August 1995

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

**Second Quarter
Calendar Year 1995**

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INEL-95/0274 (2nd QTR)

Idaho National Engineering Laboratory Radiological Control Performance Indicator Report

Second Quarter - Calendar Year 1995

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Published August 1995

**Idaho National Engineering Laboratory
Radiological Control
Lockheed Idaho Technologies Company
Idaho Falls, Idaho 83415**

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Idaho National Engineering Laboratory Radiological Control Performance
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INEL RADIOLOGICAL CONTROL PERFORMANCE INDICATOR REPORT
Second Quarter - 1995

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INEL Radiological Control Performance Indicator Overview
Second Quarter 1995

		<u>Actual</u>	<u>Goal or Average</u>
Collective Year-to-Date Penetrating Radiation Dose		140.1 person-rem	354 person-rem (Goal)
Year-to-Date Average Worker Dose		0.089 rem	0.149 rem (3 Year Average)
Maximum Year-to-Date Penetrating Dose to a Worker		1.610 rem	* 1 rem (Goal)
Maximum Year-to-Date Neutron Dose to a Worker		0.155 rem	0.112 rem (3 Year Average)
Year-to-Date Skin Contaminations		16	32 (3 Year Average)

Legend

Needs Attention

OK

Good

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

		<u>Actual</u>	<u>Goal or Average</u>
Year-to-Date Clothing Contaminations		23	70 (3 Year Average)
Year-to-Date Airborne Events		0	12 (3 Year Average)
Year-to-Date Radioactive Material Intakes		5	11 (3 Year Average)
Contamination Area		198,386 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		84,312 ft ²	80,033 ft ² (3 Year Average)
Year-To-Date Spills		10	46 (3 Year Average)

INEL Facility Radiological Control Performance Indicator Overview Second Quarter 1995

Legend

Needs Attention

OK

Good

	CFA	ICPP	PBF	RWMC	TRA	TAN/SMC
Year-to-Date Clothing Contaminations	0	7	0	0	16	0
Year-to-Date Airborne Events	0	0	0	0	0	0
Year-to-Date Radioactive Material Intakes	0	1	0	0	0	4
Contamination Area - ft ²	17,105	65,419	7,378	0	54,235	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	1,600	0	0	0
Year-to-Date Spills	0	6	0	0	3	1

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Executive Summary Radiological Control Performance Indicator Report

Second Quarter 1995

This document provides a report and analysis of the Radiological Control Program through the second quarter of calendar year 1995 (CY-1995) at the Idaho National Engineering Laboratory (INEL) 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.

- Total INEL penetrating radiation exposure through the end of the second quarter was 140.1 person-rem.
- Average penetrating radiation dose to an INEL radiation worker year-to-date was 0.089 rem.
- Maximum penetrating radiation dose to an INEL worker through the second quarter was 1.610 rem.
- Maximum neutron radiation dose to an INEL worker year-to-date was 0.155 rem.
- The total number of INEL skin contaminations through the second quarter was sixteen, thirteen of which resulted in Occurrence Reports.
- The total number of INEL clothing contaminations year-to-date was twenty-three, of which thirteen resulted in Occurrence Reports.
- Total number of airborne radioactivity events exceeding 10% Derived Air Concentrations (DAC) through the end of the second quarter was zero.
- Total number of year-to-date radioactive material intakes assigned a dose of 10 mrem or more was five. No intakes met Department of Energy (DOE) Order 5000.3B reportable criteria.
- Total INEL Contamination Area was 198,386 square feet. Total High Contamination Area was 297,663 square feet, and total Airborne Radioactivity Area was 84,312 square feet.
- The total number of radioactive spills was ten, of which eight resulted in an Occurrence Report.

Radiological Control Performance Indicator Charter

The INEL Radiological Control Performance Indicator Report is provided quarterly, in accordance with Article 133 of the INEL Radiological Control Manual. 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 forecasts and goals provided by each facility organizational manager or supervisor.

Performance goals are realistic and measurable. Stringent goals are set at least annually to reflect expected workloads and improvement of radiological performance. Goals higher than previous goals may occasionally be set 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% Derived Air Concentrations (DAC).

Total Year-to-Date 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 Radiological Control Manual.

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 Radiological Control Manual.

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 Radiological Control Manual.

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

It is DOE and LITCO policy to maintain personnel radiation exposure ALARA. Measuring collective radiation exposure provides an indicator of the effectiveness of the Radiological Control and ALARA Programs.

