Tellurium Poison Book No.2

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“The Tragedy of Tellurium Poison in Operation Tomodachi”

Association seeking a ruling on the causes of radioactive pollution damage caused by the Fukushima nuclear power plant accident

Progress record of Operation Tomodachi radiation exposure trial

Many sailors who participated in Operation Tomodachi were exposed to radiation released from the Fukushima Daiichi nuclear power plant, causing serious health damage. The following is a record of the proceedings of the radiation exposure trial involving the crew of the aircraft carrier Ronald Reagan, the crew of other ships, and those exposed ashore.

year month day	Flow of the trial ÿ
December 21, 2012	Eight sailors who were exposed to radiation aboard the nuclear-powered aircraft carrier USS Reagan (one infant, a female sailor who was the plaintiff, was born after being exposed to radiation) filed a lawsuit against Tokyo Electric Power Company as defendant in the U.S. District Court of the Southern California District Court in San Diego,
June 4, 2013	seeking compensation for damages. ÿ Alleges collusion between TEPCO and the Japanese
November 26, 2013	government. ÿ Plaintiff files first amended complaint ÿ TEPCO files a motion to dismiss ÿ Oral argument is held in the US District Court of Southern California ÿ Accepts TEPCO's motion to dismiss as
February 5, 2014	a political issue approves the amendment of the plaintiff's complaint. ÿ 80 plaintiffs file a second amended complaint and request permission for the amendment ÿ Medical expenses, economic and non-economic, of all plaintiffs, including potential victims. A representative lawsuit seeking the establishment of a $1 billion fund by TEPCO to pay for damages suffered by TEPCO. ÿ Narrows the allegations to TEPCO's negligence. ÿ Defendant TEPCO, motion to dismiss. ÿ Second amended complaint filed by nearly 80 people. were the Reagan crew members, and the other ships included Essex (3 people), George Washington (1 person), Fitgerard (1 crew member) (3 children), and others.Duties included flight deck staff, aircraft maintenance technicians, and flight crew members. The plaintiff's former crew
April 24, 2014	member, Theodore Holcomb, who was in charge of navigation,
August 21, 2014	decontamination, administrative affairs, etc., died. ÿ The plaintiff filed a third amended complaint and applied for permission to amend it. ÿ The number of plaintiffs was increased to 223, and a new Based on the concept of pr Add EBASCO, TEPCO, and Hitachi. ÿ Funds requested are $1 billion ÿ 239 plaintiffs in the third round Oral argument will
August 25, 2014	be held in the US District Court of Southern California ÿ An
October 28, 2014	order will be issued by Judge Sammartino. ÿ Denied a motion to dismiss on the grounds that the case should be tried in a Japanese court because it is a political issue involving defendant TEPCO. ÿ TEPCO filed an appeal to the federal court regarding the reconsideration of the order and the jurisdiction of the trial. ÿ However, in the appeal, it claimed strict liability for the design defect and the spirit of intentional attack. The court accepted the dismissal of the claims for physical damages and claims against 70,000 potential victims. ÿ The court issued an order granting the plaintiff's motion to amend the second complaint, and ordered documents to be issued based
June 11, 2015	on this order by November 18. ÿ The federal district court ordered the trial to proceed in the United States. ÿHowever, since the appeal was
February 3, 2016	allowed, TEPCO appealed to the Federal Court of Appeals. The Japanese government said, ``As an amicus curiae, we submitted a written opinion in line with TEPCO's claim of jurisdiction.

year month day	Flow of the trial
September 1, 2016	ÿ Oral hearing at the United States Court of Appeals for the Ninth District in Pasadena, California. Opening arguments were held, and jurisdiction was disputed as to whether the case should be tried in Japan or the United States. ÿ Since 4 years have already passed and 8 of the plaintiffs have died, it is recommended that the case be tried in the United States. Plaintiff claims
December 19, 2016	The U.S. government, jointly with legal officials from the State Department, the Department of Defense, and the Department of Justice, confirmed that TEPCO's Interested parties supporting the federal district court's order denying the claims and allowing trial in the United States. I submitted a statement from the person in charge.
June 23, 2017	Federal District Court Affirms District Court Order Allowing Trial in U.S. Courts issued a decision.
August 31, 2017	ÿPublic trial begins in San Diego Federal District Court ÿAt this stage, there are 402 plaintiffs and the future health compensation fund is 5 billion dollars. ÿThe following 9 people died. (1) Theodore Holcomb (died of periosteal sarcoma: Aviation of the aircraft carrier Ronald Reagan) machine mechanic) (2) Donald Dellinger (died of acute lymphoblastic leukemia: amphibious assault ship Essec) Aircraft mechanic) (3) Jase Dodson (Boy 2 years old: RR) The child born to a soldier and his wife was diagnosed with a brain tumor. later died of myeloma) The names of the following six patients were also mostly cancer deaths. ÿÿÿMelvin Chamberlain ÿÿÿBrendah Downing ÿÿÿDanyelle Luckey ÿÿÿJasse Ready ÿÿÿRuby Perez ÿÿÿChalimagne Aterrado ÿ Lawyer Bonner of the plaintiff group said, ``Until now, we thought we could get away without disclosing the truth.'' TEPCO and the Japanese government, which had been involved in the become. The future development of the trial will be of great significance when considering the existence of nuclear irregularities. It is also a place that people around the world are paying close attention to, as they sympathize with the victims of the Fukushima nuclear power plant accident. ``Not only with contaminated air, but also with contaminated water, contaminated water. ''I cooked, took a shower with contaminated water, and brushed my teeth with contaminated water.'' ÿMr. Edward, who has newly joined the plaintiff's defense, said, ``I am afraid that the trial will be held in the United States.'' I am once again happy that this has happened. It felt too distant for the former crew members. If it goes too far, their very hope may be lost.'' ÿ TEPCO's claim: “We acknowledge the release of radioactive materials, but the amount released was extremely small. Yes, it does not affect health. A total of 70,000 people participated in Operation Tomodachi. The fact that 300 to 400 soldiers will fall ill is inevitable. It is certainly not due to radiation exposure. From a medical point of view, the onset Ratio can be said to be a natural phenomenon, and therefore each person changes it at different times for different reasons. It is reasonable to assume that this caused the disease.''
April 2019 July	Federal District Courts in San Francisco and San Diego have decided on plaintiffs' claims in two lawsuits. I dismissed the request and handed down the request.
2019 now	The plaintiffs may be considering an appeal.

Testimony of 10 plaintiffs in the Operation Tomodachi radiation exposure damage compensation trial (Part 1)

[Source of Testimony] The testimonies of the 10 plaintiffs were interviewed and directly quoted from the following three sources. ÿ TBS
Verification of Operation Tomodachi and American soldiers exposed to atomic bombings,
aired on March 8, 2015 ÿ Nippon Television NNN documentary “Radioactivity and Operation Tomodachi: What happened on the US aircraft carrier Ronald Reagan?”
Aired on October 9, 2017 ÿ Masato Tainaka, Amy Tsujimoto, “Drifting Friends: America’s Radiation Exposure Trial (Asahi Shimbun Publishing: Published January 30, 2018)”

Name: Lindsay Cooper Date of birth and gender:
Born in 1989, female Military rank at the time of exposure
and plaintiff's role: Participated in Operation Tomodachi as a deck crew member on the aircraft carrier RR
Plaintiff's role: Plaintiff leader

Items regarding exposure status of trial plaintiffs	Contents of each item
Exposure situation upon reaching the plume	ÿThe first plume appeared around 12 o'clock on March 13, 2011, when we were on the flight deck. ÿIt was snowing, so I remember it being extremely cold. At the time, there were no aircraft operating on the deck, so there was no heat, but a hot gust of wind blew through. ÿIt tasted like blood in my mouth. It feels like licking aluminum foil. ÿ The four of us who were on deck when the plume first hit felt like our skin was burning and stinging for about 30 minutes to an hour, and ÿ we were then attacked by a headache. ÿ During the first week of encountering the plume (March 13th to 19th), ``I
Health damage and changes in physical condition after exposure to radiation	noticed that my hair was getting thinner. Even when I put it in a ponytail, it fell apart. ÿ I had my sleeves rolled up on deck, so I was exposed to the outside air . When I touch my exposed arms from the elbows on, I feel a burning sensation, as if something is crawling under my skin. This has been going on for a long time. ÿ My stomach hurts. ÿ I pee. leaked. ÿ Blood came out from the buttocks (anus). ÿ After getting off the ship, my weight increased dramatically. ÿ I suffered from headaches and memory loss. ÿ My teeth were also chipped. ÿ I also had problems with my muscles. (12) Her whole body seems to be slowly deteriorating. (1) She is a single-parent household with no income and cannot afford insurance. Considering her child's future, she had no choice but to go to court, so the plaintiff ÿ In response to a question from Mr. Haruo Kurasawa, the host of the NNN Document broadcast, who said, ``This trial has an important meaning for the people who were exposed to radiation in Fukushima and other parts of Japan," he answered, ``This trial is important for the people who were exposed to radiation in Fukushima and other parts of Japan." I hope
Why did you participate in the trial?	that this will serve as an umbrella for those who were exposed to radiation ."

