

# Chernobyl: HBO's nuclear drama is masterful television

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*The final episode of the five-part chilling, cautionary tale ends in a courtroom trial but the story is not yet finished*



**Chennai:** Last month, the infamous Russian nuclear disaster received a mini-series treatment in the hands of HBO. And by the end of its third episode, 'Chernobyl' had surpassed Game of Thrones as the highest-rated TV series on IMDB. Although fan-voted databases usually suffer from hyperboles, the show is not undeserving of such a rating.

The five-part five-hour riveting drama takes viewers through vivid montages of nuclear chaos, bureaucratic denials, heroic tales of first responders, lives of the innocents in Pripyat, the 'information vacuum' that lingered within the community, the backstory behind the test that triggered the accident, the complacency, the obstinacy in challenging the status quo and above all, the belief that Soviet Union was an infallible system.

Show runner Craig Mazin, who seems to have taken a major detour from his 'Hangover' (<https://www.imdb.com/title/tt1411697/fullcredits>) days, has tasked himself to undertake a documentary-like examination of the 1986 atomic accident along with director Johan Renck. The duo delve into the events leading to the 'worst-ever nuclear disaster' through a veil of dramatic overtures, stunning visuals, intelligent dialogues and gripping tension culminating in a 320-minute television fodder.

Revisiting Russia in these sombre episodes of torment is TV/Film veteran Jared Harris who plays, Valery Legasov, the leading nuclear physicist commissioned by General Secretary Mikhail Gorbachev to lead the investigation alongside Vice-Chairman of the Council of Ministers Boris Shcherbina (the incredibly talented Stellan Skarsgård). Together, they arrive at Chernobyl to take stock of a nuclear time-bomb situation keeping in mind the threat of a perpetual radiation epidemic. Ilana Khomyuk (Emily Watson), a composite character created to emulate the efforts of the unknown men and women in the multi-faceted tragedy, traverses through the man-world, knocking at uninvited doors to understand how and where things went south at the Chernobyl nuclear facility.



*Jared Harris as Valery Legasov*

On April 26, 1986, a sudden power spike caused a major disruption at the Chernobyl Nuclear Power Plant located in Soviet Ukraine. The breakdown occurred mid-night during a safety test. It was realised that one of the four nuclear reactors had exploded sending out massive amounts of radiation that could permeate into cities as far as the European border. ***The radiation leak at Chernobyl was at least 100 times more compared to the atom bombs dropped on Hiroshima and Nagasaki.***

From here, the episodes move back and forth pitting human drama with politics during times of nuclear disaster. The timelines vary, complemented by clear exposition, as they branch out into individual narratives to give a full-fledged look into the mega-scale chaos replete with Soviet chauvinism, human hubris and heroism.



Adam Nagaitis as Vasily Ignatenko

Fire-fighter Vasily Ignatenko (Adam Nagaitis), the earliest of the responders at the scene quelling the fire in the reactor building is one of the very first storylines. Soon enough, he gets pulled out following severe exposure and is transferred to an unknown facility. His wife Lyudmilla's (Jessie Buckley) quest to locate him forms the other half of the story. Hospital beds riddled with putrefied bodies, the sound of the dosimeters crackling, a man exposed to uranium dosage begging for his child to be taken from him - the show gets sicker and sicker and yet it keeps the viewers on the edge of their seats.

Years later, Lyudmilla, who survived the fallout, painstakingly described the last days of her lover in an interview with Belarusian Nobel laureate in Literature Svetlana Alexievich. ***“Lesions broke out on his precious lips and cheeks, and then peeled off in white film. His body turned blue, red, grey-brown. The skin cracked on his arms and legs. Boils swelled into place. His hair fell out in clumps. He was bloated, his eyes swallowed by flesh. The last two days in the hospital – pieces of his lungs, of his liver, were coming out of his mouth. He was choking on his internal organs. I’d wrap my hand in a bandage and put it in his mouth, take out all that stuff.”***

If words like these feel like a punch to the gut, imagine showing it in visual form. In the series, the final stages of Ignatenko's body is shown briefly and in those few seconds, makeup and prosthetics achieve the maximum effect. 'Chernobyl' is shocking, in that, it captures agonising details without any mala fide intentions of indulgence. It never feels shocking for the sake of it. The camera doesn't hover over human-forms maligned with boils and festering skin membranes to feed the audience sympathetic poison.

