INEL-95/0274 (1st QTR)

RECEIVED

OCT 27 1995

OSTI

July 1995

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

**First Quarter
Calendar Year 1995**

S. B. Aitken

Lockheed
Idaho Technologies Company

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

MASTER

Idaho
National Engineering Laboratory
Radiological Control
Performance Indicator Report

First Quarter - Calendar Year 1995

Date Published

July 1995

MASTER

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED *et*

Lockheed Martin
Idaho Technologies

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

Document Title:

Idaho National Engineering Laboratory Radiological Control
Performance Indicator Report

Prepared By:

S. B. Aitken
Radiological Engineer

7/13/95
Date

Approved By:

G. L. Courtney
Manager, Radiological Control

7/14/95
Date

DISCLAIMER

Portions of this document may be illegible in electronic image products. Images are produced from the best available original document.

INEL RADIOLOGICAL CONTROL PERFORMANCE INDICATOR REPORT

First Quarter - 1995

TABLE OF CONTENTS

INEL Overview	-2-
Facility Overview	-4-
Executive Summary	-7-
Charter	-8-
Criteria	-9-
Collective Radiation Dose	-11-
Average Worker Dose	-12-
Maximum Dose To A Worker	-13-
Maximum Neutron Dose	-14-
Skin Contaminations	-15-
Clothing Contaminations	-16-
Airborne Events	-17-
Radioactive Material Intakes	-18-
Contamination Area	-19-
High Contamination Area	-20-
Airborne Radioactivity Area	-21-
Spills	-22-

Facility Reports

Central Facilities Area (CFA)	-23 thru 34-
Idaho Chemical Processing Plant (ICPP)	-35 thru 46-
Radioactive Waste Management Complex (RWMC)	-47 thru 58-
Test Reactor Area (TRA)	-59 thru 70-
Test Area North/Specific Manufacturing Capability (TAN/SMC)	-71 thru 82-

INEL Radiological Control Performance Indicator Overview

First Quarter 1995

		<u>Actual</u>	<u>Goal or Average</u>
Collective Year-to-Date Penetrating Radiation Dose		69.5 person-rem	354 yr/76 1st qtr person-rem (Goal)
Year-to-Date Average Worker Dose		0.101 rem	0.148 rem (3 Year Average)
Maximum Year-to-Date Penetrating Dose to a Worker		1.030 rem	* 1. rem (Goal)
Maximum Year-to-Date Neutron Dose to a Worker		0.131 rem	0.112 rem (3 Year Average)
Year-to-Date Skin Contaminations		5	32 (3 Year Average)

Legend

Needs Attention

OK

Good

* 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		9	70 (3 Year Average)
Year-To-Date Airborne Events		0	12 (3 Year Average)
Year-To-Date Radioactive Material Intakes		96	82 (3 Year Average)
Contamination Area - ft ²		198,835	195,200 (3 Year Average)
High Contamination Area - ft ²		286,329	293,100 (3 Year Average)
Airborne Radioactivity Area - ft ²		80,312	80,033 (3 Year Average)
Year-To-Date Spills		4	46 (3 Year Average)

INEL Facility Radiological Control Performance Indicator Overview

First Quarter 1995

Legend

Needs Attention

OK

Good

Power Burst Facility (PBF) and Waste Experimental Reduction Facility (WERF) information is included in the Central Facilities Area overview and report.

	CFA	CPP	RWMC	TRA	TAN/SMC
Year-to-Date Clothing Contaminations	0	3	0	6	0
Year-to-Date Airborne Events	0	0	0	0	0
Year-to-Date Radioactive Material Intakes	0	3	0	0	93
Contamination Area - ft ²	30,005	65,187	5,473	56,147	42,023
High Contamination Area - ft ²	2,900	251,961	29,525	1,943	0
Airborne Radioactivity Area - ft ²	0	78,712	0	1,600	0
Year-to-Date Spills	0	3	0	1	0

