination events are a measure of the effectiveness of the radiological protection program, specifically, how well radioactive contamination is controlled.

There were no skin contaminations at PBF, WERF, or WROC during the fourth quarter.

PBF Year-to-Date Clothing Contaminations CY-95

Clothing contamination events are a measure of the effectiveness of the radiological protection program, specifically, how well radioactive contamination is controlled and how well workers adhere to safe radiological work practices.

There were no clothing contaminations at PBF, WERF, or WROC through the end of the fourth quarter.

PBF Year-to-Date Airborne Radioactivity Events CY-95

Air samplers monitor occupied process and laboratory areas to quantify concentrations of airborne radioactivity. The DOE unit of measure is a DAC. An area which exceeds 10% of one DAC must be posted as an Airborne Radioactivity Area.

No airborne activity greater than 10% DAC was detected at PBF, WERF, or WROC areas not posted as Airborne Radioactivity Areas during the fourth quarter.

PBF Year-to-Date Radioactive Material Intakes CY-95

This indicator depicts the number of positive bioassay results that indicate an intake of radioactive material and result in a dose assessment of 10 mrem or greater.

There were no positive bioassays indicating an intake of radioactive material that resulted in a dose assessment of 10 mrem or greater at PBF, WERF or WROC during the fourth quarter.

PBF Contamination Area CY-95

This indicator is used to report the total area designated as Contamination Area as defined in Table 2-3 of the INEL RCM.

The total Contamination Area at PBF, WERF, and WROC at the end of the fourth quarter was 7,378 square feet. All of this area was designated as permanent and in-use.

PBF High Contamination Area CY-95

This indicator is used to report the total area designated as High Contamination Area as defined in Table 2-3 of the INEL RCM.

The total High Contamination Area at PBF, WERF, and WROC at the end of the fourth quarter was 2,288 square feet. All of this area was designated as permanent and in-use.

PBF Airborne Radioactivity Area CY-95

This indicator is used to report the total area designated as Airborne Radioactivity Area as defined in Table 2-3 of the INEL RCM.

The total Airborne Radioactivity Area at PBF, WERF, and WROC at the end of the fourth quarter was 2000 square feet. All of this area was designated as permanent or in-use.

PBF Year-to-Date Spills CY-95

This indicator is used to report inadvertent loss or release of radioactive material.

There were no radioactive contaminated spills at PBF, WERF, or WROC through the end of the fourth quarter.

Radioactive Waste Management Complex

RWMC Collective Year-to-Date Penetrating Radiation Dose CY-95

The RWMC collective occupational radiation exposure through the end of the fourth quarter was 10.555 rem.

The major contributors to the fourth quarter RWMC penetrating radiation exposure were the waste transfers from C&S to WSF-628 and low-level waste disposal operations.

RWMC Year-to-Date Average Worker Dose CY-95

The average worker radiation exposure provides an indication of the effectiveness of the Radiological Control and ALARA Programs.

The average RWMC occupational radiation exposure for workers through the end of the fourth quarter was 0.078 rem. The major source of exposure involved transfers from C&S to WMF-628 and from low-level disposal operation activities.

RWMC Maximum Year-to-Date Penetrating Dose to a Worker CY-95

The maximum penetrating radiation dose to a worker provides another indication of how well occupational radiation exposure is being managed.

The maximum penetrating radiation dose to a worker at RWMC through the end of the fourth quarter was 0.381 rem.

RWMC Maximum Year-to-Date Neutron Dose to a Worker CY-95

The maximum neutron radiation dose to a worker provides an indication of how well occupational exposure to neutron radiation is managed.

The RWMC maximum neutron radiation dose to a worker through the end of the fourth quarter was 0.032 rem.

RWMC Year-to-Date Skin Contaminations CY-95

Skin contamination events are a measure of the effectiveness of the radiological protection program, specifically, how well radioactive contamination is controlled.

There were no skin contaminations at RWMC during the fourth quarter.

RWMC Year-to-Date Clothing Contaminations CY-95

Clothing contamination events are a measure of the effectiveness of the radiological protection program, specifically, how well radioactive contamination is controlled and how well workers adhere to safe radiological work practices.

There were no clothing contaminations at RWMC through the end of the fourth quarter.

RWMC Year-to-Date Airborne Radioactivity Events CY-95

Air samplers monitor occupied process and laboratory areas to quantify concentrations of airborne radioactivity. The DOE unit of measure is a DAC. An area which exceeds 10% of one DAC must be posted as an Airborne Radioactivity Area.