There're several scenes where the camera focuses on the subject rather than the subject's action. For instance, late in the series, we're introduced to Pavel (Barry Keoghan), a volunteer drafted into a disposal squad in-charge of putting down wild dogs. This is the real story of liquidators ordered to neutralise pets left behind at the exclusion site. And when young Pavel, never having used a gun before in his life, puts a bullet into an exposed canine, the latent horror on his face irks everybody watching the scene. The camera lingers on him instead of just showing explicit images of animals being gunned down. Director Johan Renck, the maverick genius behind the music videos of David Bowie's final album, Blackstar (<https://www.youtube.com/watch?v=y-JqH1M4Ya8>), wants 'Chernobyl' to be a toned-down historical drama sold on authenticity, not on shock value.

'Chernobyl' is deadly yet beautiful. There's a surreal scene halfway through the first episode where a glowing, raging night sky invites people to step outside their houses, onto roads and bridges. The fire from the reactor and its atomic innards were reaching into the atmosphere, manifesting into this shimmering, ethereal bluish light. But little did the population of Pripyat know that a lethal cloud of radioactive waste was travelling headlong towards them. Anyway, these are just undue dramatizations. We rarely get to see evacuations. A few glances of civilian lives pop up here and there. Signs of those who resisted leaving never come up on-screen except for an old lady giving history lessons and milking her cow.

But these nit-pickings do not matter. For the show figures out the basic truth– Chernobyl was a result of human incompetence and organisational mismanagement, emanating from a flailing political system ridiculed with disinformation, political chest-thumping and lying...lots of lying, which is evident in Shcherbina's own words: "***The official position of the State is that a global nuclear catastrophe is not possible in the Soviet Union.***"



*Stellan Skarsgård as Boris Shcherbina*

Even in the face of calamity, the Soviet state was stubborn, unwilling to acknowledge the empire's fault. It initially denied that such an explosion had occurred. A standard-bearer for censorship and secrecy, USSR managed to cover-up the catastrophe for three days. It took more than 35 hours before an order was issued to re-locate people out of Pripyat. Soviet media subjugated by state authoritarianism disseminated sparse, misleading information.

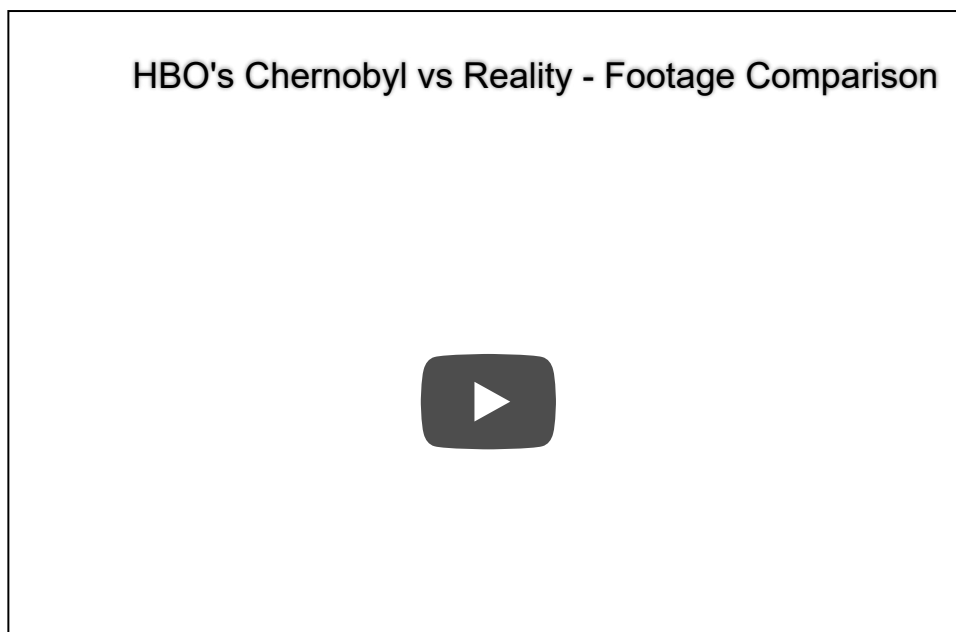
While Chernobyl was a result of a fault in the design of the nuclear plant, it also exposed the fault within Soviet chain-of-command. It showed the implications when authority is abused. It reminded us how a state mechanism shrouded in secrecy can fail to detect an omnipresent danger. Chernobyl happened because scientific facts were just personal opinions and one man's opinion did not matter to another. It was a fight for everybody. While civilians fought against radiation, the authorities fought to save the system. Needless to say, the Soviet Union dissolved.