This Page

Intentionally Blank

Executive Summary Radiological Control Performance Indicator Report

First Quarter 1995

This document provides a report and analysis of the Radiological Control Program through the first quarter of calendar year 1995 (CY-1995) at the Idaho National Engineering Laboratory (INEL) under the direction of Lockheed Martin Idaho Technologies (LMIT). 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 first quarter was 69.5 person-rem.
- Average penetrating radiation dose to an INEL radiation worker year-to-date is 0.101 person-rem.
- Maximum penetrating radiation dose to an INEL worker through the first quarter was 1.030 rem.
- Maximum neutron radiation dose to an INEL worker for the first quarter was 0.131 rem.
- The total number of INEL skin contaminations during the first quarter was five, all of which resulted in Occurrence Reports.
- The total number of INEL clothing contaminations through the first quarter was nine, of which four resulted in Occurrence Reports.
- Total number of airborne radioactivity events exceeding 10% Derived Air Concentrations (DAC) through the end of the first quarter was zero.
- Total number of radioactive material intakes during the first quarter was 96, of which four were assigned exposure of 10 mrem or greater. No intakes met DOE reportable criteria.
- Total INEL Contamination Area was 198,835 square feet. Total High Contamination Area was 286,329 square feet, and total Airborne Radioactivity Area was 80,312 square feet.
- The total number of radioactive spills was four, of which three 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.
- 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 curie 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, which is added for clarification.

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 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 total number of positive bioassay results that indicate an intake of radioactive material 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 ten mrem or greater are also 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 LMIT 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 re-evaluation 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 first quarter CY-1995 was 69.5 person-rem. This collective exposure represents 91% of the adjusted quarterly ALARA goal of 76 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 administering their workers radiation exposure. Large increases are investigated, root causes determined and appropriate measures taken.

The average worker radiation exposure has decreased from 0.161 rem at the end of the fourth quarter CY-94 to 0.101 rem at the end of the first quarter CY-95. 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 first quarter of 1995 was 1.030 rem. (1030 mrem). This individual was involved in construction activities related to the ICPP Tank Farm Upgrade Project.

Construction personnel associated with the tank farm project have been approved to receive up to two rem of exposure during 1995 due to the complexity of this work.

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 first quarter was 0.131 rem (131 mrem). 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 a measure of the overall effectiveness of the radiological protection program, specifically, how well radioactive contamination is controlled.

There were a total of five skin contaminations at the INEL during the first quarter of 1995. Of these, all five resulted in Occurrence Reports. Two skin contaminations occurred at the ICPP and the remaining three occurred at TRA.

Of the five skin contaminations during the first quarter of 1995, two were facial contaminations. One of these occurred at the ICPP and the other at TRA. There were no contaminated wounds during the quarter.

INEL Year-to-Date Clothing Contaminations CY-95

Clothing contamination events are a measure of the overall 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 nine clothing contaminations at the INEL through the end of the first quarter. Of these, four resulted in Occurrence Reports. Six clothing contaminations, three reportable, occurred at TRA. Three clothing contaminations, one 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 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 first quarter of 1995.

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 from an INEL exposure during occupational work activities. This is further separated into the total number of positive bioassay results that are assigned a dose of ten mrem or greater and those that meet DOE Order 5000.3B reportable criteria.

The total number of positive bioassays indicating an intake of radioactive material at the INEL for the first quarter of 1995 was 96. Of the positive indications, none were reportable in accordance with DOE Order 5000.3B reportable criteria. Four of the positive indications resulted in as assigned effective dose equivalent equal to ten mrem or greater.

93 positive indications were from SMC operations at TAN, three of those were assigned a dose of ten mrem or greater. Three positive indications were from personnel at ICPP, one resulting in a dose equivalent equal to ten mrem or greater.

INEL Contamination Area CY-95

This indicator is used to report the total area designated as Contamination Area as described 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 first quarter was 198,835 square feet. Of this area, 167,301 square feet was designated as permanent and in-use.

INEL 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. 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 first quarter of 1995 was 286,329 square feet. Of this area, 285,667 square feet was designated as permanent and in-use.

INEL 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. 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 first quarter of 1995 was 80,312 square feet. Of this area, 79,662 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 four radioactive contamination spill through the end of the first quarter. Three of the spills resulted in Occurrence Reports. One spill occurred at TRA and the area was isolated, decontaminated, and released. The three reportable spills occurred at the ICPP. One was a spill in CPP-602 lab 103, another was a contaminated ring stand in CPP-1650, and the last was an ICPP vehicle with contamination on the bed liner discovered at CFA.

Central Facilities Area

**The CFA facility report also includes PBF, WERF, and
other outlying area information**

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

CFA collective radiation exposure for the first quarter was 0.897 person-rem (897 mrem). Included in this total are exposures from PBF and WERF, which added 0.083 person-rem (83 mrem).