The goal is adjusted quarterly to provide realistic values and was adjusted at the end of the first quarter from 424 person-rem to 354 person-rem. Changes in work schedules and scope resulted in a reevaluation and adjustment of 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 second quarter CY-1995 was 140.1 person-rem. This collective exposure represents 75% of the adjusted quarterly ALARA goal of 187.3 person-rem.

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

Tracking the average worker radiation exposure provides an indicator of the effectiveness of the Radiological Controls 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 worker radiation exposure has decreased from 0.101 rem at the end of the first quarter CY-95 to 0.089 rem at the end of the second quarter. Major sources of the exposure are related to work on the ICPP Tank Farm Upgrade Project and the ICPP High Level Liquid Waste Evaporator Project.

INEL 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 worker radiation exposure is being controlled. Managers should use these reports as an aid in administration of their workers radiation exposure.

The maximum penetrating radiation dose to a worker through the end of the second quarter of 1995 was 1.610 rem. This individual was involved in construction activities related to the ICPP Tank Farm Upgrade Project.

Some construction personnel associated with the ICPP Tank Farm Valve Box Upgrade Project been approved to receive up to two rem of exposure due to the complexity and high body fields encountered.

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 worker exposure to neutron radiation is managed. Health effects 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 as an aid in detection of any health effects related to neutron exposure.

The INEL maximum neutron radiation dose to a worker through the end of the second quarter was 0.155 rem. This individual was involved in inspection activities related to construction of the NWCF High Level Liquid Waste Evaporator Project.

INEL Year-to-Date Skin Contaminations CY-95

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

There were a total of sixteen skin contaminations at the INEL through the second quarter. Of these, thirteen resulted in Occurrence Reports. Eight skin contaminations occurred at the ICPP and the remaining eight occurred at TRA.

Of the eleven skin contaminations during the second quarter, none were facial contaminations. There were no contaminated wounds during the quarter.

INEL Year-to-Date Clothing Contaminations CY-95

Clothing contamination events are partial measures 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 a total of twenty-three clothing contaminations at the INEL through the second quarter. Of these, thirteen resulted in Occurrence Reports. Sixteen clothing contaminations, ten reportable, occurred at TRA. Seven clothing contaminations, three reportable, 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 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 second 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 Committed Effective Dose Equivalent (CEDE) of 10 mrem or greater. This is reported as the number of bioassay results that are assigned a dose of 10 mrem or greater and those that meet DOE Order 5000.3B reportable criteria.

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

Four positive indications resulting in a dose assessment of 10 mrem or more were from SMC operations at TAN. One positive indication resulting in a dose assessment of 10 mrem or greater was from construction activities at ICPP. A total of 295 positive bioassays were investigated and resolved through the end of the second quarter.

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 Radiological Control Manual. 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 second quarter was 198,386 square feet. Of this area, 151,123 square feet was designated as permanent and in-use. 28,100 square feet of contamination area was removed from the permanent and in-use listing and 12,500 square feet of contamination area has 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 Radiological Control Manual. 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 High Contamination Area at the INEL at the end of the second quarter was 297,663 square feet. Of this area, 296,641 square feet was designated as permanent and in-use.

INEL Airborne Radioactivity Area CY-95

This indicator is used to report the total area designate as Airborne Radioactivity Area as defined in Table 2-3 of the INEL Radiological Control Manual. 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 or in-use to be evaluated for decontamination.

The total Airborne Radioactivity Area at the INEL at the end of the second quarter of 1995 was 84,312 square feet. Of this area, 83,662 square feet was 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 ten loss of radioactive materials or spills through the end of the second quarter. Eight of the spills resulted in Occurrence Reports. During the second quarter, two spills, both reportable, occurred at TRA, three spills, all reportable, occurred at the ICPP, and one non-reportable loss of radioactive material occurred at TAN.

Central Facilities Area

The CFA facility report also includes
other outlying area information

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

CFA collective radiation exposure for the second quarter was 2.054 person-rem. Included in this total are exposures from the first quarter of 0.814 person-rem and the second quarter of 1.240 person-rem.

Major activities contributing to the 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 indicator of the effectiveness of the Radiological Control and ALARA programs.

The average CFA worker radiation exposure at the end of the second quarter was 0.050 rem. Major sources of exposure are related to D&D and environmental restoration activities.

CFA 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 worker radiation exposure is being managed.

The maximum penetrating radiation dose to a CFA worker through the second 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 worker exposure to neutron radiation is managed.

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

CFA Year-to-Date Skin Contaminations CY-95

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

There were no skin contaminations at the CFA areas during the second quarter.

