



Public and Media Acceptance of Nuclear Materials Transport

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Transport is absolutely essential to the continued existence of a nuclear industry that includes large scale power generation, sophisticated research, and medicine. Without an effective system for moving materials – uranium concentrates, UF_6 , fabricated fuel, isotopes, spent fuel and waste – costs will increase and availability will decrease.

Yet the nuclear industry is taken for granted by the largest segment of the public and by government officials worldwide. Its detractors, a relatively small segment of the public but a group that is well funded and skilled at manipulation of the public, media, and thus government, do not worry about the effects of higher energy costs on, say, developing or impoverished nations. They do not see any relationship between, on the one hand, the ready availability of advanced nuclear medicine and research in industrialised nations and, on the other, the nuclear materials transport system that they have been trying to shut down. They just assume that non-nuclear technologies will come out of nowhere to save the day. To the extent that concerns over greenhouse gas emissions are scientifically correct, most anti-nuclear organisations ignore the positive contribution that nuclear power could make by reducing the necessity of using dirty fossil fuels, particularly coal, in industrialised nations.

Decommissioning of generating plants and other facilities also requires an efficient transport system for moving materials, as does the implementation of non-proliferation programmes such as the US–Russian HEU agreement and the US research reactor

spent fuel take-back programme. Presumably, anti-nuclear organisations seeking to halt transports would like to see these programmes implemented, but they do not recognise any relationship between them and transport; they do not recognise that nuclear is a global industry and operates according to safety standards set by international organisations.

Transport of nuclear materials is hardly a new business. In the back-end of the fuel cycle, since 1969 more than 4000 casks of spent fuel in more than 150 shipments have moved by sea between Japan and Europe with no release of radioactivity. In the front-end, millions of kilograms of uranium equivalent have moved by land and sea. But the exact number of shipments involving front-end and back-end materials (by all modes of transport) and the amount of material is not important for the purposes of this type of presentation. The precise figures are not the issue here.

What is at issue is that opposition to nuclear materials transport is relatively recent, over the last ten years or so, and, for the most part, it is irrationally expressed. For example, in the United States, more than 100 million containers of dangerous goods are shipped annually by all modes. Only 10 000 of those involve nuclear materials, and there has never been a release of radioactivity from a type B package. The same kinds of percentages apply in other industrialised nations.

But serious environmental disasters involving oil spills and leaks have occurred; gas explosions, plane, train, and automobile crashes, not to mention

pedestrian accidents, are commonplace. Physical sports, with their often debilitating injuries, are a mainstay of modern culture. All of these risky activities are regular media grist. Yet few of us would refuse to cross a street for fear of being struck by a car; few of us would refuse to ride in an automobile or heat our homes so as to undermine the oil industry; few of us would refuse to allow our children to play soccer or football.

Fifteen years ago, nuclear transports were not publicised – sometimes for regulatory and security reasons, but mostly because there was no interest in it. What the public did not know about, it accepted. There were no accidents, and there were no protests. There have still been no accidents, but now there are protests. Anti-nuclear organisations, foremost among them Greenpeace, have made a good living appealing to an irrational fear of the worst-case scenario among a large segment of the public. They have had an easy job of convincing the public and governments that the worst case is plausible and must be protected against. After all, everything is possible, even if only theoretically, is it not?

The nuclear industry itself has only recently begun to acknowledge the importance of transport, and this is evidenced by the number of industry conferences and meetings now devoted to “public acceptance” (the PATRAM conference in Paris and the Uranium Institute’s last mid term meeting in Tokyo are recent examples). Indeed, some segments of the industry still resist spending time and money on public information campaigns on transport – what they continue to view, mistakenly I believe, as a minor adjunct to power generation.

I propose to look at the public and media response to European-Japanese transport campaigns in Panama and South Africa, and to the US Department of Energy’s campaign to transport spent research reactor fuel from Korea, through a California port to Utah and Nevada, on the way to the Idaho National Engineering and Environmental Laboratory. The European-Japanese campaigns involved extensive public information, including ship tours (in fact, no nuclear material was on board during the South African ports of call). The US DOE transport, on the other hand, involved both sea and rail transport and was characterised by government-imposed secrecy and massive security precautions. Perhaps by comparing the results of these campaigns, the industry can realistically “tune” its expectations for better public and government response to transports.

