DOE - Savannah River
Integrated Safeguards & Security Management System
(SLIDE 1)

ISSMS CONCEPT - Mr. Greg Rudy (SLIDE 2)

In February 1998, at the conclusion of the Hagengruber security review, SROO Manager, Greg Rudy concluded that the concepts and principles of the Integrated Safety Management System should apply to the site's Safeguard and Security program. Soon afterward, Mr. Rudy affirmed his **vision** by incorporating Safety and Security as one of his five key focus areas for the site.

KAMS PROJECT INTEGRATION

As a result, security concerns and vulnerabilities in addition to the **principles of ISMS** were applied to the K Area Material Storage (KAMS) Project, which was in the early conceptual design stage. The KAMS project represents the initial, but significant success of the SRS Integrated Safeguards and Security Management System approach to a major site project.

Define The Work Scope
(SLIDE 3)

INTEGRATED TEAM - DIVERSE WORKING GROUP

The KAMS Integrated Project Team was formed with representatives from **DOE-SR**, **WSRC** and **WSI**. This **Diverse Working Group** consisted of subject matter experts from **Safety**, **RCO**, **Operations**, **Protective Force**, **MC&A**, and **Design Engineering**. The project scope was to identify a storage location for de-inventory of Rocky Flats material using an existing facility and existing security features.

The Integrated Project Team chose the **105-K building** because of the existing harden structure, security features and Protective Force. The 105-K building went through significant seismic upgrades during the Reactor Restart Project in the late 1980's and early 1990's so facility modifications would be minimal and less costly then other site facilities.

Analyze The Threats
(SLIDE 4)

INTEGRATED VULNERABILITY ASSESSMENT TEAM

The Integrated Vulnerability Analysis Team, using the Design Base Threat Guidance, Facility Design Descriptions and subject matter experts from **Safety**, **RCO**, **Operations**, **Protective Force**, **MC&A**, and **Design Engineering** evaluated the threats to determine facility upgrades and security controls necessary to adequately protect the material.

SECURITY FEATURES

An **Intrusion and Detection Zone** that encompassed the 105-K building already existed and the 105-K building had security **norshield doors** around the perimeter that would provide the required access delays and pedestrian controls.

REACTOR PROCESS ROOM

The reactor process room was protected with two solid steel **shield doors** approximately 80 feet tall, 50 feet wide and eight inches thick. Approximately 20 foot of both doors was cut off to provide a passageway into the process room. The integrated approach began paying dividends very early in the process. The security members of the team quickly identified that the steel removed from the doors would make excellent **fighting positions** around the exterior of the 105-K building, providing cover and concealment for the Protective Force. Using the existing steel resulted in significant cost savings because no material would have to be purchased.

RADIO FREQUENCY TAMPER INDICATING DEVICES (SLIDE 5)

The DOE-SR site Material Control and Accountability Division installed Radio Frequency Tamper Indicating Devices throughout the storage area in lieu of other security devices. The devices report directly to the **Control Room** and have recording capability. Installing security motion sensors would require hard wiring and routing to the Central Alarm Station. This would also prove to be a cost savings initiative.

9975 SHIPPING CONTAINER ANALYSIS

The 9975 shipping container was evaluated and analyzed by the Vulnerability Analysis Team to determine the actual time it would take to access a drum and **extract the material**. The evaluation was performed using an empty 9975 container secured in the same manner, as it will be in storage. The site's Special Response Team was tasked with developing and carrying out a plan to extract the material from the 9975 container. The team ran several timed exercises to develop an average task time to be included in the over all facility task time. Additionally, the exercises were filmed so area Protective Force personnel could actually see the tools required to access the 9975 shipping container and the actions necessary to extract the material.

The 9975 shipping container was taken to the weapon range for **ballistics testing** to determine if the ammunition used by the Protective Force would penetrate and damage the material. Additionally, the 9975 shipping container was being evaluated as a means of protection for responding Protective Force inside the 105-K building. The results of the test were incorporated into the facility **Safety Analysis Report (SAR)** to document both

the safety of the material during a hostile adversary threat and the ability of protective force personnel to use a container for protection when engaging the adversary.

Develop and Implement Security Controls
(SLIDE 6)

CROSS ORGANIZATIONAL PROCEDURE REVIEW

A cross-organizational procedure review was conducted to ensure that security requirements did not negatively impact **operational processes** or create an unsafe environment. A review of operational procedure requirements was conducted to ensure that the operational process did not create **security vulnerabilities**.

INTEGRATED DRILLS

Integrated security and operational emergency drills were conducted to evaluate protective measures and the **interaction between operations and security**. The **fire and emergency medical response** drills identified that the first responders needed to be Personnel Security Assurance Program (PSAP) certified in order to eliminate potential threats associated with their response. A way to verify and control this feature was also developed and implemented at the Entry Control Facility. First Responders are required to be enrolled in the PSAP certified program and only the people certified will be granted access by the electronic access control device during emergencies.