CFA Year-to-Date Clothing Contaminations CY-95

Clothing contamination events are partial measures 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 the CFA areas through the end of the second 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 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 the CFA areas the second 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 from a CFA 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 the CFA areas during the second 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 Radiological Control Manual.

The total Contamination Area at the CFA areas at the end of the second 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 Radiological Control Manual.

The total High Contamination Area at the CFA areas at the end of the second 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 Radiological Control Manual.

The total Airborne Radioactivity Area at the CFA area at the end of the second 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.

The CFA areas had no radioactively contaminated spills or loss of radioactively contaminated material through the end of the second quarter.

Idaho Chemical Processing Plant

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

The ICPP collective radiation exposure for the second quarter was 114.264 person-rem. The ICPP ALARA goal for CY-95 is 283 person-rem and 159 person-rem through the second quarter.

Major contributors to the ICPP second quarter penetrating radiation exposure include Tank Farm construction activities from which personnel received 20 person-rem, CPP-659 Blend and Hold Cell construction from which personnel received 21.6 person-rem, and the CPP-659 Valve Cubicle work from which personnel received 5.7 person-rem.

The ALARA goal is adjusted quarterly to provide realistic values and was adjusted at the end of the first quarter from 353 person-rem to 283 person-rem due to changes in work schedules and work scope at the ICPP.

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

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

The average ICPP worker radiation exposure at the end of the second quarter was 0.106 rem, down from 0.144 rem. Included in this average are all LITCO and construction personnel that 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 another indication of how well worker radiation exposure is being managed.

The maximum penetrating radiation dose to an ICPP worker through the second quarter was 1.610 rem. This individual was involved in construction activities related to the Tank Farm Valve Box Upgrade Project.

Some construction personnel associated with the ICPP Tank Farm Valve Box Upgrade Project have been approved to receive up to 2 rem of exposure due to the complexity and high body fields encountered.

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 worker exposure to neutron radiation is managed.

The ICPP maximum neutron radiation dose to a worker through the end of the second quarter was 0.155 rem.

ICPP Year-to-Date Skin Contaminations CY-95

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

Six skin contaminations, three resulting in Occurrence Reports (OR), occurred during the second quarter at the ICPP. Second quarter reportable skin contamination information is contained in ORs ID-LITC-WASTEMNGT-1995-0014, ID-LITC-WASTEMNGT-1995-0016, and ID-LITC-WASTEMNGT-1995-0020.

There has been one facial contamination and no contaminated wounds at the ICPP through the second quarter.

ICPP Year-to-Date Clothing Contaminations CY-95

Clothing contamination events are partial measures 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.

Four clothing contaminations, two resulting in Occurrence Reports, occurred during the second quarter at the ICPP. Second quarter reportable clothing contamination information is contained in ORs ID-LITC-WASTEMNGT-1995-0017 and ID-LITC-PHASEOUT-1995-0002.

**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 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 second 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 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 the ICPP during the second quarter.

ICPP Contamination Area CY-95

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

The total Contamination Area at the ICPP at the end of the second quarter was 65,419 square feet. Of this area, 64,452 square feet was designated as 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 Radiological Control Manual.

The total High Contamination Area at the ICPP during the second quarter was 251,961 square feet. Of this area, 251,311 square feet was 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 Radiological Control Manual.

The total Airborne Radioactivity Area at the ICPP at the end of the second quarter was 82,712 square feet. Of this area, 82,062 square feet was 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 three radioactively contaminated spills during the second quarter, all three resulted in Occurrence Reports. On 4-13-95, contaminated solution was inadvertently flushed into the NWCF make-up room manifold. The second occurred on 6-29-95 and was a solution leak from a pipe opened during construction activities. The third occurred on 6-30-95 and was a leak of radioactive solution from a waste bag.

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 second quarter was 0.246 rem.

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

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

The average worker radiation exposure provides an indicator of the effectiveness of the Radiological Control and ALARA programs.

The average PBF/WERF/WROC worker radiation exposure at the end of the second quarter was 0.010 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 another indication of how well worker radiation exposure is being managed.

The maximum penetrating radiation dose to a PBF/WERF/WROC worker through the second 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 worker exposure to neutron radiation is managed.

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

PBF Year-to-Date Skin Contaminations CY-95

Skin contamination events are partial measures 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 second quarter.

PBF Year-to-Date Clothing Contaminations CY-95

Clothing contamination events are partial measures 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 second 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 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 second 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 from a PBF, WERF, or WROC 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 PBF, WERF or WROC during the second 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 Radiological Control Manual.

The total Contamination Area at PBF, WERF, and WROC at the end of the second 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 Radiological Control Manual

The total High Contamination Area at PBF, WERF, and WROC at the end of the second 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 Radiological Control Manual.