'Chernobyl' is a refreshing piece of television. It is timely, expansive and incredibly ambitious. It reminds of German language productions like Babylon Berlin and Generation War.

**Fact from Fiction**

A radioactive contaminated site is an excellent breeding ground for genre-bending fiction ranging from sci-fi experiments, paranormal events, mutant creatures, detective thrillers to irradiated vampires. The eponymous disaster has been the subject of multiple documentaries, movies, books, photo essays and even video games (Remember S.T.A.L.K.E.R). But never has the material been showcased with such accuracy in movies or television before.

Right from casting, set productions (period clothing, makeup, buildings), re-telling real-life incidents (the story of fire-fighter Vasily Ignatenko and his pregnant wife Lyudmilla) to the depiction of clean-up measures (the 'Biorobots' scene where humans in metal casts shovel 'lumps of radioactive waste' from reactor rooftop, kill-squads ordered to neutralise abandoned pets & wild animals exposed to radiation within the exclusion zone), **'Chernobyl' hits the sweet spot between documentary and TV dramatization.**



No wonder the Anglophone world has taken to Twitter to appreciate the brilliant work in bridging the gap between fiction and reality for a new-age audience. Attention to detail is not necessarily a concept one has to stick to while creating a TV series but it has become one of the most definitive aspects of 'Chernobyl'. And since the show has become synonymous with the 'authenticity' tag, it is important to dissect what it got right and wrong.

Despite hundreds of hours of research that went into creating this fable, creator Craig Mazin, a New York native, still reels under the American dime-novel interpretation of **'what being a Russian feels like'**.

How else would you explain the scene where Shcherbina threatens to shoot Legasov, who belonged to the upper echelons of the scientific world? The show disregards the Soviet power system, its hierarchy and workings. Also, Legasov was a radiochemistry expert and not a reactor specialist as characterized in the show.

Shooting orders and deadly threats were not a rudimentary part of Soviet life in the 1980s. The inaccuracy is beyond transgression. Of course, it is a TV show. Of course, it has all the right to take creative liberty to exaggerate for dramatic effect. But since the show emphasises more on 'how the story is told' rather than 'what the story is about', such glaring mistakes need to be pointed out for viewers and history aficionados.

The helicopter (dropping boron and sand) crash happened months after the disaster, not on the next day like in the show and radiation had nothing to do with the accident. The firefighters never climbed up over the reactor debris. Nevertheless, they played a pivotal role in putting out fires (preventing nearby reactors from igniting) that lasted for eight days.