Testimony of 10 plaintiffs in Operation Tomodachi radiation exposure compensation trial (Part 2)

Name: Rory Cody •Date of birth and gender:
Female, born in 1961 •Military rank and plaintiff's role at the
time of exposure: Major, Operation Tomodachi in charge of collecting relief supplies on the deck of the aircraft carrier RR and loading them onto the helicopter. Participate in the
plaintiff's role: Participate in the plaintiff's role

Items regarding exposure status of trial plaintiffs	Contents of each item
arrived. At the time of the first plume, exposure situation ÿ I had a metallic taste in my mouth. ÿFor some reason, I felt like the air was standing still, even though I've never been so casually at sea. (1) Eyebrows and hair began to fall out. (2)	ÿ I was usually on the lower deck, but during Operation Tomodachi I went up to the upper deck to make sure things were running smoothly. When the first plume arrived, I was in the hangar below the deck.I was covered when the plume
Physical condition change ÿ I was unable to swallow things. ÿI can't make a sound when I laugh out loud. ÿBlood came out from the buttocks (anus). ÿI lost my sexual desire due to the pain. ÿI was told the name of the disease was fibromyalgia (a typical symptom of chronic fatigue syndrome). I wanted	Memory deteriorated. (3) The inside of the nose became dry and nosebleeds occurred. (4) Health damage after radiation exposure caused by extreme fatigue and sleepiness. (5) Urge urinary incontinence began.
to be promoted to lieutenant colonel because I participated in the trial, but I gave up. Did he "want to help the sailors who were suffering"?	

Testimony of 10 plaintiffs in Operation Tomodachi radiation exposure damage compensation trial (Part 3)

Name: Ms. Cecilia Guterres •Date of birth and gender: Female, born in 1970 •Military rank at the time of exposure and plaintiff's role: As a civilian American woman, she provided drinking water and food to American ships on the supply ship Pecos, which is contracted by the U.S. Navy.

•Plaintiff's role: Participate in the plaintiff's role.

Items regarding exposure status of trial plaintiffs	Contents of each item
Exposure situation upon reaching the plume	ÿ Since it was a civilian ship, everyone went to bed early, but my daily routine was to walk around the back of the ship. One night, when I opened the door to go out, I felt a strange warmth. It was still cold at sea, but when I went up to the bridge, my superior officer suddenly reminded me, ``I heard from the radio that you haven't been drinking water.'' That night, there was no wind and it felt strange. ÿI also had a strange feeling in my mouth, but at that time there was no way to know the cause. On the ship ÿ After arriving at Suga Air Base on March 30th, I started feeling unwell and my legs were swollen. ÿAt the same time, my hair started falling out rapidly. ÿ Menstrual abnormalities have begun. ÿ An abnormality has started in the uterus. ÿThe bleeding from the uterus
Health damage and changes in physical condition after exposure to radiation	did not stop. ÿMy uterus was removed and I was unable to have children. ÿMy skin became dry and flaky. ÿI gained a lot of weight. ÿI got a pimple. ÿThe bleeding from the anus continues. ÿI often see only vaguely. ÿI often have trouble walking, and on May 9, 2017, I collapsed at my mother's house and returned to my original state . ÿSince August 2015, I have undergone 21 treatments called chelation therapy, which removes metals from the body . At that time, raw materials such as aluminum, tin, uranium, cesium, thallium, and gadolinium were detected in his body. ÿThe doctor told me that the disease was caused by radioactivity and metals. Three months after I was interviewed for Nippon Television's NNN special, my face became paralyzed and I could barely see in my right eye.
Why did you participate in the trial?	In response to NNN Document broadcast host Haruo Kurasawa's question, ``This trial has an important meaning for people who were exposed to radiation in Fukushima and other parts of Japan,'' he answered, ``I will explain my health symptoms in detail.'' I am recording it, and I would like to share that information with the people of Japan.''

Testimony of 10 plaintiffs in the Operation Tomodachi radiation exposure damage compensation trial (Part 4)

Name: Mr. Steven Simmons •Date of birth and gender: Male born in 1977 •Military rank at the time of exposure and plaintiff's role: Participated in Operation Tomodachi as manager of the aircraft carrier aboard the aircraft carrier Ronald Reagan •Plaintiff's role: Plaintiff leader of

Items regarding exposure status of trial plaintiffs	Contents of each item
director Tom Burke announced on the air, ``A plume has arrived from the Fukushima Daiichi Nuclear Power Plant.Do not drink tap water and do not take a shower.' ' At that time, I had already taken it twice , but I gave up because I had no choice but to drink it. Three days later, on March 18th, there was no other water available, so I started drinking contaminated water again. ÿ Eight months after being exposed to radiation, while driving to my workplace in Washington, D.C., ÿ I	ÿ Around March 13th, I was working as a general officer on deck. First came the plume. ÿIt tasted like metal and I felt sick. ÿ On the night of March 15th, museum
``Even when I was taking a shower and I dried myself off, my body was soft , my hair was falling out, and it hurt no matter where I touched it." ÿIn March 2017, my feet turned purple and became cold. ÿThe doctor told him that there was a risk of bacteria entering his blood and causing sepsis, so both of his legs were amputated. ÿI was told that it was nerve and radiation myopathy.	felt sick, fainted and collapsed, and my car ended up on the side of the road. ÿ He was medically retired in 2014 ÿ He refused life-sustaining treatment due to health damage after exposure ÿ He felt severe pain even when touched lightly. ÿSimmons's wife said,
people who were exposed to radiation in Fukushima and other parts of Japan?" he answered, ``We are on the same boat." It's a message that rides on a mountain ."	When NNN Document broadcast host Haruo Kurasawa asked, ``Why did this trial have such an important meaning for

Testimony of 10 plaintiffs in Operation Tomodachi radiation exposure damage compensation trial (Part 5)

Name: Daniel Hare •Date of birth and gender:

Male born in 1984 •Military rank at the time of exposure

and plaintiff's role: Participated in Operation Tomodachi as manager of the nuclear reactor power department of the aircraft

carrier RR •Plaintiff's role: Plaintiff

Items regarding exposure status of trial plaintiffs	Contents of each item
plume arrived . Exposure Situation ÿ On shower when the museum director announced, ``A plume has arrived from the Fukushima Daiichi Nuclear Power Plant.Do not drink the tap water or take a shower." ÿFirst the drinking water system was contaminated, then the ventilation system."On the third day after exposure, ÿhis hands were swollen. ÿ The vertebrae have fused together. ÿMy bones also hurt. ÿ Polyps have formed in the intestines. ÿBlood came out from the anus.	ÿI was at the end of the ship. When the first plume arrived, I felt ÿ a metallic taste (copper taste on my tongue) and ÿ the taste of blood when the March 15th, I was taking a
Health damage and changes in physical condition after exposure to radiation	ÿAfter walking one block, I got really tired. ÿEven before I returned to Japan, I had severe ringing in my ears. ÿMy right buttock was swollen. Doctor Hikaji said that the symptoms of bursitis were severe, and that ``he probably was n't dehydrated." . ÿ A polyp has formed from the thyroid gland to the colon, and the doctor said that ÿ the area around the navel has also protruded (umbilical hernia), ÿ my back has become weak, ÿ my teeth are falling apart, and ÿ my nose is bad. "Lindsay was taking the case to court, so I got involved. It was said to be a genetic effect, but what I heard from my family was that it had nothing to do with it. I want to make up for lost time with my children. I don't want to show my downside."
Why did you participate in the trial?	