An integrated **contaminated drum** drill was conducted to evaluate the ability to isolate a contaminated drum and successfully ship the drum to 200-F area for de-contamination. The interactions between operations and security in both areas were evaluated to ensure procedures were followed and appropriate coordination took place between all affected personnel. No issues or concerns evolved as a result of the exercise.

FORCE ON FORCE EXERCISE (SLIDE 7)

A Force-on-Force exercise was conducted to **validate the protection strategy and the Security Incident Response Plan**. The HQ-DOE Verification and Validation Team observed the exercise as a part of the **SSSP validation** process. No issues or concerns evolved as a result of the exercise.

PSAP CERTIFICATION

In an effort to **mitigate potential security concerns** all personnel having access into KAMS are required to be PSAP certified. **Non-PSAP access** will require a Modified Security Plan that is approved by the DOE-SR Director or Safeguards & Security. Additionally, **tools** capable of accessing a 9975 container are not permitted inside the

KAMS area unless the tools are under the control of PSAP personnel. No tools capable of accessing the 9975 container will be stored inside the Material Access Area.

TWO PERSON RULE

In an effort to provide more assurance that the two-person rule is followed inside KAMS, an entry/exit door was configured with **access control devices** that require two authorized personnel to access KAMS and will not allow less than two people to remain inside the KAMS area.

VEHICLES (SLIDE 8)

Vehicles that enter the 105-K Protected Area that cannot be searched because of their size or cargo are under **continuous observation** by Protective Force Rovers. This security control measure ensures that unauthorized personnel or prohibited articles are not secreted into the 105-K Protected Area.

FLYER PLATE DOOR

During the facility analysis, the VA Team determined that a "flyer plate" door was necessary to with stand new weaponry available and utilized by adversarial teams. In coordination with Sandia National Laboratory, the VA Team developed a door design that would meet or exceed **delay requirements** and could be opened during material receipt. The door weights approximately 22,000 pounds and is motor-driven or it can be opened manually. The "Flyer Plate" door is the shipment receipt location for material. The door will not be opened for material receipt until the Protective Force Lieutenant and the Operations Shift Manager **communicate agreement** that all security measures are in place for material receipt. This security control measure ensures adequate security forces are in place before the "Flyer Plate" door is accessed.

JOINT CONFLICT AND TACTICAL ANALYSIS

A computer model (Joint Conflict and Tactical Analysis - JCATS) was used to analyze and develop **worst case scenarios** in an effort to identify **facility upgrades**, **Protective Force staffing** and **administrative procedure controls**. The results are used to develop a **(SLIDE 9) protection strategy** for the facility that is cost effective and places the material at low risk. Subject matter experts from Operations, Safety, Radiological Control, Design Engineering and Security provide input to ensure all aspects are covered and that **Protective Force locations** are strategically located and safe from operational hazards.

ELECTRONIC PERSONAL DOSIMETER'S

Electronic Personal Dosimeter's (EPD's) were assigned to Protective Force locations for **immediate recognition** of possible radiological hazards from other locations within the 105-K facility. The EPD's were set to sound an alarm if a potential radiological hazard

was present allowing Protective Force the time to **relocate** to a safe distance while maintaining the required security posture.

Perform Work within Controls
(SLIDE 10)

INTEGRATED TEAMS FOR OPERATIONAL READINESS REVIEW

The **WSI Protective Force Assessment Team**, **WSRC Assessment Program Team**, **DOE-SR Survey Team**, and **HQ Verification and Validation Team** all evaluated procedure compliance during the KAMS Operational Readiness Review. Additionally, **Integrated Safety Walkdowns** occurred to evaluate new security equipment and WSI posts. Historically WSRC Operations accompanies construction during turnover and upon acceptance by Operations, WSI schedules walkdowns by the WSI Environmental, Safety and Health Division. The walkdowns were scheduled to occur when all parties could be present so all input could be provided at one time. As a result of the integrated approach and using the ISMS principles, the KAMS project was completed **$2 million under budget**. Based on WSI and WSRC recommendation, and DOE-HQ concurrence with the SSSP, Mr. Greg Rudy approved the KAMS Site Safeguard and Security Plan and declared K Area ready for material receipt in January 2000.

Provide Feedback and Continuous Improvement
(SLIDE 11)

Weekly Integrated Security Meetings with representatives from **DOE-SR, WSRC Operations, WSRC Security, WSI Area Management, WSI Security, Projects and Planning, and the Vulnerability Analysis** Team are held in K Area to discuss concerns or potential process improvements for the KAMS project. Approved recommendations are initiated and tracked until completion. The success of the KAMS project validated what Mr. Greg Rudy had proposed. The concepts and principles behind the **(SLIDE 12) Integrated Safety Management System worked as it applied to the Integrated Safeguard and Security Program** at SRS. Additionally, **the MOX Fuel and Fabrication project** now in the conceptual design stage will follow the same concepts and principles utilized during KAMS.

