



Status of the
U.S. Nuclear Regulatory Commission's
Initiatives on the Use of Cesium-137 Chloride Sources

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Current Status

- CsCl radiation sources perform critical functions in blood sterilization, in medical and industrial research, and in instrument calibrations
- The security and control of radioactive sources has been significantly enhanced
- Integrated and comprehensive program in place for management and control of radioactive sources
- Continuing to work closely with domestic and international partners to improve security

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Significant Accomplishments

- Issued risk-informed orders to increase security (Large Irradiators, Manufacturers/Distributors, Transportation, Increased Controls, and Fingerprinting)
- Developed electronic database (National Source Tracking System)
- Revised pre-licensing guidance
- Leads/participates in Radiation Source Protection and Security Task Force activities

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Radiation Source Protection and Security Task Force

- Established by Energy Policy Act of 2005
 - 15 federal agencies and two state organizations
 - Called for the NAS study
- Task Force issued 1st report, August 15, 2006
- Recommendations:
 - Cesium-137 Working Group
 - to "...assess the feasibility of phasing out the use of CsCl in highly dispersible form..."
 - Report completed September 2008
 - Radiation Sources Working Group
 - Report due February 2009
 - Considers list of nuclides meriting protection
 - Social and economic disruption aspects of RDD
 - Alternative Technologies Working Group
 - Report due 2009
- Next Task Force report due to Congress in 2010

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Conclusions of CsCl Working Group's Report

- Immediate phase-out would not be feasible
- Step-wise phase-out could be feasible
- Challenges would have to be overcome
- Sufficient time would be necessary for replacement technologies to be established and for disposal pathways
- Sequences and time-frames would be critical
- Interim security measures are important

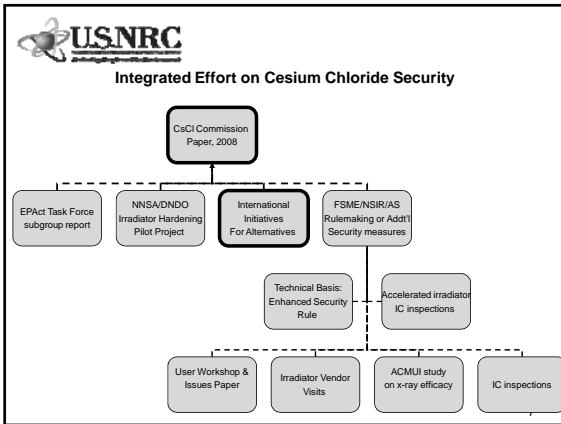
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House Bill H.R. 6818

- "Nuclear Facility and Materials Security Act of 2008"
- dated Aug. 4, 2008
- highest-risk radiation sources that could be used to make a dirty bomb should be equipped with location tracking technology and less dangerous technologies should be used where possible

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USNRC
Commission Paper, SECY 08-184 (ML083030593)
"Strategy for the Security and Use of Cesium-137 Chloride Sources"

Application	IAEA Category	# of Licensees	# of Devices	% of Total Curies
Blood Irradiators	1-2	327	575	33.65
Research Irradiators	1-2	265	526	66.00
Calibrators	2	61	104	0.35

- Option 1: Enhance security and issue a Commission Policy Statement
- Option 2: Rulemaking to ban CsCl in soluble/dispersible form for blood irradiators, and maintain use of CsCl for research and calibration
- Option 3: Rulemaking to ban soluble/dispersible form of CsCl (for all applications)

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USNRC
Next Steps

- Develop a plan to implement Commission direction
- Assess implementation of voluntary hardening program
- Continue to monitor the threat environment, in cooperation with Federal Partners, and issue new security requirements as may be necessitated by emerging risks

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Challenges

- No apparent economic incentive for private industry to develop alternative chemical forms of CsCl
- Development of new form (i.e. high activity source in less soluble/dispersible form) may not be successful
- Different solutions are needed for the three major modalities of use (blood irradiators, research irradiators, calibrators)
- May interrupt blood supply. Replacement constitutes significant cost impact on industry
- A disposal pathway, i.e., transportation packages and disposal site, must be developed prior to implementation technological changes

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CsCl Source Security

- CsCl sources are widely used and safely secured in medical, industrial, and research applications
- Several initiatives have been implemented already to improve security of these sources
- Various initiatives are being considered to further enhance security for these sources

NOTE: The NRC has not made any decisions regarding the suspension of the use of high-activity Cesium-137 chloride sources

- Strengthening domestic/international collaboration is a top priority for further enhancing security of CsCl sources

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