Testimony of 10 plaintiffs in the Operation Tomodachi radiation exposure compensation trial (Part 6)

Name: Mr. William Zeller •Date of birth and gender: Male born in 1984 •Military rank at the time of exposure and plaintiff's role: Participated in Operation Tomodachi as a crew member of the aircraft carrier RR •Plaintiff's role: Plaintiff

Items regarding exposure status of trial plaintiffs	Contents of each item
museum director announced on	I was on board the ship when the first plume came. When the plume came, ÿ It tasted like metal. ÿI felt temporarily warm. ÿ On the night of March 15th, when the the air, ``The Fukushima Daiichi Nuclear Power Plant has experienced a meltdown. Do not drink the tap water. Don't take a shower.'' Everyone took a shower. was bathed in ÿYou can reduce the amount of water you drink, but you cannot reduce the amount of water you use for cooking. ÿDuring deck decontamination work carried out on March 23, walls were mopped by hand.
Physical condition change	ÿ I have neuralgia. ÿ I want the bones in my shoulder to grow. ÿMy jaw bone is also damaged and hurts. Health damage after exposure ÿ Teeth are only connected by the gums. ÿ Last year (2016), I fainted when I returned home from the hospital. I called my mother and said goodbye .
Why did you participate in the trial?	"I want to make up for lost time with my children."

Testimony of 10 plaintiffs in the Operation Tomodachi radiation exposure damage compensation trial (Part 7)

Name: Mr. Chad Holt •Date of birth and gender: Male born in 1977 •Military rank at the time of exposure and plaintiff's role: Participated in Operation Tomodachi as a crew member of the aircraft carrier RR •Plaintiff's role: Plaintiff

Items regarding exposure status of trial plaintiffs	Contents of each item
	On March 13th, I was on board an aircraft carrier, and on the 15th, the curator announced, ``A plume has come from the Fukushima Daiichi Nuclear Power Plant.You should not drink the tap water, you should not take a shower, and you should not take a shower.' ' I was just taking a shower when I told him. Exposure situation ÿUntil then, I did not know that I was exposed to radioactivity. ÿ When the deck and other areas were decontaminated on March 23rd, the decontamination was done manually. ÿMy superior told me to ``sign that I was given the iodine tablets," but I refused. ÿ My stomach hurts, my arms hurt, my joints hurt, it hurt like I was being stabbed by a knife, the pain was getting worse every day, and I had to shrink my body to endure the pain. Health damage after exposure ÿWhen I met the Reagan crew members, I realized that they were experiencing the same symptoms as me. I have a lot of pain in my body and joints , chest pain, and difficulty breathing. ÿIn short, we can't play with our children as much as we used to. Everyone feels tired when they return home , and within a day, they gain strength. Why did
you participate in the trial?	"I want to make up for lost time with my children."

Testimony of 10 plaintiffs in the Operation Tomodachi radiation exposure damage compensation trial (Part 8)

Name: Mr. Ron Wright •Date of birth and gender: Male born in 1990 •Military rank at the time of exposure and plaintiff's role: Participated in Operation Tomodachi as a deck crew member on the aircraft carrier RR •Plaintiff's role: Plaintiff

Items regarding exposure status of trial plaintiffs	Contents of each item
Exposure Situation	ÿMy job was to stand on the flight deck every day, assisting with the take-off and landing of carrier-based planes, and loading relief supplies for helicopters to deliver to disaster-stricken areas in Tohoku. When the plume arrived, everyone also decontaminated the deck. ÿAlthough I was wearing winter clothing to protect myself from snow, I was not given proper radiation protection clothing or stable iodine tablets.One day, a blood vessel in my left testicle started to swell . It's like having three balls. The doctor on board the Reagan advised his superiors to return to Japan and undergo surgery, but he was heeded and there was no health damage after exposure, and he continued on the mission until September, taking painkillers to relieve the pain in his balls. While holding it down. After returning to Japan and changing his physical condition , he was honorably discharged because he needed treatment for chronic pain in his testicles, and a doctor diagnosed him with varicocele (a condition in which the veins in the testicles become abnormally enlarged and bulge in the shape of a lump). In 2013, I joined as a plaintiff in a lawsuit against Tama, and my friends who participated in the trial told me about it since my Tama was famous. When I looked it up online, I learned that about 200 people had already become plaintiffs, and that there were other people suffering from this disease.

Testimony of 10 plaintiffs in Operation Tomodachi radiation exposure damage compensation trial (Part 9)

Name: Mr. Theodore Holcomb •Date of birth and gender: Male •Military rank at the time of exposure and plaintiff's role: As a machinist on the aircraft carrier Ronald Reagan, he worked on decontaminating aircraft and helicopters on the ship. •Plaintiff's role: Tomodachi's Manuel Leslie (born 1974, former US Navy soldier) Litigation attorney

Items regarding exposure status of trial plaintiffs	Contents of each item
Health damage and changes in physical condition after exposure to radiation	This is the work of polishing off the rust on the aircraft body caused by seawater. He is not a deckhand. On the hanger deck of the Reagan, ÿ the contaminated helicopter was decontaminated and exposed to radioactive materials. ÿThe elevator carrying the aircraft moves up and down the flight deck and the deck 20 feet (approximately 6 meters) below the hangar plume inside the ship. Helicopter fuselages are covered with rust-exposed metals such as aluminum and magnesium. His job was to polish it off and paint it. ÿThey were also drinking and drinking contaminated water. ÿReagan closed all ventilation ports and began decontaminating the ship's hull. ÿContamination also extended to the water supply equipment. When he became ill after being discharged from the military and was taken to the intensive care unit, he had difficulty breathing as one of his lungs was blocked and two-thirds of the other was blocked. ÿOne month later, he was diagnosed with periosteal sarcoma and passed away. He passed away in my arms on April 24, 2014 . ÿI had a 3-year-old child, but I no longer see them. ÿIn his later years, his body was swollen and yellow due to kidney and liver failure, and he did not want to see his daughter . I didn't want people to see me sick. ÿAfter returning from Operation Tomodachi, he was always tired and seemed to be having trouble breathing. ÿIn February or March of 2012, I had my first blood test done at a veterans hospital in Nevada and found that a cancerous tumor had formed near my heart. ÿAlthough it was still in the early stages, he requested open surgery, but the doctors refused. ÿAfter that, it metastasized to the heart and liver. ÿAccording to the doctor, the myeloma that he contracted is an extremely rare cancer. This condition is usually seen in older people . The disease progresses slowly and can take decades to become fatal, such as people who contract it in their 30s or 40s and don't notice it until they are in their 60s. Which, in his case, happened in just two years.

Testimony of 10 plaintiffs in the Operation Tomodachi radiation exposure damage compensation trial (Part 10)

Name: Mr. Nathan Petowski •Date of birth and gender:
Male born in 1991 (19 years old at the time of participation in the operation) •Military rank at the time of exposure and plaintiff's role: As a crew member of the amphibious assault ship Essex attached to Nagasaki Sasebo Base Participating in
Operation Tomodachi •Role of plaintiff: Plaintiff

Items regarding exposure status of trial plaintiffs	Contents of each item
Germantown and Harpers plume.	He was on board the amphibious assault ship Essex. ÿ The battleship was anchored near Oshima, a remote island in Kesen City, Miyagi Prefecture, and a rescue door was opened from a door on the back of the battleship. ÿ On March 12, Essex left Malaysia and arrived at the dock-type landing ship We met up with the Ferry and headed to the waters off the coast of Japan. ÿWe searched for a fishing boat that had been washed away and distributed bottled water. ÿWe also worked to dispose of debris and restore the fishing boat. ÿAnyway, this is the first time in my life that I have witnessed such a gruesome scene. One
damage after exposure was diagnosed	and a half years after exposure: (1) I lost weight, felt tired easily, and had frequent night sweats. ÿ It became difficult to see. Health ÿHis eyelids were swollen and pus was constantly coming out. ÿThe average person had 336,000 white blood cells, compared to 10,000 to 20,000. ÿI with bone marrow leukemia and underwent a stem cell transplant. ÿMy superior contacted me about another colleague who took part in Operation Tomodachi in Essex and told me that he seemed to have a problem with his thyroid. What I would
meltdown at the (Fukushima accurate information to the American people ."	like to sue in court is, ``I would like them to at least let me know why they participated in the trial because there was a Daiichi Nuclear Power Plant) after the tsunami.What I want to sue is TEPCO in addition to them. is not giving accurate and

Five characteristics to distinguish tellurium toxicity acute atomic bomb disease ÿ “Chemical toxicity that can be sensed with the five senses”

Note 1: Authoritative sources who have promoted atomic bombs and nuclear power plants have explained that ``radioactivity has no taste or smell, so it cannot be detected." Note 2: In the Hiroshima atomic bombing, the Three Mile Island nuclear power plant accident, the Chernobyl nuclear power plant accident, and the Fukushima Daiichi nuclear power plant accident, those exposed to the radiation sensed acute tellurium-induced atomic bomb sickness with their five senses . Note 3: In particular, many of the plaintiffs who were exposed to radiation during Operation Tomodachi felt acute atomic bomb illness due to tellurium toxicity with their five senses.