Decisions were not taken by a shoddy bunch of ministers. Instead, the real drama was round-the-clock, laborious and involved hundreds of personnel. There's only so much a TV show can display with genuineness. **We also see mandatory stereotypes: the occasional Western rhythms of Russophobia in the form of vodka and KGB agents.**



*David Dencik as Mikhail Gorbachev*

Chernobyl, the series, is brutal and haunting. But the real story is even more depressing. While it displays the 'naked' heroism of miners burrowing under the power plant to stop melted uranium from reaching ground level, it cuts short of explaining that the tunnel they risked their lives to build was never necessary. The miners were exposed to radiation levels between 80,000 and 160,000 chest X-rays, according to the World Health Organisation.

'Chernobyl' is written as a requiem to the valiant souls of the 'countless unknown' involved in the containment programs. The show delivers truth to the utmost extent possible whilst battling minor errors. It strives for perfection yet perpetuates the myth - **depicting Russians as malcontented human beings under a totalitarian regime where people had to be threatened with guns or penalty to do things. But the truth is that many went with a sense of nationalistic duty and workplace responsibility.**

"It was just our job," says Oleksiy Ananenko, one of the three-man suicide squad who averted a second explosion by wading through a basement of radioactive water that needed to be drained. Unlike in the show, the trio did not die of exposure, they all survived. Their colleagues did not applaud their return from the arduous task either as portrayed in the series. Ananenko told BBC, "It was just our work. Who would applaud that?"

Thousands conscripted to clean-up duties were aware of what the radiation could do to them, what it could do their families and loved ones in contact. In fact, one of the many narratives discarded from the final cut was the familial story of Deputy Chief-Engineer Anatoly Dyatlov. A story that would

showcase Chernobyl's supposed enfant terrible in a different light. Dyatlov had received a steep dose of radiation that could have theoretically killed him, instead, his son died later of leukaemia. "There was an implication that whatever contamination Dyatlov experienced, he may have brought home with him and it may have impacted his son's health," Craig Mazin said in an interview.



*Jessie Buckley as Lyudmilla Ignatenko*

The five-part autopsy dissects history but still creeps up with inconsistencies. At the end of the series, HBO claims, "It has been reported that none survived the 'Bridge of Death'". There is no thorough evidence to support the claim that a group of people watching the Chernobyl fire from the overpass were exposed to radiation that killed them in a few years. The true fate of what happened on the bridge remains largely unknown.

And also, according to HBO, radiation is contagious.

A pregnant Lyudmilla breaks rules to stay close to her firefighter spouse at the hospital. On seeing this, Ilana Khomyuk, the (fictional) female scientist is shocked beyond disbelief. She pulls the pregnant wife away from her husband slowly dying from Acute Radiation Syndrome (ARS). 'Chernobyl' preposterously depicts radiation as a transmittable disease. Robert Gale, a top American doctor who treated Chernobyl victims, writes in 'The Cancer Letter' weekly that the show is wrong in portraying firefighters as being dangerously radioactive. And also, once the infected undergo decontamination, radioactivity is internalized. 80 percent of decontamination is removing your clothes. And 95 percent is removing your clothes and taking a shower, according to a report by Dr. Eric Toner of the University of Pittsburgh's Center for Biosecurity.

While the trial did occur with Bryukhanov, Dyatlov and Fomin, Legasov was not spearheading the court session. He wasn't even part of the trial. Showrunner Craig Mazin felt the need for a familiar face to connect with the audience. Jared Harris registers an award-worthy performance with his weariness, his Matrix-style 'red and blue' cards, dramatically plotting and indicting secretive societies and man-made errors.



*Was Legasov really at the trial?*

'Chernobyl' curtails itself at crucial intervals to allow visuals magnify the experience, instead of letting it all out in dialogues. Wordless scenes of bravery and poignant tales of sacrifice thrust viewers into a world of unimaginable destruction. In doing so, the series has created an effect on the audience.

**Reddit, Twitter and Google are abuzz with people talking about Chernobyl. Disaster tourism is booming.** The success of the US television miniseries has driven up the number of tourists wanting to see the plant and the ghost town of Pripyat. One popular Chernobyl tour agency reported a 40% rise in trip bookings since the series began in May, according to *Reuters*.