Major activities contributing to the radiation exposure include decontamination and decommissioning (D&D) activities at the Auxiliary Reactor Area, along with routine operations.

**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 first quarter was 0.021 rem (21 mrem). Major sources of exposure are related to D&D activities at the Auxiliary Reactor Area.

**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 first quarter was 0.088 rem (88 mrem).

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 first quarter was 0.043 rem (43 mrem).

CFA Year-to-Date Skin Contaminations CY-95

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

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

CFA Year-to-Date Clothing Contaminations CY-95

Clothing contamination events are a measure of the overall 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 first 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 the CFA areas the first quarter.

CFA 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 from a CFA exposure during occupational work activities.

The total number of positive bioassays indicating an intake of radioactive material at the CFA areas for the first quarter was zero.

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 first quarter was 30,005 square feet. All of this area was designated as permanent and in-use.

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 the CFA areas at the end of the first quarter was 2,900 square feet. All 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 defined in Table 2-3 of the INEL Radiological Control Manual.

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

Idaho Chemical Processing Plant

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

The ICPP collective radiation exposure for the first quarter was 52 person-rem. The ICPP ALARA goal for CY-95 is 283 person-rem and 67 person-rem for the quarter.

Major contributors to the ICPP first quarter penetrating radiation exposure include Tank Farm construction activities from which personnel received 21.5 person-rem, CPP-659 Blend and Hold Cell construction from which personnel received 13.2 person-rem, and the CPP-604 North Evaporator work from which personnel received 3.7 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 first quarter was 0.144 person-rem (144 mrem). Included in this average are all LMIT 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 another indication of how well worker radiation exposure is being managed.

The maximum penetrating radiation dose to an ICPP worker through the first quarter was 1.030 person-rem. This individual was involved in construction activities related to the Tank Farm Valve Box Upgrade Project.

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 involved with the project.

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 first quarter was 0.131 person-rem (131 rem). This individual was performing Quality Assurance inspections in relation to work performed in the CPP-659 Blend and Hold Cell and the valve cubicle.

ICPP Year-to-Date Skin Contaminations CY-95

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

Two skin contaminations occurred at the ICPP during the first quarter, both resulting in Occurrence Reports. The first occurred on 1-6-95 when a construction pipefitter was contaminated on the right hand while working under a lab hood at CPP-684. The other occurred on 1-24-95 when a waste handler received a facial contamination while moving waste at CPP-1617.

- * The risk incident rate attempts to display the number of contaminations as a ratio based on the number of 1000 entries into contaminated areas. This ratio is more descriptive of the effectiveness of the contamination control program than simple contamination incident numbers. High risk incidents are defined as those entries requiring respiratory protection as part of the protective clothing requirements.

ICPP Year-to-Date Clothing Contaminations CY-95

Clothing contamination events are a measure of the overall 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, one resulting in an Occurrence Report, occurred at the ICPP during the first quarter. The reportable clothing contamination occurred 1-24-95 on a construction worker's sweatshirt following work in tank farm valve box C-40. The non-reportable clothing contaminations occurred at CPP-602 in lab 103 on 2-15-95 and at CPP-659 (NWCF) on 3-30-95. Both incidents were contamination on worker's shoes.

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 first quarter.

ICPP 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 from an ICPP exposure during occupational work activities.

There were three positive bioassay results for the ICPP during the first quarter, one resulted in a dose equivalent greater than ten mrem. None of the positive indications met DOE Order 5000.3B reportable criteria. One of the positive indications occurred in January and the other two occurred in March.

ICPP 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 ICPP at the end of the first quarter was 65,187 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 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 first 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 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 ICPP at the end of the first quarter was 78,712 square feet. Of this area, 78,062 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 first quarter, all three resulted in Occurrence Reports. On 1-12-95, a contaminated waste bag support stand was discovered at CPP-1650. The stand was marked and removed as radioactive material. On 2-15-95, radioactive material was discovered on the floor of Lab 103 in CPP-602. The area was decontaminated and released. On 3-20-95, contamination was found on the bed liner of an ICPP truck. The contamination was removed and the liner released for reuse.

Radioactive Waste Management Complex

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

The RWMC collective radiation exposure for the first quarter was 3.747 rem (3,747 mrem).