五感で感知	五感で毒性を感知できるテルルの化学特性	トモダチ作戦裁判原告たちがテルル化学特性を感知していた該当者名	世界における核分裂後の五感で感知できるテルル毒の事例
①味覚で感知する	テルルのエアロゾルを吸引したり、テルル汚染物を経口摂取すると「金属の味」がする」	①リンゼイー・クーパー②ロリー・コーディー③セシリア・ぐてレス④スティブン・シモンズ⑤ダニエル・ヘアー⑥ウイリアム・ゼラー	①広島原爆では爆撃機機長が「鉛の味がした」と証言している。②スリーマイル島厳罰事故、チェルノブイリ原発事故でも被ばく住民は「金属も味がした」としょうげんしている。③福島第一原発津事故後の飯舘村の多数住民は金属の味化がしたと証言している。
②臭覚でテルルを感知する	テルルのエアロゾルを吸引したり、テルル汚染物を経口摂取すると「ニンニクの臭い（血の臭い、金属の臭い）」がする	①リンゼイ・クーパー	①広島原爆被爆患者を診た肥田俊太郎さんの「腐敗臭がした」という証言②福島第一源波濁事故後に飯舘村や浪江町の住民は金属が焼けた臭いがしたと証言している。
③視覚で感知する	テルル（Te）が酸化して二酸化テルル（TeO_2）なるとき発熱して青い光を出す	①1号機ベントプルーム、②1号機建屋水素爆発プルーム③3号機建屋水素爆発プルームは④2号機ブローアウトパネル放出プルームには“青い光映像の証拠写真”がある。	世界における核分裂事件後の”青い光映像特集“を次ページに掲載する
④温覚で感知する	テルルが混入したプルームに入ると生暖かい空気、異様な雰囲気を感じる	①リンゼイー・クーパー②ロリー・コーディ③セシリア・グデレス④ウイリアム・ゼラー	①広島原爆の爆心地数km離れた地域住民は”青い閃光をみて暖かい空気“を感じた②
⑤皮膚刺激、触覚	テルルエアロゾルに被毒すると、急激に日焼けしたような皮膚刺激、眼や鼻や喉に刺激があるがある	①リンゼイー・クーパー②ロリー・コーディー③セシリア・グデレス④ダニエル・ヘアー	スリーマイル島原発事故②チェルノぶり原発事故③福島第一原発事故被ばく住民証言には①皮膚、目、鼻、喉の急激なテルル刺激が起こり、日焼け、目が赤くなる、鼻血、咳が出て声が出薬にくくなるとう症状が起こった。
⑥痛覚、知覚で感知する	テルルのエアロゾルを吸引したり、テルル汚染物を経口摂取すると「気分が悪くなり下痢、嘔吐、頭痛、腹痛、発熱」し「間接痛、筋肉痛い」を感じる。	①リンゼイ・クーパー②セシリア・グデレス③スティーブン・シモンズ④ダニエル・ヘアー⑤チャド・ホルト	広島原爆、長崎原爆、チェルノブイリ原発事故、福島第一原発事故後のテルル毒性急性原爆症の特徴は①気分が悪くなる②嘔吐する③頭痛、④腹痛、⑤発熱する⑥下痢をするなどの症状が起こった

世界の核分裂事件現場（広島原爆、長崎原爆、ネバダ核実験、ビキニ核実験、スリーマイル島原発事故、チェルノブイリ原発事故、福島第一原発事故など）における「テルル(Te)が酸化してできる二酸化テルル(TeO_2)の出す"青い光"」の映像特集

Tellurium Toxicity Tellurium isotope that causes acute atomic bomb disease ÿ There is stable tellurium (Te-128, Te-128, Te-130) and radioactive tellurium (Te-127, Te-127m, Te-129, Te-131, Te-131m, Te-132) were deposited in large quantities and were released during the nuclear power plant accident.

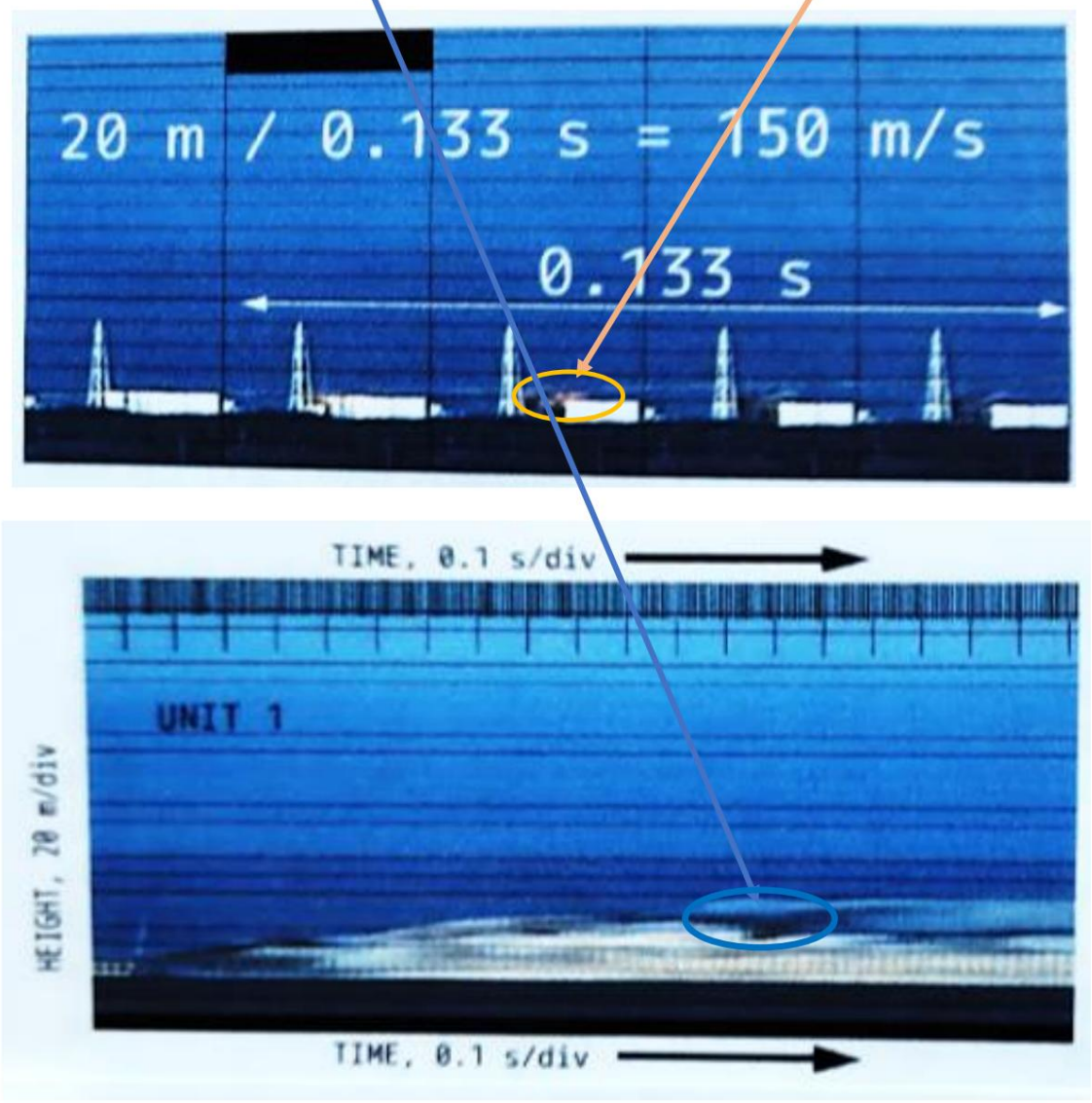
ORIGENモデル：福島第一原発事故直後･核分裂停止後の１号機（１日後）、２号機（３日後）、３号機（３日後）の炉心部に堆積していたホットパーティクルを形成する核分裂物質の放射能（ Bq）と質量（ g)及び毒性の分類

福島第一原発の１号機から６号機の核燃料と原子炉炉心部と使用済み核燃料にホットパーティクルを形成する核分裂物質（毒物テルル１族、放射性ヨウ素、放射性セシウム）が大量に蓄積されているデータは、原子力研究開発機構が発行している「 JAEAData/Code 福島第一原子力の燃料組評価」に存在していた。