*Visitors stand outside the New Safe Confinement (NSC) structure over the old sarcophagus covering the damaged fourth reactor at the Chernobyl Nuclear Power Plant*

### **Close to Home**

Watching Chernobyl eerily brings memories of India's own personal tragedy - **the Union Carbide Disaster, also known widely as the Bhopal Gas Tragedy that killed thousands and affected over half a million.** The International Labour Organization (ILO) has listed it among the world's major industrial



accidents in the last century. The list also includes the Chernobyl nuclear explosion and the 2011 Fukushima disaster.

In the intervening night of 02 - 03.12.1984, around 40 tons of **methyl isocyanate gas (MIC)** accidentally leaked into the air from a pesticide plant managed by Union Carbide Corporation (now owned by Dow Chemicals), engulfing surrounding slum areas and suffocating tens and thousands. "Children, women, old men dying and dead on the roads. Carcasses of dogs, cats, chickens, goats, buffaloes, cows, birds lay everywhere," read a *New York Times* article published a week after the incident.



'Bhopal gas disaster girl': The famous photo taken by Raghu Rai

**The direct cause of the Bhopal gas leak is attributed to the presence of water in a tank containing liquid methyl isocyanate (MIC).** Liquid MIC is a chemical intermediate meant for the production of pesticide Sevin. Now, this chemical is stored in underground tanks under cool temperature and optimum pressure. Large amount of water enters tank no.610 on the night of December 2, 1984. This tank contained atleast 40 tonnes of MIC, more than the safety rules permitted. A run-away reaction begins which is speeded up by contaminants (iron residues from corroding pipelines). The mixing generates major increase in temp/pressure forcing the venting of toxic fumes.

Like Chernobyl, the Bhopal disaster was a man-made nightmare, with scientific & investigative reports pointing to negligence, government oversight, managerial defects and state-level maladministration.

### **Chernobyl/Bhopal**

Neither did scientists and Soviet leaders at Chernobyl nor did Indian authorities and officials of the multinational corporation anticipate such levels of catastrophe. The worst thing, though, in both the cases, was the risk management. Poor crisis response aggravated the situation and inflicted damages that could have been averted or at least mitigated.

### **Parallels between Chernobyl and Bhopal**

- Both occurred in the 1980s with an eighteen-month gap between them.
- Both accidents unfolded at mid-night during night-shift sessions.

- Although both resulted in explosions (A nuclear reactor detonates in Europe while in South Asia, a large storage tank of chemicals blew out of its concrete chamber following an uncontrolled reaction with water), Chernobyl's 'immediate' death toll was lower compared to Bhopal where thousands perished.
- The two tragedies were blamed on 'operator error' and led to the arrest and prosecution of individuals.
- The Chernobyl Atomic Energy Station and the Union Carbide India Limited (UCIL) pesticide plant were constructed in relatively backward regions. Soviet Ukraine was a largely agrarian economy. **Madhya Pradesh was one of the least developed areas in India at the time. The state launched incentive schemes to attract factories and companies. Rapid industrialization invited large group of people, workers and migrants looking for jobs; many settled close to the factory.** During 1983-1984, the local government approved sanctions to let residents stay in these localities.
- HOT (Human, Organisational and Technological) analysis reveals that administrative and managerial weaknesses contributed significantly to both accidents. In the case of Chernobyl, experiments similar to the routine maintenance test which led to the nuclear meltdown had been carried out before. The technical factors that caused the toxic leak at Bhopal had been identified previously but never fixed. In 1981, three years before the debacle, seepage of phosgene gas (component of methyl isocyanate) killed one of three employees assigned to shut it down. It was understood the person took off his gas mask in a contaminated area. At least 4 more leaks were recorded until 1982. **Safety lapses and minor mishaps were common occurrences at the Union Carbide factory.**
- Workers broke safety rules because of organisational pressures. The need to generate electricity and meet the demands at Chernobyl pushed employees to skip regulations. Commercial pressure dictated events at Bhopal as the company cut back on safety provisions and maintenance practices as profit margins plunged.
- Fundamental design flaws existed in both the plants, such as the 'jumper line' in the pipework at Bhopal that led to the entry of water to the MIC storage tank, and the positive void coefficient at Chernobyl RBMK reactors which led to a positive power coefficient (sudden power surge) at low power outputs.