No airborne activity greater than 10% DAC was detected at RWMC areas not posted as Airborne Radioactivity Areas during the fourth quarter.

RWMC Year-to-Date Radioactive Material Intakes CY-95

This indicator depicts the number of positive bioassay results that indicate an intake of radioactive material and result in a dose assessment of 10 mrem or greater from RWMC radiological work activities.

There were no positive bioassays indicating an intake of radioactive material that resulted in a dose assessment of 10 mrem or greater at RWMC during the fourth quarter.

RWMC Contamination Area CY-95

This indicator is used to report the total area designated as Contamination Area as defined in Table 2-3 of the INEL RCM.

The total Contamination Area at RWMC at the end of the fourth quarter was zero square feet.

RWMC High Contamination Area CY-95

This indicator is used to report the total area designated as High Contamination Area as defined in Table 2-3 of the INEL RCM.

The total High Contamination Area at RWMC at the end of the fourth quarter was 29,525 square feet. All of this area was designated as permanent and in-use.

RWMC Airborne Radioactivity Area CY-95

This indicator is used to report the total area designated as Airborne Radioactivity Area as defined in Table 2-3 of the INEL RCM.

The total Airborne Radioactivity Area at RWMC at the end of the fourth quarter was zero square feet.

RWMC Year-to-Date Spills CY-95

This indicator is used to report inadvertent loss or release of radioactive material.

RWMC had no radioactive contaminated spills through the end of the fourth quarter.

Test Reactor Area

TRA Collective Year-to-Date Penetrating Radiation Dose CY-95

TRA collective occupational radiation exposure through the end of the fourth quarter was 26.007 rem.

The major contributors to the fourth quarter TRA penetrating radiation exposure were ATR outages and normal reactor operations.

TRA Year-to-Date Average Worker Dose CY-95

The average worker radiation exposure provides an indication of the effectiveness of the Radiological Control and ALARA Programs.

The average TRA occupational radiation exposure at the end of the fourth quarter was 0.103 rem. The major sources of exposure were related to ATR outages and normal reactor operations.

TRA Maximum Year-to-Date Penetrating Dose to a Worker CY-95

The maximum penetrating radiation dose to a worker provides another indication of how well occupational radiation exposure is being managed.

The maximum penetrating radiation dose to a TRA worker through the end of the fourth quarter was 0.876 rem.

TRA Maximum Year-to-Date Neutron Dose to a Worker CY-95

The maximum neutron radiation dose to a worker provides an indication of how well occupational exposure to neutron radiation is managed.

The TRA maximum neutron radiation dose to a worker through the end of the fourth quarter was 0.159 rem.

TRA Year-to-Date Skin Contaminations CY-95

Skin contamination events are a measure of the effectiveness of the radiological protection program, specifically, how well radioactive contamination is controlled.

There were two skin contaminations (one event) at TRA during the fourth quarter that resulted in an OR. Detailed information is contained in ID-LITCO-ATR-1995-0035.

TRA Year-to-Date Clothing Contaminations CY-95

Clothing contamination events are a measure of the effectiveness of the radiological protection program, specifically, how well radioactive contamination is controlled and how well workers adhere to safe radiological work practices.

There were five clothing contaminations at TRA during the fourth quarter. All clothing contaminations resulted in ORs. Detailed information is contained in ID-LITC-ATR-1995-0039, ID-LITC-ATR-1995-0041, ID-LITC-HC-1995-0002, ID-LITC-ATR-1995-0042 and ID-LITC-ATR-1995-0044.

TRA Year-to-Date Airborne Radioactivity Events CY-95

Air samplers monitor occupied process and laboratory areas to quantify concentrations of airborne radioactivity. The DOE unit of measure is a DAC. An area which exceeds 10% of one DAC must be posted as an Airborne Radioactivity Area.

No airborne activity greater than 10% DAC was detected at TRA in areas not posted as Airborne Radioactivity Areas during the fourth quarter.

TRA Year-to-Date Radioactive Material Intakes CY-95

This indicator depicts the number of positive bioassay results that indicate an intake of radioactive material and result in a dose assessment of 10 mrem or greater from a TRA exposure during occupational work activities.

There were no positive bioassays indicating an intake of radioactive material that resulted in a dose assessment of 10 mrem or greater at TRA during the fourth quarter.

TRA Contamination Area CY-95

This indicator is used to report the total area designated as Contamination Area as defined in Table 2-3 of the INEL RCM.

The total Contamination Area at TRA at the end of the fourth quarter was 52,516 square feet, of which 25,619 square feet were designated as permanent and in-use.