Other Success Stories
(SLIDE 13)

235-F SHUFFLER PROJECT

The 235-F Shuffler project originated through the planning, coordination and communication with WSRC MC&A and as directed by DOE-SR. The project requires activities to be performed within the 235-F facility to accomplish isotopic quantitative analysis of nuclear materials stored within the facility.

The Integrated Shuffler Project Team was formed from DOE-SR, WSRC and WSI. The project scope is to take the Segmented Gamma Scanner and the Californium Shuffler with neutron coincidence counting capability and perform non-destructive analysis on nuclear material to verify values for materials received from other facilities and containers identified by MC&A. The result derived is a quantitative value for each isotope within the container. These results are verified to correspond with the expected values that are accepted upon receipt of the material minus natural decay.

This activity is unique due to the number of additional protective force positions required for the protection of the material and the inability of WSRC to routinely schedule shuffler work periods. Protective force working hours is adjusted to coincide with operations work schedules to mitigate the necessity for overtime. This innovative approach provides high quality, cost effective service necessary to support irregular periods of shuffler operations. The success of this project to date is due to the significant efforts in planning, coordination and communication between DOE-SR, WSI-SRS and WSRC personnel.

POST A-14 IMPROVEMENT

During the A-14 Improvement (701-9A) process ISMS principles were applied in determining and completing required safety/security enhancements to post A-14, lower entrance to SRTC Limited Area.

Personnel staffing the post, PF management, DOE and WSRC Security, Operations & Safety representatives jointly identified safety & security concern. The configuration of the post was not conducive to manning by a single person, and the layout of the post put PF personnel and pedestrians at increased risk of accident/injury. The desire was to increase the safety of personnel assigned to the post, pedestrian and vehicle traffic without decreasing the security of the area.

Volume of traffic was too high for one person to adequately control without delaying access/egress. Pedestrian traffic crossed immediately in front of the ECF, exposing personnel to vehicle traffic. Crosswalks were not clearly outlined in safe locations. A portion of the fence perpendicular to the ECF vehicle gate created a hazard for PF personnel when large vehicles pulled up to process into the area. Vehicles were pulling up too close to the ECF so that personnel could card into and out of the area. Potential existed for inadequate PF inspections of badges/vehicles due to the emphasis on timely processing of personnel and vehicles. Traffic on Road 1-A could be impacted if large vehicles did not have adequate space for approach to the ECF.

An additional PF person was posted at this location as available. A manning request was generated for additional PF manning. Layout of the post was reviewed and pedestrian walkways were relocated, re-striped and chained. Vehicle traffic was required to stop at signs well removed from the ECF to reduce congestion. The perpendicular portion of the fence was angled back at a 45-degree angle to allow space for movement of PF personnel while maintaining the security barrier. Orange reflective safety vests were required for PF personnel manning the post. Upon approval of the manning request, the second PF

person was posted with specific direction provided on safe processing of vehicles/personnel. With the re-paving of Road 1-A, a turn-off lane was created for vehicles pulling into A-14 from the New Ellenton side of Road 1-A. All of these actions were conducted with coordination of security, safety and operational elements.

Ancillary training was conducted for all PF personnel assigned to the post on requirements for safe operation of the post. Personnel accessing through the post were informed of the changes and the changes were enforced. PF personnel continued to wear orange vests for visibility and ensured a smooth transition by consistent enforcement of requirements for personnel and vehicles.

Periodic walkdowns of this post continue to identify additional opportunities. For the area outside SRTC, a separate element (CSWE) was responsible for some necessary improvements (a wider pull-off area for vehicles, smoothing out of the asphalt, etc.). These improvements are ongoing. In addition, due to the attention focused on this post, the WSI VPP Core Team continues to monitor this location and seek additional safety enhancements, along with area PF management.

L AREA SECURITY UPGRADES

After the cold war the L Reactor was placed in cold shutdown. The fuel stored in the L Disassembly basin was analyzed to determine the time line when the fuel would no longer be self-protecting and protective security measures would be necessary. All the security equipment was abandon in place. An L Area Security Upgrade Project Team was formed one year prior to the date that the protective measures would have to be in place. Following the ISMS concept and principles the Project Team was able to re-activate all required security equipment, to include, the Intrusion and Detection Zone using existing hardware, equipment and spare parts. Utilizing existing security equipment negated the necessity to establish compensatory measures while awaiting the arrival, installation and testing of new equipment. Additionally, the existing security equipment was sufficient to meet DOE Order requirements for material protection leading to a reduced number of Protective Force posts.