Tank 610 was removed from its foundation during decontamination process. Photo taken in 2010 | Wikipedia

- Operators had access, and were allowed, to disable key safety equipment, contributing to the accidents. While there was considerable component failure at Bhopal (the failure of the pressure valve of tank no.610), there was no apparent component failure at all at Chernobyl. Around 26 November 1984 (a week before the catastrophe), a Union Carbide employee tried to move 42 tonnes of liquid MIC from one of the three storage tanks to the processing unit. Though nitrogen was sent in to enable the transfer, tank no. 610 failed to get pressurized. This was a sign of leak.
- Both accidents were exacerbated by managerial failure, information dearth and system related errors. The refrigeration unit meant to keep liquid MIC cool under 10-15°C was **shut down**. The vent gas scrubber, installed to neutralise the poisonous gas in case of a leak, was put in **passive mode**. A pipe leading to the flare tower, capable of burning remaining gases going from the vent gas scrubber, was **disconnected**. The alarm siren was **switched off** immediately after starting it and only restarted once the leak became severe.

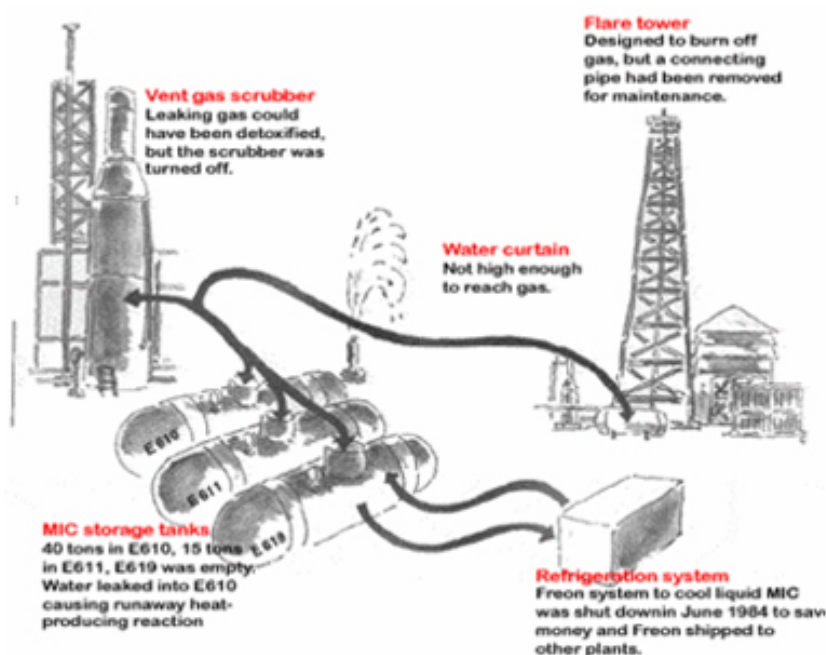


Image source: <https://bhopal.org>

- Poor perception of severity of risk compounded workers' problems. In 1985, one year after the incident, many of the workers were interviewed. According to a *Times* report, almost all the workers said they knew methyl isocyanate (MIC) was dangerous and some said they knew it could be fatal, but a dozen workers said they underestimated its toxicity. No one said they knew it could kill many people quickly.
- Both accidents resulted in extreme, life-threatening health problems. Victims of Chernobyl suffered from nuclear exposure of varying degree from mild maladies to ionising radiation. The effects on Bhopal gas victims were far-reaching and some, still unfolding - **blindness, cancer, birth defects, depleting fertility rates, respiratory disorders, intellectual disability, body deformities, environmental contaminants like lead, mercury in breast milk of nursing women, babies born with fused bones and holes in heart**. One survivor is quoted as saying, "Those who escaped with their lives are the unlucky ones – the lucky ones are those who died on that night."
- The Bhopal factory lacked quality instrumentation. (The pressure indicator control and level indicator of the MIC tank and the temperature indicator alarm were faulty for a long time. The