European-Japanese Transports

Pacific Nuclear Transport Ltd., the joint venture of British Nuclear Fuels, COGEMA, and the Japanese utilities, carried a shipment of vitrified waste through the Panama Canal in February en route to Japan. Greenpeace, aware of the shipment, came out in force in Panama in advance of and during the canal transit. In fact, three Greenpeace operatives managed to board the ship.

During the transit, BNFL, COGEMA, and Japanese officials invited local journalists and environmentalists to come aboard the “Pacific Swan” and talk to PNTL crew members about safety and ship operations. Prior to the transit, those officials had briefed Panamanian and Caribbean governments on the shipment.

This “openness” initiative had mostly good results. Local press coverage reflected recognition of the dedication to safety among PNTL ships and crews. Journalists were careful to report the number of safe transits made by PNTL ships and noted compliance with international standards. But they never quite got over that worst-case accident, leaving us, at best, with the feeling that many people, perhaps even most, prefer to live by the axiom, “What we do not know cannot hurt us.” For example, in an article on 7 February in *El Panama America*, one reporter called it exactly like it was. Ruth Rodriguez’s story was headlined, “Pacific Swan crossed the Canal and nothing happened.”

Ms Rodriguez described getting on the ship: “We were swept by a sense of curiosity and fear in the face of the unknown.” She added, “While we waited to board the Pacific Swan, we commented with our colleagues and to other members of the party on the audacity of the members of the environmental group Greenpeace for boarding the vessel surreptitiously and unbeknownst to the crew... thus violating established standards and jeopardising the security of the waterway.”

She also stressed that the canal commission boarded the ship to check compliance with International Maritime Organisation and International Atomic Energy Agency standards and authorised passage of the ship. She was advised that the Pacific Swan has gone through the canal 28 times loaded with spent fuel and 28 times unloaded.

But Ms Rodriguez ended her article not with the positive statement the industry might have hoped for based on her earlier observations, but with the kind of uncertainty and reservation that

may be the best the industry can hope for. The last paragraph of a journalistic story being the one that impresses us as the writer's final conclusion, she ended thus: "The experience aboard the Pacific Swan was interesting, and the important thing is that in spite of the Greenpeace protests, the vessel met its transit schedule, and when you read this report today, the seventh of February, the vessel will be at some point along the Pacific Ocean en route to Japan, its final destination."

In other words, the ship will be out of here and not our problem. There may or may not be good reasons for this shipment, and it may be very safe. But we do not want to think about it, and we will not have to once it has gone. This may be the best the industry can hope for realistically – acquiescence to the need for or perhaps the inevitability of the transports and willingness to put up with them.

A report in *El Universal de Panama* the very next day sounded much the same. Jaqueline Clarke and Gerardo Berroa wrote, "Almost all of the media members present confessed to experiencing a sense of fear mixed with anxiety to secure first-hand knowledge about the controversial containers."

But in the same article, they emphasised that, "A recent report of the three organisations related with the International Atomic Energy Agency, among them the United Nations Environmental Program, points out in its main conclusions that all available information shows that there are low levels of radiation risk and consequences to the environment from the transport of radioactive materials." The journalists added that the report "stated documentation provided by Greenpeace International does not provide evidence to justify their accusations that the regulatory testing standards of the IAEA are inadequate."

Indeed, Greenpeace and certain other anti-nuclear groups have been quite successful in encouraging and feeding on the public's distrust of government today. Greenpeace has nurtured the idea that a powerful nuclear industry is in cahoots with its international regulators to deceive the unwitting common man, who, of course, is the real environmentalist. It has submitted papers to the IAEA and IMO, purporting to be "independent expert" analyses that show casks used for nuclear materials transport are susceptible to failure in worst-case scenarios. Although the credentials of these "independent experts" hired by Greenpeace and other organisations may be inappropriate and

their work not peer-reviewed by qualified scientists, their analyses are "independent" of the nuclear industry and its handmaiden, government regulators. Therefore, they must be correct. That is Greenpeace's idea anyway.

Ms Clarke and Mr Berroa were quick to point out that the three Greenpeace activists who boarded the ship did so on the Atlantic side and not in the canal where the authorities could take action. Nevertheless, they apparently felt compelled to say that "doubtfulness remains in the air as to the security of the waterway." Unlike Ms Rodriguez, they made no expression of outrage over Greenpeace's possible violation of international law. No consideration of conspiracy or trespassing or international terrorism. But the headline of their article expresses the same view as Ms Rodriguez: "The Pacific Swan, in spite of the protests, crossed the canal."

