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Remote Monitoring based National Safeguards Inspection and Its Perspective

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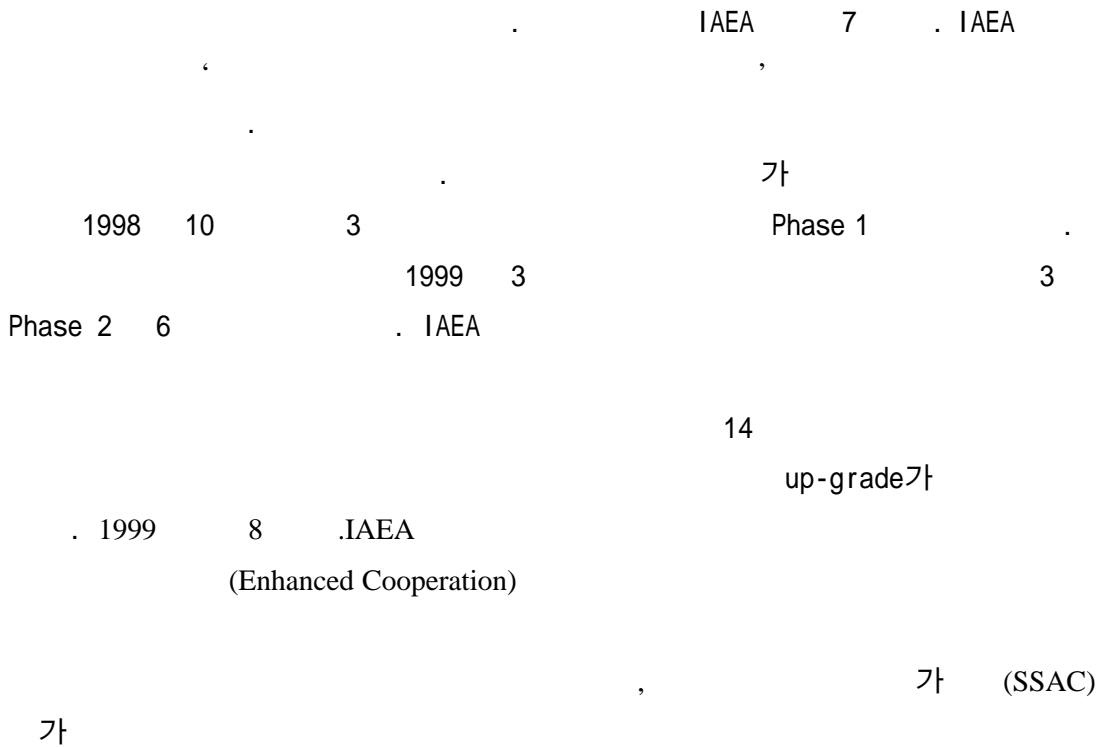
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Abstract

Remote monitoring (RM) as unattended surveillance is one of alternative regime to fulfill safeguards tasks through its field trials and technical advances. The

IAEA has installed digital surveillance or remote monitoring (RM) systems at 11 of 12 LWRs in operation since RM tasks under the MSSP (Member State Support Program) initiated. During the 8th Joint Review Meeting in 1999, the IAEA and Korea agreed to establish a working group for the enhanced cooperation between both sides in anticipation of integrated safeguards. Since it would take several years for the implementation of integrated safeguards in Korea, it was agreed to seek mutually beneficial approaches, taking advantage of Korean SSAC expertise as well as ongoing digital surveillance camera upgrades, capable of remote data transmission. Prior to the full-scale implementation, a rehearsal planned to last until April 2001, in order to obtain practical experience at the selected 3 LWRs. During September/October 2000, SSAC –alone inspection activities was performed as a part of the rehearsal and SSAC reports and working papers were completed. In November 2000 and March 2001, SSAC inspectors jointly did the rehearsal with IAEA inspectors. This paper focuses on Remote Monitoring based National Safeguards Inspection and its Perspective on the national safeguards inspection in Korea.

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. VACOSS(Variable Coding Seal System)

DCM-14 가 IAEA

가 가

ISDN

Frame Relay VPN(Virtual Private Network)

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on Safeguards Implementation)
force 1997

SAGSI(Standing Advisory Group
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Phase 1

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Phase 2 (Canal Gate) VACOSS 1, (DCM-14) 1 (Equipment Hatch) VACOSS 1, (DCM-14) 1 가 가 . IAEA Central Monitoring Station 가 가 up-grade (Containment Penetration), door hole, VACOSS line .[2] IAEA DCM-14 Camera, VACOSS ,

