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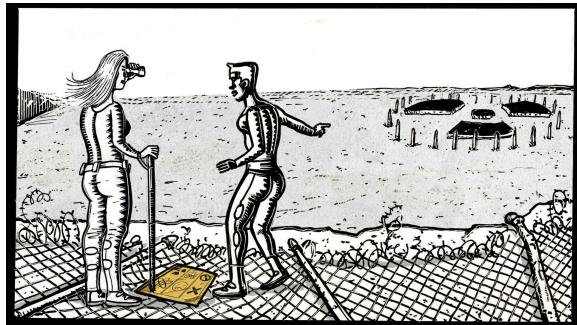
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***Containment* Premieres on *Independent Lens*
Monday, January 9, 2017 on PBS**

Online Streaming Begins January 10

A Haunting and Alarming Tale of Present and Future Dangers From Nuclear Waste



Credit: Redacted Pictures/Peter Kuper

(San Francisco, CA) — How can we contain some of the deadliest, most long-lasting substances ever produced? Toxic remnants from the Cold War remain in millions of gallons of highly radioactive sludge, thousands of acres of radioactive land, and tens of thousands of unused hot buildings, some of which are slowly spreading deltas of contaminated ground water. Governments around the world, desperate to protect future generations, have begun imagining society 10,000 years from now in order to create

warning monuments that will speak across time to mark waste repositories. Filmed in weapons plants, in Fukushima, and in a deep underground burial site, *Containment* is part graphic novel and part observational essay, weaving between an uneasy present and an imaginative, troubled distant future, exploring the struggle to keep waste confined over millennia. Directed by Peter Galison and Robb Moss, the film premieres on *Independent Lens* Monday, January 9, 2017, 10:00-11:30 PM ET ([check local listings](#)) on PBS.

The safe storage of nuclear waste is one of the world's most pressing issues, yet not a single country has a well-worked out plan for these deadly and long-lived materials. In 1979, the U.S. Department of Energy created the Waste Isolation Pilot Plant (WIPP), the nation's only deep geologic repository for nuclear waste. As a condition for opening the facility, Congress required that the site be clearly marked against accidental future intrusion. Teams of futurologists, astronomers, science fiction writers — even experts on the search for extra-terrestrial intelligence — were convened in 1990 to imagine far-future scenarios and create a system of warning markers. Using animation and drawings, *Containment* explores several of the proposed scenarios and potential marker designs, and features interviews with those who envisioned them.

Located near Carlsbad, New Mexico, WIPP was built over a salt bed thousands of feet deep and millions of years old, a site considered particularly invulnerable. "We think the only way radioactivity can reach the surface or reach the accessible environment is through human intrusion," said chief scientist Roger Nelson. But on February 14, 2014, a waste barrel ignited and burst underground, releasing radiation into the environment. WIPP was subsequently closed for

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cleanup. News reports at the time played down the incident, but a recent *Los Angeles Times* story indicated that the explosion ranks among the costliest nuclear accidents in U.S. history, with costs that may rise as high as \$2 billion. The closure has backed up thousands of tons of radioactive waste from other states that were waiting to be transported to WIPP.

In March 2011, Fukushima, Japan became a repository for nuclear waste not by design, but through a devastating earthquake and resulting tsunami. A triple meltdown occurred after the cooling systems at the Daiichi Nuclear Power Plant were interrupted and the spent fuel rods actually boiled the water in which they rested. It could have been much worse, says former prime minister Naota Kan, who reveals that the country escaped an unthinkable disaster only by what he called a “paper-thin margin.” Now deserted, Fukushima is a ghost town, where former residents can only briefly visit the homes to which they may never return to live.

At the Savannah River Site, a former nuclear weapons facility in South Carolina, silvery mist and lush green trees mask bright yellow signs prohibiting fishing. Radioactive alligators and turtles live there, scientists say, although efforts are made to contain them within the site’s 314 square miles. The Reverend Willie Tomlin worries about the impact on his rural community, only 50-75 feet away from the nuclear waste site on the Georgia side of the river.

“You are assuming that the institutions that guarantee your safety right now will be there hundreds of years from now,” said Allison Macfarlane, former chair of the U.S. Nuclear Regulatory Commission. “And I do not have that faith.”

“How many of us make decisions thinking about how what we do today will impact people 10,000 years from now?,” said Lois Vossen, *Independent Lens* Executive Producer. “*Containment* creates a glimpse of a future beyond our imagination and asks us to take responsibility for that future.”

Showing with *Containment* will be an excerpt from *Uranium Drive-In*, which follows the emotional debate over a proposed uranium mill in southwestern Colorado, pitting those desperate for jobs and financial stability against those with long-term environmental and health concerns for the community.

Visit the [*Containment*](#) page on *Independent Lens*, which features more information about the film. *Containment* will be available for online viewing on the site beginning January 10, 2017.

Participants (in alphabetical order):

Greg Benford is an American science fiction author and astrophysicist who was a member of the original panel convened to help mark the Waste Isolation Pilot Plant against inadvertent human intrusion.

Wendell Bell, a WWII naval pilot, futurist, and Emeritus Sociology Professor at Yale University, was a member of the original panel convened to help mark the Waste Isolation Pilot Plant against

inadvertent human intrusion.

Tom Clements is a South Carolina environmental activist and politician.

Frank Drake is an American astronomer and astrophysicist and one of the central figures in the Search for Extraterrestrial Intelligence (SETI).