In South Africa, in one of two articles on 22 April in the *Cape Argus*, health reporter Jenny Viall confined herself to describing the redundant safety features of the PNTL ships and the vitrification process, and to explaining why the probability of radiation releases even in the worst-case accident is insignificant. Still, in her article entitled "Nuke Ship Owners Here to Scuttle Our Safety Fears", Ms Viall could not depart the subject without acknowledging public "safety fears" that run to extreme, worst-case depths. Smack in the middle of her article, she wrote, "There is little doubt, even among those opposed to nuclear energy, that the ships are among the safest at sea. It is their cargo, spent fuel from nuclear reactors and vitrified waste, that is contentious."

In her second article for the *Cape Argus*, Ms Viall wrote, "The environmental watchdog organisation Greenpeace says the nuclear waste carrier Pacific Sandpiper's visit to Cape Town is part of a public relations strategy in advance of 'secret plutonium shipments'." She added, "Greenpeace says MOX is an environmental hazard in the event of an accident and a risk if the material is diverted and the plutonium removed for nuclear weapons."

Maybe Ms Viall felt the need to balance her first article, which was so positive toward the transports, with one giving voice to Greenpeace's views. Whatever the case may be, those in the industry know that MOX fuel pellets are not soluble in water, and that while diversion of fabricated MOX fuel for weapons purposes is theoretically possible, the idea of a rogue state or terrorists attempting it

is almost ludicrous. The material is “weapons-useable” but not practicable for any except the most wealthy and sophisticated industrialised states. This article, headlined “Visit ‘a PR move before waste shipment’,” shows why a PR move is needed before a shipment.

In an article on 27 April in the *Daily News*, Barbara Cole reported that when the Pacific Sandpiper was brought into Durban for public tours, protesters found themselves hot and dry. One protester asked a crew member if he and his fellow picketers could have cool drinks. When the crew obliged with a tray of drinks, a spokesman for the Coalition Against Nuclear Transport told the protesters they could not accept them. “Mr. Ash earlier told the *Daily News* that the environmentalists would not accept an invitation to go on board as it would add legitimacy to the Pacific Sandpiper’s Durban public relations exercise”, Ms Cole wrote in her article, entitled “Nuke Protesters Left High and Dry.”

The same person, Coalition spokesman Bryan Ash, was quoted by Ms Cole and Melanie Peters in a separate article, arguing: “The Titanic was said to be unsinkable. The Pacific Sandpiper is no doubt equally impressive.” Granted, his statement is a brilliant use of popular allusion – conveniently aided by romanticism, sentimentality, and a Hollywood blockbuster movie – to cloak his convolution of syllogistic logic. The Titanic was then. This is now. The Titanic either hit an iceberg or went down following a coal dust explosion. PNTL ships have radar, but in any event are not likely to encounter icebergs going through the Panama Canal or around the tip of Africa. Although I am not an expert, I do not think the ship burns coal.

In a radio interview on 21 April with Station SAfm, PNTL Captain Graham Bates had just explained the nature of vitrified materials and described the materials packaging and the enhanced safety features of the Pacific Sandpiper, when the presenter said, “I know there are special precautions to make sure that this ship is virtually unsinkable, but what if the unthinkable happened and the ship did sink?”

Two days later, on the same radio station but a different programme, Captain Bates went through a similar discussion while accompanying a presenter on a tour of the ship. “All I can say is, it is a pity the Titanic was not built like this”, the presenter said as he began to wrap up what to this point seemed to be a very positive programme. But again, in his

final, most emphatic statement, the presenter concluded: “Well, I can say they [the PNTL ships] certainly are safe. That is not really the problem. I have no qualms about the safety of the transport of nuclear wastes and with those solid British seamen... But, yes, one cannot help asking the question of, well, why the nuclear industry and do we need it, and that is a huge question.”

Mr Ash also complained to the *Daily News* that, “The waste is part of a broader nuclear industry. The Japanese nuclear plants, where it is produced, have recently suffered a series of nuclear accidents resulting in workers and the environment being contaminated.” Does Mr Ash have any specific idea of what happened in Japan? I doubt it. Otherwise he would not have spoken so glibly. But that does not seem to matter to the reporter (or reporters) with whom he spoke, because for them the protester is the story. There is no real news here other than the protester. The worst-case scenario is indelible in the minds of the public and is, therefore, also the stuff of protest which, in turn, is the stuff of journalism. Without the worst-case scenario, nuclear energy and materials transport would be commonplace and there would be nothing to protest. Without protest, there is nothing for reporters to report.