The total Airborne Radioactivity Area at PBF, WERF, and WROC at the end of the second quarter was 1600 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 radioactively contaminated spills at PBF, WERF, or WROC through the end of the second quarter.

Radioactive Waste Management Complex

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

The RWMC collective radiation exposure for the second quarter was 5.593 rem.

The major contributor to the second quarter RWMC penetrating radiation was from waste transfer 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 indicator of the effectiveness of the Radiological Control and ALARA Programs.

The average RWMC worker radiation exposure at the end of the second quarter was 0.041 rem. The major source of exposure was related to waste transfers from C&S to WMF-628 and from low-level disposal operations.

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 worker radiation exposure is being managed.

The maximum penetrating radiation dose to a RWMC worker through the second quarter was 0.265 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 worker exposure to neutron radiation is managed.

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

RWMC Year-to-Date Skin Contaminations CY-95

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

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

RWMC Year-to-Date Clothing Contaminations CY-95

Clothing contamination events are partial measures 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 second 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 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 second 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 an RWMC 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 RWMC during the second 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 Radiological Control Manual.

The total Contamination Area at RWMC at the end of the second 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 Radiological Control Manual

The total High Contamination Area at RWMC at the end of the second 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 Radiological Control Manual.

The total Airborne Radioactivity Area at RWMC at the end of the second 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 radioactively contaminated spills through the end of the second quarter.

Test Reactor Area

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

TRA collective radiation exposure for the second quarter was 15.171 person-rem.

The major contributor to the second quarter TRA penetrating radiation was from ATR outages and normal reactor operations.

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

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

The average TRA worker radiation exposure at the end of the second quarter was 0.071 rem. The major source of exposure was 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 worker radiation exposure is being managed.

The maximum penetrating radiation dose to a TRA worker through the second quarter was 0.692 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 worker exposure to neutron radiation is managed.

The TRA maximum neutron radiation dose to a worker through the end of the second quarter was 0.114 rem.

TRA Year-to-Date Skin Contaminations CY-95

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

There were five skin contaminations at TRA during the second quarter, all five resulted in Occurrence Reports. Second quarter reportable skin contamination information is contained in ORs ID-LITC-ATR-1995-0019 and ID-LITC-ATR-1995-0021.

TRA Year-to-Date Clothing Contaminations CY-95

Clothing contamination events are partial measures 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 ten clothing contaminations at TRA during the second quarter, seven of which resulted in Occurrence Reports. Second quarter reportable clothing contamination information is contained in ORs ID-LITC-ATR-1995-0014, ID-LITC-ATR-1995-0018, and ID-LITC-ATR-1995-0019.

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 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 second 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 second 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 Radiological Control Manual.

The total Contamination Area at TRA at the end of the second quarter was 54,235 square feet, of which 25,355 square feet was 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 Radiological Control Manual.

The total High Contamination Area at TRA at the end of the second 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 Radiological Control Manual.

The total Airborne Radioactivity Area at TRA at the end of the second 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.

Two reportable radioactively contaminated spills occurred during the second quarter at TRA. Second quarter reportable loss or release of radioactive material information is contained in ORs ID-LITC-ATR-1995-0015 and ID-LITC-ATR-1995-0016.

Test Area North/ Specific Manufacturing Capability

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

TAN and SMC collective radiation exposure for the second quarter was 4.095 rem.

Major contributors to the second quarter penetrating radiation at TAN and SMC were from normal operations and production.

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

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

The average TAN/SMC worker radiation exposure at the end of the second quarter was 0.054 rem.

TAN/SMC 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 worker radiation exposure is being managed.

The maximum penetrating radiation dose to a TAN/SMC worker through the second quarter was 0.389 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 worker exposure to neutron radiation is managed.

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

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

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

There were no skin contaminations at TAN or SMC during the second quarter.

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

Clothing contamination events are partial measures 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 or SMC through the end of the second 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 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 or SMC areas not posted as Airborne Radioactivity Areas during the second 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 was one positive bioassay indicating an intake of radioactive material that resulted in a dose assessment of 10 mrem or greater during the second 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 Radiological Control Manual.

The total Contamination Area at TAN and SMC at the end of the second quarter was 54,249 square feet. Of this area, 53,949 square feet was 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 Radiological Control Manual

The total High Contamination Area at TAN and SMC at the end of the second 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 Radiological Control Manual.

The total Airborne Radioactivity Area at TAN and SMC at the end of the second 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 non-reportable release of radioactively contaminated material from TAN at the CFA landfill during the second quarter.