Ned Elkins, Los Alamos National Laboratory, is Carlsbad Operations Manager and WIPP Program Director, Carlsbad, New Mexico.

Bob Forrest is a businessman and former mayor of Carlsbad, New Mexico.

Yoichi Funabashi, co-founder and chairman of the Rebuild Japan Initiative Foundation, oversaw the “Independent Investigation Commission on the Fukushima Daiichi Nuclear Accident” (Routledge, 2014). He is the former editor-in-chief and columnist for the *Asahi Shimbun*.

Theodore J. Gordon, a futurist instrumental in developing methods for forecasting events, was a member of the original panel convened to help mark the Waste Isolation Pilot Plant against inadvertent human intrusion.

Fumihiko Imamura is Director of the International Research Institute of Disaster Science at Tohoku University in Sendai, Japan, specializing in tsunami engineering.

Gregory Jaczko, a physicist and former Chairman of the Nuclear Regulatory Commission, served as Chair of the NRC during the meltdown of the three nuclear power plants in Fukushima, Japan.

Kevin Kamps is an environmental activist.

Naoto Kan, Japanese prime minister, 2010–2011, was Prime Minister during the earthquake, tsunami, and nuclear meltdowns at the Fukushima Daiichi nuclear facility.

David Lochbaum is Director of the Nuclear Safety Project for the Union of Concerned Scientists.

Jon Lomberg is an American artist inspired by astronomy and was a close collaborator of Carl Sagan. He served as a member of the original panel convened to help mark the Waste Isolation Pilot Plant against inadvertent human intrusion.

Allison M. Macfarlane is Professor of Public Policy and International Affairs, George Washington University, and former Chair of the Nuclear Regulatory Commission.

Arjun Makhijani is a writer, electrical and nuclear engineer, and advocate for nuclear safety.

Roger Nelson is chief scientist for the Department of Energy’s Carlsbad Field Office.

Woodruff T. Sullivan is an American physicist and astronomer at the University of Washington who works in astrobiology, galactic astronomy, and the Search for Extraterrestrial Intelligence



(SETI).

Reverend Willie Tomlin is a community organizer and pastor at the Thomas Grove Baptist Church in Waynesboro, Georgia.

About the Filmmakers

Containment is the second film directed by Peter Galison and Robb Moss. The two also directed *Secrecy* (2008), which premiered at the Sundance Film Festival and showed at Tribeca, South by Southwest, and over two dozen other film festivals around the world. Examining the relationship between government secrecy, national security and democracy, *Secrecy* was reviewed in more than 20 newspapers, including *The New York Times* and *Los Angeles Times*, and was screened by both the Congressional Record and the ACLU.

Peter Galison is a Pellegrino University Professor of the History of Science and of Physics at Harvard University. Galison's previous film on the moral-political debates over the H-bomb, *Ultimate Weapon: The H-bomb Dilemma* (with Pamela Hogan, 2002) has been shown frequently on the History Channel and is widely used in academic courses. In 1997, he was awarded a John D. and Catherine T. MacArthur Foundation Fellowship; won a 1998 Pfizer Award for *Image and Logic* as the best book that year in the History of Science; and in 1999 received the Max Planck and Humboldt Stiftung Prize. His books include *How Experiments End* (1987), *Einstein's Clocks*, *Poincaré's Maps* (2003), and *Objectivity* (with L. Daston, 2007). He has worked extensively with de-classified material in his studies of physics in the Cold War. Galison's work also features artistic collaborations, including partnering with South African artist William Kentridge on a multi-screen installation, "The Refusal of Time."

Robb Moss is a filmmaker, professor, and chair of the Department of Visual and Environmental Studies at Harvard University. Moss's *The Same River Twice* (2003) premiered at the Sundance Film Festival, was nominated for a 2004 Independent Spirit Award, and opened theatrically at Film Forum in New York City. Winning prizes in Nashville, Chicago, New England, and Alabama film festivals, *The Same River Twice* was selected by the *Chicago Reader* as Best Documentary (and Best Cinematography) of 2003. His autobiographical and essay films, such as *The Tourist* and *Riverdogs*, have screened at the Museum of Modern Art, the Telluride Film Festival, and IDFA. He has served as a festival juror at Sundance, San Francisco, Denver, Full Frame, Camden, Seattle, Chicago, New England, and Ann Arbor, and works as a creative advisor at the Sundance Documentary labs.

CREDITS

Producer/Directors	Peter Galison & Robb Moss
Editor/Co-Producer	Chyld King
Cinematographers	Hervé Cohen, Tim Cragg, Austin DeBesche, Leonard Retel Helmrich, Stephen McCarthy
Animators	Peter Kuper, David Lobser



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About *Independent Lens*

Independent Lens is an Emmy® Award-winning weekly series airing on PBS Monday nights at 10:00 PM. The acclaimed series, with Lois Vossen as executive producer, features documentaries united by the creative freedom, artistic achievement, and unflinching visions of independent filmmakers. Presented by ITVS, the series is funded by the Corporation for Public Broadcasting, a private corporation funded by the American people, with additional funding from PBS, the John D. and Catherine T. MacArthur Foundation, Wyncote Foundation, and the National Endowment for the Arts. For more visit pbs.org/independentlens. Join the conversation: facebook.com/independentlens and on Twitter @IndependentLens.

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