US DOE Transports

Let us now look at public and media response to the US DOE’s shipment of spent research reactor fuel from the Republic of Korea back to the United States for storage at Idaho National Engineering and Environmental Laboratory. This spent fuel is derived from HEU fuel provided by the US DOE to research facilities around the world with the understanding that the spent fuel would be taken back by the US government for non-proliferation reasons. Even though the programme for return of the spent fuel is intended to serve the non-proliferation and national security interests of the United States and, indeed, of the world, the legality of bringing the material back into the United States was challenged in court by states through which it was to be transported. But the courts determined that DOE could bring the material in.

Thereafter the so-called take-back programme began, and in contrast to transports between Europe and Japan, DOE transports are characterised by secrecy, extensive visible security, omnipresent emergency personnel, and use only military bases for unloading onto railway cars.

In July, about a week before the ship arrived

from Korea at the Concord Naval Weapons Station in California, word apparently leaked out about the impending shipment. The San Francisco *Chronicle* reported that a DOE spokesman “would neither confirm nor deny the arrival date for the Idaho-bound waste. But he said the department will not necessarily change its plans to avoid protests, which are a certainty, or a terrorist assault, considered a remote possibility.”

Reuters reported on 21 July that, “A controversial shipment of radioactive nuclear waste arrived in San Francisco Bay on Tuesday as officials clamped tight security over its transport route”, while on the same day the Associated Press reported that, “The exact date of the shipment was secret.” Just how effective or necessary DOE’s secrecy was is questionable, since the ship was escorted by a large Coast Guard vessel as well as a flotilla of smaller vessels, while helicopters hovered overhead, and police lined the Bay and closed down all bridge traffic. Something was clearly up.

Associated Press issued a report later the same day stressing that, “Some who were concerned seemed resigned to the project. ‘It has to come through somewhere’, said Tom Goossens... ‘I am sure [the government] examined the various possibilities and came up with this as the least expensive. But someone is going to be affected, and no one [is going to be] happy with nuclear waste coming in. The government would be very stupid to move nuclear waste through if something major were to happen in a place like this’, Goossens said.”

In an article on 22 July headlined, “Nuclear Rods Cross Bay Safely, Are Ready to Continue by Rail”, the *Chronicle* quoted Mark Ross, a city councilman from Martinez, where the Concord Naval Station is located: “Of the protesters, Ross said sarcastically, ‘I am glad they are looking out for the citizens of Martinez, because I do not see any here’.” On the same day, the San Jose *Mercury News* headlined an article, “Protests continue as cargo heads toward Concord Station.” The paper quoted an official of the Western States Legal Foundation as saying, “One accident could devastate this community.”

The *Chronicle* devoted an article on 18 July to describing expected protests. But it concluded with a quote from the director of emergency services in Butte County, which encompasses the dangerous Feather River Canyon railroad pass. “It has been extremely quiet up here”, the paper quoted Mike Madden saying. “‘It is too hot to protest’, said

Madden, who says routine shipments of toxic chemicals pose a far greater threat to the public. ‘We are not doing anything special. It is just a train going through the county’.” In an article on 23 July, Madden was also quoted: “The train passed through the [Feather River] Canyon without a hitch. ‘It reminds me of a Shakespeare play – *Much Ado About Nothing*’, he said.”

A Knight-Ridder Newspapers article, also on 23 July, used the same language. It was headlined, “Nuclear waste moves through California without a hitch.” According to this piece, “Most of the activists who had planned to protest the shipments simply could not keep up with the surprisingly quick pace the Department of Energy had set. There were no demonstrations in Nevada, despite a high level of no-nuke sentiment there. ‘The thing was moving so fast’, said John Hadder of Reno-based Citizen Alerts. ‘A lot of people are really tired too. They know DOE is going to continue to ship stuff anyway’.”

The same article attempts to quote the “ordinary” citizen. “‘Yes, we are worried’, said Bob Wemmer, from behind the counter of the coffee shop, where a photograph of a derailed train in the Feather River Canyon is prominently displayed. ‘But there is not a lot we can do about it.’ A man at the end of the counter interrupted with a very different opinion. ‘Oh, that stuff is sealed up so tight you could drop it out of an airplane’, he grouched.”