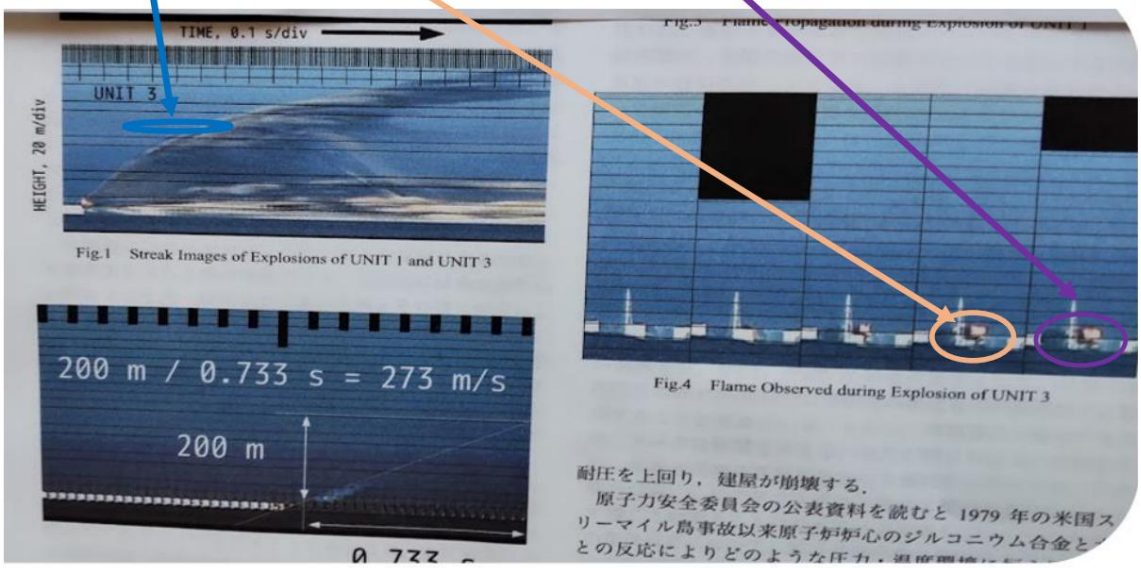
			原発事故前から１号機、２号機、３号機の炉心部に堆積していた②放射能（ Bq）と③質量（ g）							
		①半減期	１号機炉心部の放射能（Bq）	１号機炉心部の質量（g）	２号機炉心部の放射能（Bq）	２号機炉心部の質量（g）	３号機炉心部の放射能（Bq）	３号機炉心部の質量（g）	④Bq当たりの質量(g/ Bq)	⑤毒性の分類
毒物テルル１族	Te-127	9.35時間	9.48E+16	0.7	1.16E+17	1.2	1.20E+17	1.23	1.02E-17	化学毒＋放射毒
	Te-127m	109日	8.19E+15	2.4	1.23E+16	3.5	1.34E+16	3.83	2.86E-16	化学毒＋放射毒
	Te-128	7.7× 10^{24}年	0	7070	0	6160	0	5810	0	化学毒
	Te-129	69.6秒	3.97E+16	0.03	4.28E+16	0.1	4.53E+16	0.584	1.29E-18	化学毒＋放射毒
	Te-129m	33.6日	4.33E+16	37.3	6.95E+16	62.4	7.07E+16	63.5	8.98E-16	化学毒＋放射毒
	Te-130	2.7× 10^{21}年	0	19840	0	24100	0	22700	0	化学毒
	Te-131	25分	4.06E+16	0.01	2.26E+16	0.01	2.31E+16	0.0109	4.72E-19	化学毒＋放射毒
	Te-131m	30日	1.80E+17	2.0	1.01E+17	3.4	1.03E+17	3.49	3.39E-17	化学毒＋放射毒
	Te-132	3.2日	1.57E+18	90.8	1.76E+18	157	1.76E+18	157	8.90E-17	化学毒＋放射毒
放射性ヨウ素	I-129	1.57× 10^{7}年	6.2E+9	9490	7.5E+9	10500	7.1E+9	10800	1.53E-07	放射能毒
	I-131	8.02日	1.26E+18	236	1.87E+18	408	1.86E+18	406	2.18E-16	放射能毒
	I-132	2.3時間	1.84E+18	2.8	1.81E+18	4.7	1.81E+18	4.74	2.62E-18	放射能毒
	I-133	20.8時間	2.65E+17	6.3	4.58E+17	10.9	4.57E+17	10.9	2.38E-17	放射能毒
放射性セシウム	Cs-134	2.065年	1.90E+17	3970	2.76E+17	5770	2.51E+17	5250	2.09E-14	放射能毒
	Cs-137	30.17年	2.02E+17	62700	2.55E+17	79100	2.41E+17	74700	3.10E-13	放射能毒

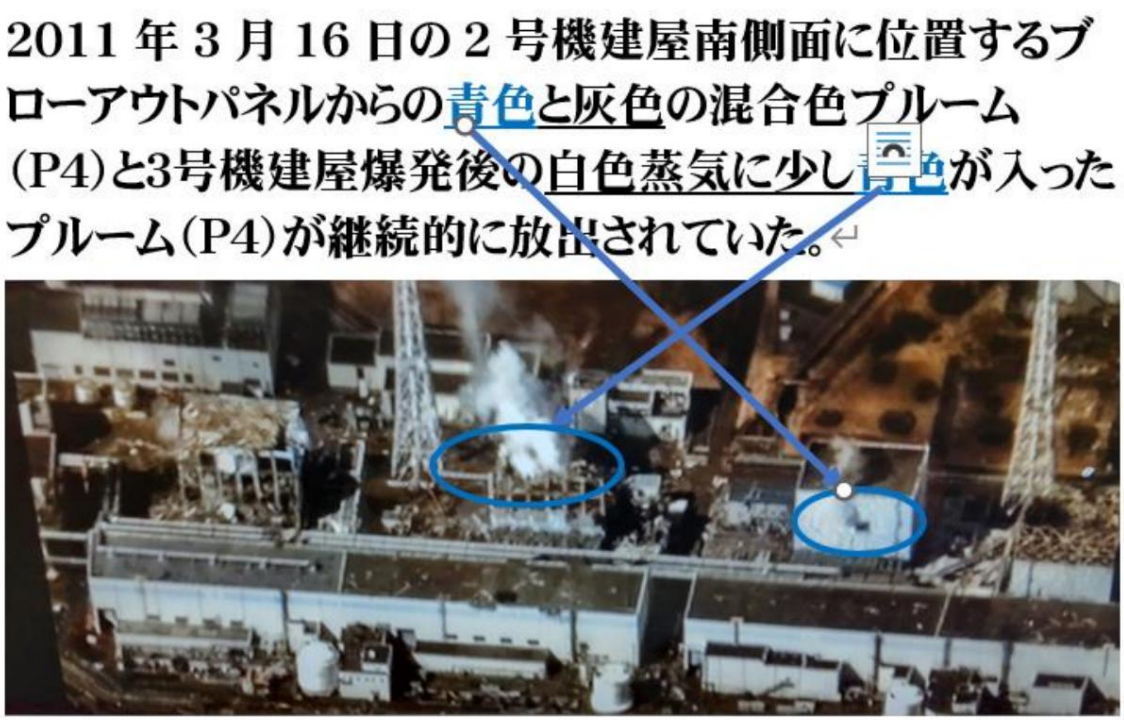
Blue color of the plume from the Unit 1 vent released from the Unit 1 and 2 exhaust towers at 14:30 and 16:00 on March 12, 2011
Note 1: If you look
closely at the color of the Unit 1 vent plume released at 16:00, you will see Near the exit of the exhaust tower, the vapor is white, but from a distance, the plume changes to a mixture of
blue and gray. Note 2: The Unit 1 vent plume is P1, the first of nine plumes.