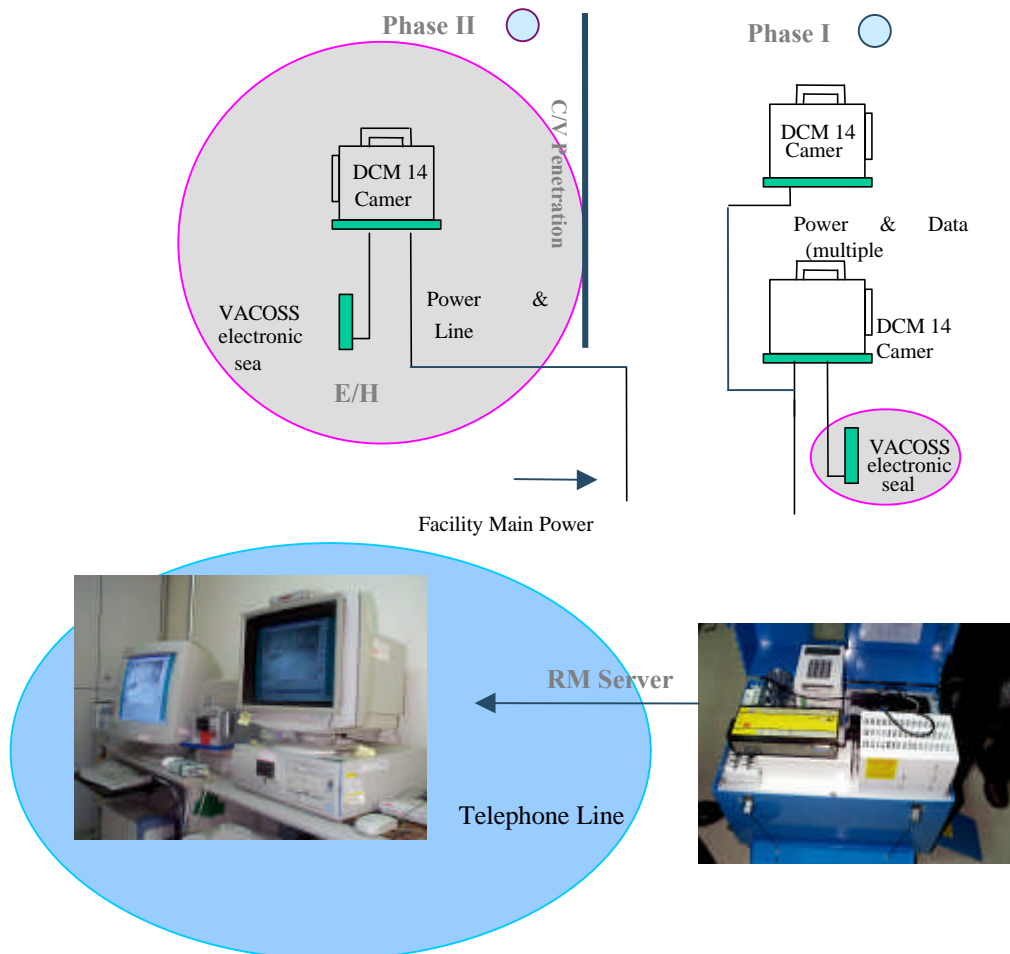


Figure 1. Digital Up-grade and RM Installation

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11 Phase 2
3 Phase 1 2001 5 Phase 2가
1, 2, 3, 1, 2, 4
가 Central Monitoring Station

Table 1. Digital Surveillance and RM Installation Plan for LWRs in Korea

Plant	Type of Digital Surv. Sys.	Digital Surv. Inst.		Remarks
		Phase 1*	Phase 2**	
KORI-1	SDIS	May '00	Nov. '00	Phase 1, 2, RDT
KORI-2	SDIS	May '00	Jun. '00	Phase 1, 2, RDT
KORI-3	SDIS	Aug. '00	Apr. '01	Phase 1
KORI-4	SDIS	Aug. '00	Aug. '00	Phase 1, 2
YOUNGGWANG-1	SDIS	Oct. '00	Nov. '00	Phase 1, 2
YOUNGGWANG-2	SDIS	Feb. '00	May '00	Phase 1, 2
YOUNGGWANG-3	SDIS	Done, Oct. '98	Done, Jun.'99	Phase 2 Field Trial, Phase 1, 2, RDT
YOUNGGWANG-4	SDIS	Feb. '00	Feb. '00	Phase 1, 2
ULCHIN-1	SDIS	May '00	Jun.'00	Phase 1, 2, RDT
ULCHIN-2	SDIS	May '00	Jun.'00	Phase 1, 2, RDT
ULCHIN-3	SDIS	May '00	Jun.-00	Phase 1, 2
ULCHIN-4	SDIS	Done Oct.'98	Apr.'00	Phase 1, 2, RDT
* Phase 1: Replacement of MIVS with SDIS at SF pond area				
** Phase 2: Installation of digital camera for EH area and connection to VACOSS seals at Canal Gate and EH				

5. 가

1998 IAEA 16 (Safeguards Policy Series, No. 16)
' (Remote Monitoring for Safeguarding
Nuclear Facilities)[3]' 가

가

가 (State of Health) (Temper Report)
가 가

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가 (Camera Surveillance Area),
(Seal Surveillance Area)
(Facility Input) (Major Activities), (Exp. Activities)
(Seal Surveillance Area) (Camera Surveillance Area),

Table 2. RM Surveillance Review

No. SR- 가 RM Surveillance Review			
11. (Facility No.)		2. 가 (Evaluation Date)	
3. (Inspection No.)		4. (Start of Surveillance) (End of Surveillance)	
5. 가 (Evaluator Name)		6. (Equipment Name)	
7. (Facility Operator Name)		8. (Facility Doc. No.)	
9. 가 (Surveillance Activities)		(Camera Surveillance Area)	
		(Seal Surveillance Area)	
10. (Facility Input)		(Major Activities)	(C/V) (SFP)
		(Exp. Activities)	(C/V) (SFP)
11. (Other Remarks)			
12. 가 (Conclusion and Follow-up Action)			

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 가가
 가 NPA (New Partnership Approach) 가

Reference

1. IAEA Safeguards Manual Section SMS 3.4, Annex 1
2. Safeguards Policy Series, No. 16, “ Remote Monitoring for Safeguarding Nuclear Facilities,” IAEA, Feb. 1998.
3. STR-313 “Incorporating Remote Monitoring into Safeguards Approaches for Light-Water Reactors,” IAEA, Sep. 1998

4. “ Enhanced Cooperation between the IAEA and an SSAC –An Approach for a New Partnership”, 3rd INMM/ESARDA Workshop, Nov. 2000