TRA High Contamination Area CY-95

This indicator is used to report the total area designated as High Contamination Area as defined in Table 2-3 of the INEL RCM.

The total High Contamination Area at TRA at the end of the fourth quarter was 1,991 square feet. All of this area was designated as permanent and in-use.

TRA Airborne Radioactivity Area CY-95

This indicator is used to report the total area designated as Airborne Radioactivity Area as defined in Table 2-3 of the INEL RCM.

The total Airborne Radioactivity Area at TRA at the end of the fourth quarter was zero square feet.

TRA Year-to-Date Spills CY-95

This indicator is used to report inadvertent loss or release of radioactive material.

One reportable contaminated spill occurred during the fourth quarter at TRA. Detailed information is contained in ID-LITC-ATR-1995-0035.

**Test Area North/
Specific Manufacturing Capability**

TAN/SMC Collective Year-to-Date Penetrating Radiation Dose CY-95

TAN and SMC collective occupational radiation exposure through the end of the fourth quarter was 7.2 rem.

Major contributors to the penetrating radiation at TAN and SMC were fuel storage, cask maintenance, and the Army's tank program work activities.

TAN/SMC Year-to-Date Average Worker Dose CY-95

The average worker radiation exposure provides an indication of the effectiveness of the Radiological Control and ALARA Programs.

The average TAN/SMC occupational radiation exposure through the end of the fourth quarter was 0.061 rem.

TAN/SMC Maximum Year-to-Date Penetrating Dose to a Worker CY-95

The maximum penetrating radiation dose to a worker provides an indication of how well occupational radiation exposure is being managed.

The maximum penetrating radiation dose to a TAN/SMC worker through the the end of the fourth quarter was 0.549 rem.

TAN/SMC Maximum Year-to-Date Neutron Dose to a Worker CY-95

The maximum neutron radiation dose to a worker provides an indication of how well occupational exposure to neutron radiation is managed.

The TAN/SMC maximum neutron radiation dose to a worker through the end of the fourth quarter was 0.019 rem.

TAN/SMC Year-to-Date Skin Contaminations CY-95

Skin contamination events are a measure of the effectiveness of the radiological protection program, specifically, how well radioactive contamination is controlled.

There were no skin contaminations at TAN/SMC during the fourth quarter.

TAN/SMC Year-to-Date Clothing Contaminations CY-95

Clothing contamination events are a measure of the effectiveness of the radiological protection program, specifically, how well radioactive contamination is controlled and how well workers adhere to safe radiological work practices.

There were no clothing contaminations at TAN/SMC through the end of the fourth quarter.

TAN/SMC Year-to-Date Airborne Radioactivity Events CY-95

Air samplers monitor occupied process and laboratory areas to quantify concentrations of airborne radioactivity. The DOE unit of measure is a DAC. An area which exceeds 10% of one DAC must be posted as an Airborne Radioactivity Area.

No airborne activity greater than 10% DAC was detected at TAN/SMC areas not posted as Airborne Radioactivity Areas during the fourth quarter.

TAN/SMC Year-to-Date Radioactive Material Intakes CY-95

This indicator depicts the number of positive bioassay results that indicate an intake of radioactive material and result in a dose assessment of 10 mrem or greater from TAN/SMC exposure during occupational work activities.

There were six positive bioassays indicating an intake of radioactive material that resulted in a dose assessment of 10 mrem or greater through the end of the fourth quarter at TAN/SMC. None of the positive bioassays were reportable in accordance with DOE Order 5000.3B criteria.

TAN/SMC Contamination Area CY-95

This indicator is used to report the total area designated as Contamination Area as defined in Table 2-3 of the INEL RCM.

The total Contamination Area at TAN/SMC at the end of the fourth quarter was 54,249 square feet. Of this area, 53,949 square feet were designated as permanent and in-use.

TAN/SMC High Contamination Area CY-95

This indicator is used to report the total area designated as High Contamination Area as defined in Table 2-3 of the INEL RCM.

The total High Contamination Area at TAN/SMC at the end of the fourth quarter was 11,526 square feet. All of this area was designated as permanent and in-use.

TAN/SMC Airborne Radioactivity Area CY-95

This indicator is used to report the total area designated as Airborne Radioactivity Area as defined in Table 2-3 of the INEL RCM.

The total Airborne Radioactivity Area at TAN/SMC at the end of the fourth quarter was zero square feet.

TAN/SMC Year-to-Date Spills CY-95

This indicator is used to report inadvertent loss or release of radioactive material.

There was one event that involved the loss of a radioactive source during the fourth quarter. The incident did not meet the OR criteria.