Video analysis of the flame explosion of mixed gases (water vapor, hydrogen, tellurium, cesium, iodine, xenon, etc.) during the plume (P1) of the Fukushima Daiichi Nuclear Power Plant Unit 1 building explosion (March 12, 15:26) Figure: Spread of flame during the explosion of Unit 1 (orange color of cesium dioxide (CsO_2) in the center, blue - green color of tellurium dioxide (TeO_2) around the area) Bottom figure: The plume of Unit 1 moves north-northwest at a high speed of 150 m/s Due to advection, the plume was divided into a white water vapor part and a blue tellurium dioxide part. Video source: Shun Tsuruta, “Study of the explosion phenomenon in the reactor accident building of the Fukushima Daiichi Nuclear Power Plant using image analysis,” Journal of the Combustion Society of Japan, Vol. 54, No. 167 (2012), 28-32



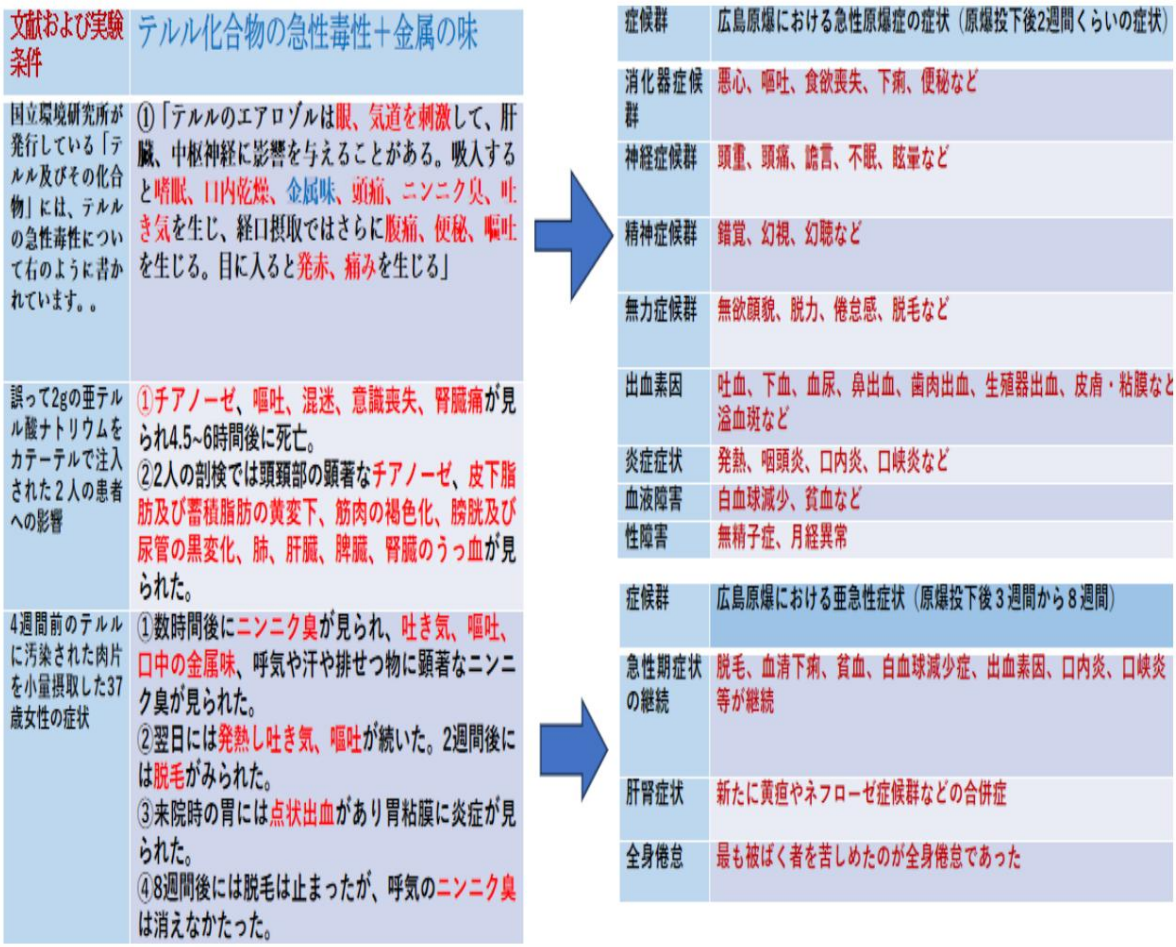
Upper left image: 11 a.m. on March 14, 2011, super-resolution continuous video showing the growing TeO2 blue flame around the Unit 3 building hydrogen explosion plume. Lower left image : 11 a.m. on March 14, 2011. , the Unit 3 building hydrogen explosion plume advected southward (seaward) at a high speed of 273 m/s. Upper right image: The hydrogen explosion in the Unit 3 building occurred on the 4th floor, and immediately afterward flames with an orange color (CsO2) in the center and a purple color (TeO2) in the periphery spouted out. Video source: Shun Tsuruta, “Study of the explosion phenomenon in the reactor accident building of the Fukushima Daiichi Nuclear Power Plant using image analysis,” Journal of the Combustion Society of Japan, Vol. 54, No. 167 (2012), 28-32





Tellurium toxicity acute atomic bomb disease in Hiroshima atomic bombing

Note 1: Regarding the taste of metal after the Hiroshima atomic bombing, the Mainichi Shimbun (August 5, 2018) reported that Captain Tippetts, the B29 pilot who dropped the atomic bomb, testified that it tasted like lead when surrounded by light.) was introduced. Note 2: Many testimonies of seeing a blue flash after the Hiroshima atomic bombing are introduced in the Hiroshima Atomic Bomb War Disaster History (1972) published by Hiroshima City. Note 3: Those who encountered black rain were 10 to 53 times more likely to experience (1) fever, (2) vomiting, (3) diarrhea, (4) sore throat, (5) mouth pain , (6) gum pain, (7) gum bleeding, (8) purpura, and (9) hair loss than the subjects. The other side is reported in the Oak Ridge Report “Oak Ridge National Laboratory (ORNL) Technical Report (ORNL-TM-4017, 1972)”. Source: The characteristics of the Hiroshima atomic bomb and acute atomic bomb disease are described in Section 6 of ``The Atomic Bomb and Hiroshima University: The Fire of Life and Death, Academic Edited by: Hiroshima University Atomic Bomb Victims Memorial Event Committee (Hiroshima University Press)'' by Professor of the Health Management Center at the time. Mr. Yoshio Sugihara, who was a professor at the time, gave a detailed report in ``The Pathological Issues of Atomic Bomb Illness: A Study of Experience.''



文献および実験条件	テルル化合物の急性毒性＋金属の味
国立環境研究所が発行している「テルル及びその化合物」には、テルルの急性毒性について右のように書かれています。。	①「テルルのエアロゾルは眼、気道を刺激して、肝臓、中枢神経に影響を与えることがある。吸入すると嗜眠、口内乾燥、金属味、頭痛、ニンニク臭、吐き気を生じ、経口摂取ではさらに腹痛、便秘、嘔吐を生じる。目に入ると発赤、痛みを生じる」
誤って2gの亜テルル酸ナトリウムをカテーテルで注入された2人の患者への影響	①チアノーゼ、嘔吐、混迷、意識喪失、腎臓痛が見られ4.5~6時間後に死亡。 ②2人の剖検では頭頸部の顕著なチアノーゼ、皮下脂肪及び蓄積脂肪の黄変下、筋肉の褐色化、膀胱及び尿管の黒変化、肺、肝臓、脾臓、腎臓のうっ血が見られた。
4週間前のテルルに汚染された肉片を小量摂取した37歳女性の症状	①数時間後にニンニク臭が見られ、吐き気、嘔吐、口中の金属味、呼気や汗や排せつ物に顕著なニンニク臭が見られた。 ②翌日には発熱し吐き気、嘔吐が続いた。2週間後には脱毛がみられた。 ③来院時の胃には点状出血があり胃粘膜に炎症が見られた。 ④8週間後には脱毛は止まったが、呼気のニンニク臭は消えなかたった。

症候群	広島原爆における急性原爆症の症状（原爆投下後2週間くらいの症状）
消化器症候群	悪心、嘔吐、食欲喪失、下痢、便秘など
神経症候群	頭重、頭痛、譫言、不眠、眩暈など
精神症候群	錯覚、幻視、幻聴など
無力症候群	無欲顔貌、脱力、倦怠感、脱毛など
出血素因	吐血、下血、血尿、鼻出血、歯肉出血、生殖器出血、皮膚・粘膜など溢血斑など
炎症症状	発熱、咽頭炎、口内炎、口峡炎など
血液障害	白血球減少、貧血など
性障害	無精子症、月経異常

症候群	広島原爆における亜急性症状（原爆投下後3週間から8週間）
急性期症状の継続	脱毛、血清下痢、貧血、白血球減少症、出血素因、口内炎、口峡炎等が継続
肝腎症状	新たに黄疸やネフローゼ症候群などの合併症
全身倦怠	最も被ばく者を苦しめたのが全身倦怠であった

Tellurium toxicity acute atomic bomb disease in the Three Mile Island nuclear power plant accident

Note 1: After the Three Mile Island nuclear power plant accident, many people who were exposed to radiation after the nuclear power plant accident reported that they felt the taste of metal, including those from June Lee of Hajime Nakao, Three Mile Island (Nogusa Publishing). Testimony is presented. Note 2: Jane Lee said, ``The air was steel blue.'' Note 3: According to resident testimonies, ``Everyone had symptoms such as diarrhea, vomiting, and dermatitis (8), especially dermatitis around the eyes,'' and `` Basically , the skin becomes dry and red. There were many testimonies about the irritation to the skin and mucous membranes, such as "It's just a mild sunburn." Source (1): Dr. Helen Caldicott of Harvard University published ``Nuclear Power Not The Answer'' in 2006. It introduces the health damage caused to residents who voluntarily evacuated after the accident. After the accident, 5% to 6% of residents within an 8km radius were evacuated before Governor Thornburgh issued an evacuation order. Two days later, on March 30, the governor issued an evacuation order for children and pregnant women within an 8 km radius, and approximately 140,000 people evacuated. After the accident, Dr. Caldecott gave a lecture in Harrisburg, a city near Three Mile Island, and took questions from residents. The physical conditions reported by the evacuees were as follows. Source (2): “Letter from Pennsylvania Congressman Stephen Reed to NRC Chairman Joseph Hendry” Characteristics of acute atomic bomb illness caused by tellurium toxicity