instructions in English were not comprehensible for the operators. The initial practice of employing degree holders and imparting 6-month training slowly caved-in. Some among the workers were high school graduates). The Chernobyl station, by contrast, was considered a fine specimen of the Soviet system's flagship technology. The employees, who were highly-trained and well-paid by the country's standards, felt confident that no major accident was possible and thus, did not hesitate to ignore instructions.

- **The 1984 poisonous gas leak in central India, to this date, remains the world's deadliest industrial disaster.** 3,787 deaths were confirmed by the state of Madhya Pradesh. In 2010, in a curative petition filed in the Supreme Court, the central government sought compensation for '5,295 deaths'. However, activists claim 25,000 people died so far as a direct result of the disaster and the continuous chemical trial left behind.
- We will never know the true extent of Chernobyl's damage and death toll. It's been 33 years and yet, the exact scale of human sacrifice and the number of displaced remains a secret and a much-debated topic. Around 600,000 liquidators (many among them affected) from around the Soviet Union were sent in to assist with the prolonged containment procedures. Between 1986 and 2000, a total of 350,000 people were displaced with the exponential extension of the exclusion zone. It is said that deaths range anywhere between 4,000 to 93,000 over the years. A Belarusian study estimates total cancer deaths at 115,000, in contrast to the World Health Organisation's tally of 9,000. **The Soviet Union's official death toll is listed as 31.**



In the aftermath of the Chernobyl disaster, 'justice' had to be delivered one way or the other. It wasn't feasible for the entire system to be prosecuted, and so, three men were put on trial.

As the series reveal, Anatoly Dyatlov was sentenced to 10 years prison time alongside Victor Bryukhanov and Nikolai Fomin. Dyatlov passed away in 1995. He authored a piece (<https://www.neimagazine.com/features/featurehow-it-was-an-operator-s-perspective>) for Nuclear Engineering International Magazine calling out the design of the RBMK reactor the 'sole reason for the Chernobyl accident.' Until his last breath, he denied responsibility for the explosion. He claimed the prosecuted men were used as 'scapegoats' to cover up state secrets. The three men accepted professional responsibility but denied criminal liability. Dyatlov offered his version of the events in a 1994 video tape.

## Chernobyl Anatoly Dyatlov's real interview (Engli...



In the end, it's evident that many of decisions were not scientific, or technical, but political. The courtroom drama concludes in not just accusing a few men for the disaster but the entire Soviet Union system. In the final moments of the final episode, when Legasov is quizzed on the reason for using control rods laced with graphite tips, he snidely responds, "It's cheaper" referring to the industry culture of cost-cutting. The trial scenes are constructed as a mirror to highlight today's government policies towards nuclear deterrence, climate change, water scarcity, electronic waste and scientific research. **The series treats the Chernobyl mishap as a malignant, relevant form of human-driven ruination of planet Earth.**

Stubborn Skarsgård and haggard Harris turn 'Chernobyl' into a splendid drama as they exchange grunts, words, dialogues and a smile. Emily Watson is perfect as the brilliant scientist whose bold questions and righteous attitude leads to confrontations with everyone including Legasov.

'Chernobyl' feels like Tinker Tailor Soldier Spy, Seven Days in May and The Lives of Others deftly crammed into a heavy-duty tele-series. Now that we've seen the chemistry between Jared Harris and Stellan Skarsgård, can we've have them in True Detective Season 4, please!

*All five episodes are available now on HBO.*

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## Conversations