The major contributor to the first quarter RWMC penetrating radiation was from waste transfer from the WMF-612 (C&S building) to storage module WMF-628.

**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 first quarter was 0.039 rem (39 mrem). The major source of exposure was related to waste transfers from WMF-612 to storage module WMF-628.

**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 an RWMC worker through the first quarter was 0.161 rem (161 mrem).

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 first quarter was 0.032 rem (32 mrem).

RWMC Year-to-Date Skin Contaminations CY-95

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

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

RWMC Year-to-Date Clothing Contaminations CY-95

Clothing contamination events are a measure of the overall 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 first 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 first quarter.

RWMC 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 from an RWMC exposure during occupational work activities.

The total number of positive bioassays indicating an intake of radioactive material at RWMC for the first quarter was zero.

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 first quarter was 5,473 square feet. All of this area was designated as permanent and in-use.

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 first 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 described in Table 2-3 of the INEL Radiological Control Manual.

The total Airborne Radioactivity Area at RWMC at the end of the first 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 first quarter.

Test Reactor Area

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

TRA collective radiation exposure for the first quarter was 6.149 rem (6,149 mrem).

The major contributor to the first quarter TRA penetrating radiation was from normal reactor operations and a short term reactor outage.

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 first quarter was 0.045 rem (45 mrem). The major source of exposure was related to normal reactor operations and a short reactor outage.

**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 first quarter was 0.182 rem (182 mrem).

**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 first quarter was 0.066 rem (66 mrem).

TRA Year-to-Date Skin Contaminations CY-95

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

There were three skin contaminations at TRA during the first quarter, all three resulted in Occurrence Reports. The first occurred on 1-3-95 in TRA-670. An equipment operator was contaminated on the right hand while performing a monthly crane inspection. The other two occurred on 2-13-95 at TRA-670. Two pipefitters were contaminated, one on the chest and the other on the face, while rebuilding a degassing line globe valve.

TRA Year-to-Date Clothing Contaminations CY-95

Clothing contamination events are a measure of the overall 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 six clothing contaminations at TRA through the end of the first quarter, three of which resulted in Occurrence Reports. On 1-9-95, a laborer's company issued modesty clothes were contaminated while wrapping a hot waste truck valve. On 3-15-95, a maintenance worker's left pant leg was contaminated while observing a piece of equipment at TRA-670. On 3-24-95, a clothing technician's company issued clothing was contaminated while stocking protective clothing in TRA-670. There was one non-reportable clothing contamination during February and two during March.

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 first quarter.

TRA 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 from a TRA exposure during occupational work activities.

The total number of positive bioassays indicating an intake of radioactive material at TRA for the first quarter was zero.

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 first quarter was 56,147 square feet, 25,353 square feet of this area 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 first quarter was 1,943 square feet, 1,931 square feet 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 first quarter was 1,600 square feet, zero square feet of this area was designated as permanent and in-use.

TRA Year-to-Date Spills CY-95

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

TRA had one non-reportable radioactively contaminated spill during the first quarter. A small spill occurred which resulted in the establishment of a contamination area. The area was decontaminated and released.

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 first quarter was 1.739 (1,739 mrem).

Major contributors to the first quarter penetrating radiation at TAN and SMC were from clean-up and re-tooling SMC production lines and normal TAN operations.

**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 first quarter was 0.048 rem (48 mrem). The major sources of exposure were related to SMC production line re-tooling and normal TAN operations.

**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 first quarter was 0.678 rem (678 mrem).

**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 first quarter was zero rem (zero mrem).

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

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

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

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

Clothing contamination events are a measure of the overall 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 first 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 or SMC areas not posted as Airborne Radioactivity Areas during the first quarter.

TAN/SMC 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 from a RWMC exposure during occupational work activities.

The total number of positive bioassays indicating an intake of radioactive material at TAN and SMC for the first quarter was 93. Three of these resulted in dose assessments of 10 mrem or greater. None of the positive bioassays were reportable in accordance with DOE Order 5000.3B criteria.

All of the positive bioassays were from SMC personnel and resulted from clean-up and production line re-tooling.

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 first quarter was 42,023 square feet. All of this area 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 first quarter was zero square feet.

TAN/SMC 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 TAN and SMC at the end of the first 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 were no radioactively contaminated spills at TAN or SMC through the end of the first quarter.