ヘレン・カルデコット医師による「スリーマイル島原発事故版のテルル毒性急性原爆症」：スリーマイル島原発事故の8km圏内から避難した住民の健康被害症状

症状の番号	テルル毒性急性原爆症候群の症状
1	めまい
2	嘔吐
3	下痢
4	鼻血
5	口の中に金属の味
6	脱毛
7	皮膚の赤い発疹

スティーブン・リード議員による「テルル毒性急性原爆症」

番号	テルル毒性急性原爆症候群の症状
1	口の中に感じた金属の味
2	空気中の、金属の味あるいわヨウ素の臭い
3	目の炎症と、うるみ
4	軽度あるいわ重度の、呼吸器の炎症
5	胃腸機能障害及び下痢
6	女性における月経サイクルの変調
7	皮膚炎（放射線火傷とみなされるものも含む）
8	関節に起こった鋭い異常痛

Evacuated from Ukraine's exclusion zone

Trends in the health status of children ÿ Ukrainian government

According to a government report, “The Chernobyl nuclear power plant accident

“Acute atomic bomb disease due to tellurium toxicity”

Note 1: The “blue light images from the Chernobyl nuclear power plant accident are blue at nuclear fission sites around the world.”
It exists as photographic evidence in the ``light image''.
Note 2: A “metallic taste” appears in the Ukrainian government report as well.
Note 3: Typical tellurium toxicity such as sore throat, nausea, vomiting, etc.
Source: “Ukraine 2011” published by the Ukrainian government 25 years after the Chernobyl accident.
According to the Inna Government Report, the health conditions of those who were children at the time of evacuation are unknown.
It has been made clear. Here, the period from April 26, 1986 to September 1, 1986, immediately after the Cirnobyl accident.
Regarding trends in the health status of children who evacuated from areas that were designated as no-go zones on Sunday.
I quote it.

Tellurium poison during the Chernobyl nuclear power plant accident Acute atomic bomb disease	ratio(%)
ÿ Sore throat, discomfort, metallic taste ÿ Frequent	57.7
dry cough ÿ Fatigue ÿ	31.1
Dizziness	50.1
ÿ Headache ÿ	27.8
Sleep	39.3
disturbance ÿ	18.0
Fainting ÿ	9.8
Nausea and vomiting ÿ	8.0
Intestinal	6.9
disorders ÿ Respiratory system	31.0
syndrome ÿ Lymphoid tissue	32.2
hyperplasia ÿ Cardiovascular	18.0
system Functional disorders ÿ	9.4
Digestive	9.8
system	3.2
dysfunction ÿ Hepatomegaly ÿ	34.2
Splenomegaly ÿ Quantitative changes in blood count ÿ Qualitative changes in blood count	92.2

Chronic atomic bomb disease after the Hiroshima atomic bombing (delayed effects of the atomic bomb)

Note 1: Cataracts, leukemia, malignant tumors such as malignant myeloma, thyroid cancer, and blood disorders were "chronic symptoms of tellurium toxicity and atomic bomb disease." Source: In Section 6 of “The Atomic Bomb and Hiroshima University: The Fire of Life and Death, Academic Edition: Hiroshima University Atomic Bomb Victims Memorial Event Committee (Hiroshima University Press),” Yoshio Sugihara, who was a professor at the Health Management Center at the time, says, “ This is reported in detail in ``The Pathological Issues of Atomic Bomb Illness: A Consideration of Experience".

chronic atomic bomb disease	Health-damaging symptoms of chronic atomic bomb disease (part
Atomic bomb cataract	1) The lesions of atomic bomb cataract are unique and appear as opacity in the lower part of the posterior capsule of the lens. The disease develops within a few months to eight years after exposure, but is often non-progressive. Asahi Shimbun dated July 23, 1971, stated, ``Dr. Shigenori Sugimoto (68), director of Sugimoto Ophthalmology Hospital, 3-chome, Otemachi, Hiroshima City, has been researching the relationship between radioactivity and cataracts in exposed people since September 1945. From 1935 to 1947, the lenses of the eyes of 2,798 directly exposed people (including fetuses) attending the same hospital were examined, and 692 of them had clouded crystalline lenses, a high rate of 25%. It was found that the cataract disease rate was high for A-bomb survivors.It began to rise two years after exposure, and from around 1950 to 1960, the cataract rate continued to be about 10 times higher for those exposed within 2km. At the 17th
atomic bomb leukemia	Atomic Bomb Disease Study Group (June 1976), Takeshi Ohoku stated that in the five years from 1971 to 1970, 44 cases of leukemia died among A-bomb survivors. Of these, 34 were directly exposed and 10 were early arrivals, indicating that the number was 3.2 times higher within 2 km of the hypocenter and 5.2 times higher within 1.5 km, indicating that leukemia has already ended. The Hiroshima City Medical Association Tumor Statistics Committee conducted tumor registration for 20 months starting in May 1957 and found that gastric cancer, lung cancer, breast cancer, cervical cancer, and ovarian cancer were common in radiation-exposed people. According to the Hiroshima Atomic Bomb Hospital's Medical White Paper from 1955 to 1955, seven types of malignant tumors are associated with the effects of radiation: leukemia, lung
Malignant tumor	cancer, gastric cancer, malignant lymphoma, breast cancer, myeloma, and thyroid cancer. It becomes.
thyroid cancer	A survey was conducted of all patients with thyroid disease from 1951 to 1961, excluding those born after the atomic bomb was dropped. A total of 1,318 cases of ship disease were visited at Hiroshima University's Second Department of Surgery, with 132 being A-bomb survivors (including 25 early arrivals), for an exposure rate of 10.01%. Looking at the exposure rate by disease, thyroid cancer is attracting attention as it is 27.95%, which is extremely high compared to other diseases. This was followed by benign thyroid tumors, chronic inflammation, and hyperfunction. In terms of age, the top is 30. Among A-bomb survivors, it is seen disproportionately among young people. It is thought that those who were between the ages of 10 and 20 at the time of the atomic bombing were more strongly affected.
blood disorders	Susumu Watanabe acknowledged that even though there was no significant difference in hypochromic anemia between the Otake City case and the Kure City case, the rate of hyperchromic anemia was twice as high in the Otake City case, citing Otake as the reason for this. It is assumed that most of the people in the city were exposed to radiation outdoors and were exposed to black rain, so they must have suffered from severe radiation damage. Currently confirmed blood disorders include anemia, bleeding diathesis, aplastic anemia, polycythemia, leukocytosis, and leukopenia, and their causal relationship to the atomic bomb has been epidemiologically proven. If you have bone marrow fibrosis.

Chronic atomic bomb disease after the Hiroshima atomic bombing (delayed effects of the atomic bomb)

Note 1: Liver damage, internal secretion disorders, sexual disorders, skin disorders, atomic bomb insensitivity, miscarriages, premature births, stillbirths, and early deaths after manual births were ``chronic symptoms of tellurium toxic A-bomb disease''. Source: In Section 6 of “The Atomic Bomb and Hiroshima University: The Fire of Life and Death, Academic Edition: Hiroshima University Atomic Bomb Victims Memorial Event Committee (Hiroshima University Press),” Yoshio Sugihara, then a professor at the Health Management Center, wrote, “The Atomic Bomb A detailed report is given in ``The Pathological Issues of Disease: A Study of Experience''.

Chronic Atomic Bomb Disease	Health-damaging Symptoms of Chronic Atomic Bomb Disease (Part 2) The subacute and subchronic liver damage of
liver damage	A-bomb survivors has once again been emphasized, as Aikichi Kuboyama suffered from severe jaundice during the bikini hydrogen bombing. He even died. Regarding the data presented by Jiro Urakami, Yoshio Sugihara said that the number of liver damage among patients with white blood cell counts in the normal range of 6,000 to 9,000 was higher than that in the radiation-exposed group and the control group among patients who came to the university hospital. When comparing the numbers, there was a significant difference in 51 out of 148 people (34.5%) in the exposed group and 4 out of 24 people (16.7%) in the control group. Reference: Yoshio Sugihara, “Two positions on Atomic Bomb Illness, Science Asahi, 25 (8): 23, 1965”
endocrine disorders	According to Kiyoshi Shimizu et al., 293 special survivors from October 1960 to December 1961. Diabetes was observed in 56 people (19.1%), and Hollingsworth et al.'s research from July 1958 to November 1959 found that hyperthyroidism occurred more frequently the closer you were to ground zero. It was big. Reference: Yoshio Sugihara, “Two positions on Atomic Bomb Illness, Science Asahi, 25 (8): 23, 1965” Ms. Miyake is suffering from functional uterine bleeding (15 years old to 59 years old) and ovarian dysfunction (15 years old). There is a significant difference with a risk rate of 1% between exposed people and those who have been exposed to radiation. Mr. Noriyuki Murakami conducted a semen analysis
sexual disorder	in Hiroshima in January 1959 and found that 3 out of 15 men with a diameter of 0.9 to 1.3km had a lack of sperm, and one had a decrease in spermatozoa. Reference: Yoshio Sugihara, “Two positions on Atomic Bomb Illness, Science Asahi, 25 (8): 23, 1965” In 1954, Yoshiyoshi Manabe et al., A-bomb survivors visiting a hospital surgery department often complained of discomfort and dryness in their hands and fingers. Noticing that many patients complained of finger print edema, etc., he directly observed the capillary images of the skin under a microscope, and discovered that the capillaries were in a disorganized
skin disorders	and ataxic state. Tired easily, feeling tired all over the body, feeling dizzy, having palpitations, feeling heavy in the head, unable to sleep, headache, decreased vision, fecal atomic bomb incompetence symptoms, flushing, diarrhea, loss of appetite, having sex It is a medical condition consisting of indeterminate complaints such as bloating, weight loss, slight fever, stiff shoulders, nausea ,
stillbirths and early deaths after birth.	menstrual abnormalities , and night sweats. Doctors in Hiroshima call it ``Hiroshima disease'' and ``A-bomb burabura disease.'' According to a survey based on premature births in the death notifications of Hiroshima City Hall and the Hiroshima Legal Affairs Bureau between 1945 and 1959, infants exposed to atomic bombs in the womb died early after birth. About 7 years after exposure, the number was higher than in controls. After that, it was estimated that there was no difference between the patients and the controls .

Toxicity of tellurium compounds causing chronic atomic bomb disease (delayed effects of the atomic bomb) ÿ Metabolic toxicity distributed and accumulated in various organs

Literature (1) From “Tellurium and its compounds” published online by the National Institute for Environmental Studies

テルルの代謝実験	テルルの体内動態・代謝と吸引摂取・経口摂取後の分配と蓄積
ラットにTe-127m(半減期109日)でラベルした亜テルル酸0.05μgTeを強制的経口投与又は腹腔内投与した結果	投与量の10.2～15.5%が消化管から吸収された。胎内組織の放射活性は1～2時間後に平衡状態に達し、胎内放射活性の約10%は腎臓、約5%が血液（90%以上が赤血球）、2%が肝臓、大腿骨にあり、200日後にも体内放射活性の約19%が大腿骨、約5%が腎臓、約1%が血液、肝臓にあった。

Toxicity of tellurium compounds that cause chronic atomic bomb disease (late effects of the atomic bomb) ÿTellurium compounds simultaneously cause congenital malformations in newborns (developmental toxicity) and postpartum disorders in mothers (reproductive toxicity)

Literature (1) From “Tellurium and its compounds” published online by the National Institute for Environmental Studies

テルル化合物の動物実験による生殖・発生毒性	
100匹を超えるラットに0.05, 0.125, 0.25%の濃度でテルルを餌に添加して妊娠期に投与した結果	0.05%群ではごく一部の母ラットに水頭症の仔が出産しただけであったが、0.25%群では100%、0.125%群では60~90%が水頭症であった。
ラット雌13~14匹を一群として0.3%の濃度でテルルを餌に添加して妊娠期を通して投与した結果	出産した24匹中20匹（83.3%）で仔のすべてが水頭症であった。また仔の13%が死産であり、3日齢、10日齢、1年齢の生存率は76%,26%、19%であった。
ラット13~14匹を一群として、メトセル水溶液に添加したテルル1000mgTe/kg/day以上の群の結果	母ラットの体重増加の抑制、胎仔の低体重に有意に差が見られ、水頭症や尾、足の奇形が胎仔にみられた。餌に559mgTe/kg/day以上の群で母ラットの体重減少、胎仔の低体重、奇形等がみられ混餌投与で影響は強く現れた。
ラット２４匹を１群として0~1.5%の濃度でテルルを餌に添加して妊娠６日から１５日まで強セリ投与した結果	0.3%以上の群で痩せ、分娩前の膣出血、活動低下がみられ、痩せ及び膣出血の発生率は1.5%群で有意に高かった。胎仔では0.3%以上の群で奇形（主に水頭症）及び変異（椎骨や肋骨の骨化遅延）の発生率と低体重に有意な差を認めた。自然分娩させた仔では、1.5%群で7日間生存率の有意な低下、側脳室拡張に有意な増加を認めた。
ウサギ17匹を1群として、0~0.525%濃度でテルルを餌に添加して妊娠6日から妊娠18日まで強制投与した結果	0.175%以上の群で体重増加の有意な抑制と摂餌量の有意な減少、軟便、脱毛、痩せ、活動低下の発生率に有意な増加が認められた。また胎仔では0.525%群で低体重、奇形や変異の発生率に増加がみられた。
5匹の妊娠ラットにTeO_2.500μモル/kgの餌を19日投与した	母体の体重減少が起り、100%の胎児に水頭症、浮腫、眼球突出、眼出血、臍ヘルニア、停留精巣、腎臓サイズ減少がみられた。テルルは母体毒性と胎児の催奇形性の両方を誘発した。

Toxicity of tellurium compounds causing chronic atomic bomb disease (delayed effects of the atomic bomb) ÿ Genetic damage of tellurium compounds

Literature (1) From “Tellurium and its compounds” published online by the National Institute for Environmental Studies

遺伝子障害実験	テルル化合物の遺伝子障害性に関する知見
①遺伝子障害に関する知見（in vitro 試験系）	亜テルル酸ナトリウム（(Na_2TeO_3)、テルル酸ナトリウム(Na_2TeO_4)は代謝活性化系（S9）無添加のネズミチフス菌で遺伝子突然変異性を誘発した。
②遺伝子障害に関する知見（in vitro 試験系）	S9無添加の二酸化テルル(TeO_2)、テルル酸ナトリウム(Na_2TeO_4)は大腸菌でDNA障害を誘発した。 S9無添加の塩化テルル、亜テルル酸、メタテルル酸ナトリウムは枯草菌でDNA障害を誘発した。
③遺伝子障害に関する知見	S9無添加のテルル酸アンモニウム$(NH_4)_6TeO_6$は0.03gTe/mlの用量でヒト白血球の染色体切断を誘発した。
②遺伝子障害に関する知見	ヒトリンパ球に小核を誘発するため6つの金属が検討され、そのうちの一つがテルル酸ナトリウム(Na_2TeO_4)であった。二人の若い禁煙男性ドナーの血は全ての金属化合物に使用され、そのうちテルル酸ナトリウムを含む5種類の金属化合物は、少なくとも1回の用量(0.02~2.0gTe/mL)で対象と比較して小核の統計的有意な誘発をした。

[Author introduction] Profile of Mr. Kunihiro Yamada

Born in Osaka in 1943. After completing graduate school at Kyoto Institute of Technology in 1996, became an assistant at the Faculty of Engineering, Osaka University.
hand. Professor of Humanities at Kyoto Seika University since 1997. NPO Kino Environmental Director, Doctor of Engineering, current
is a professor emeritus at Kyoto Seika University.

Around 1970, he began research on environmental pollution in the Seto Inland Sea and Lake Biwa. Since 1980, he has been working on issues of
trihalomethane in tap water and groundwater contamination. Golf course since the late 1980s
Tackling the problem of overdevelopment and providing solutions from the perspective of the victims at sites where environmental problems are occurring.
Practicing environmental studies to find out.

His books include ``Golf Course Ruin Theory'' (Fujiwara Shoten) and ``Freon Gas Destroys the Earth'' (Iwanami Booklet).
``Why are there 600,000 more cases of cancer in the Tokyo metropolitan area?'' ``Nuclear fission and the production of the poisonous tellurium''
Mi (Fujiwara Shoten)'' and many others.

Tellurium Poison Book No. 2 “The Tragedy of Tellurium Poison in Operation Tomodachi”

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