I suggest that from a realistic, nuclear industry point of view, there is not much difference between these two points of view at the coffee shop counter. Clearly, the latter opinion is preferable. But neither appears to be particularly well informed, and both are in the coffee shop, not lying across the railroad tracks.

A Knight-Ridder article from earlier that same day at the Concord Naval Weapons Station also focused on the public. “Most of those who turned out along the shoreline Tuesday said curiosity motivated them, not a desire to protest. ‘It has been on the news so much lately I wanted to see it’, said Rosie Trainer, a postal carrier from Rodeo who was one of a dozen spectators in the parking lot at Yet Wah Mandarin Cuisine in Crockett. Trainer said she worries more about the refineries surrounding her Rodeo home. ‘We are in the middle of a hazardous area with all of these refineries’, she said with a laugh. ‘Hazard is our second name’.”

“‘The shipment was a little risky’, said Earl McConnell, ‘However, they [the spent fuel rods] are sealed in a steel container, so you are still safe.’

Martinez Councilman Rob Schroder strolled down to the dock to take it all in. Asked if he was nervous, he said, 'Not any more than [about] the Concord Naval Weapons Station... I have always suspected there is nuclear material there'."

Finally, a Knight-Ridder/Tribune Business News article on 24 July, the day the train arrived at its Idaho destination, reflected the difference location makes. DOE's Idaho laboratory is accustomed to waste handling, and many people are employed in that business. The article, blandly headlined "First Foreign Nuclear Waste Shipment Arrives in Idaho", begins: "A train carrying a shipment of radioactive waste from South Korea rolled to an uneventful stop at the Idaho National Engineering and Environmental Laboratory just before 9:00 am Thursday." It quotes a spokesman for site contractor Lockheed Martin Idaho Technologies Co., saying "he did not know why there was so much fuss in other parts of the country. 'Spent fuel comes in here routinely and has been for 45 years', he said. 'From a technical standpoint, this shipment is no different really'."

But the article also quotes Beatrice Brailsford of Idaho's Snake River Alliance, which has protested about nuclear materials shipments in the past. She said "the argument that eastern Idaho routinely receives them [the shipments] should offer little comfort. She said it would be foolish to become complacent about potentially lethal substances being shipped across the country by train. 'I do not think we are fine with it in Idaho', she said. 'I think certainly we are more accustomed to it'."

Conclusion

Comparing the European-Japanese campaigns to the US DOE transport, it is clear that the public will never happily embrace nuclear material transports. Anti-nuclear groups have no incentive to disappear – quite the contrary. As long as they can appeal to and foster the public embrace of worst-case accident scenarios, they will have a constituency.

But even more important, most of the media coverage in both the European-Japanese and the DOE cases shows that the anti-nuclear groups are not really concerned about the safety of nuclear materials transport. For example, in a 21 July op-ed piece in the *Sacramento Bee*, Alan Kuperman, senior policy analyst for the Washington-based Nuclear Control Institute, comforted San Francisco Bay area residents that, "The environmental risks, while not negligible in a worst-case accident, are relatively

small. The fuel contains little plutonium and most of its other, shorter-lived radioactive isotopes have decayed away while the fuel was allowed to 'cool' in Asia.

"Rather than dispersible powder, the fuel is in the form of metallic compounds and alloys clad in aluminium. The shipping casks for sea and rail transport provide shielding against radiation, are made of stainless steel and have satisfied licensing criteria that – while less strict than for air transport – indicate the casks could survive most surface transport accidents. While it is impossible to rule out a worst-case accident that could breach a cask, even then the fuel's non-powder form and relatively low radioactivity would mitigate environmental consequences."

In this article, Kuperman sounds nothing like a representative of the Nuclear Control Institute, which has hired "independent experts" to conduct analyses that show transport casks are vulnerable to failure, as well as to reinterpret the Law of the Sea and to criticise IAEA safety standards as inadequate. Greenpeace, NCI, and allied groups do not really doubt the safety of transports. Their goal is to use the worst-case transport accident scenario to halt the industry that produces nuclear materials.

This means that the nuclear industry, every segment of it, must continue to be vigilant in its efforts to reach the public, media, and governments with good science and well-communicated facts. Even then, "openness" or public information initiatives on the part of the nuclear industry will never be wholly successful as long as the worst-case is "plausible". If some modest element of the public, media and government can be convinced of the safety of transports through public information and education, great; if the larger part of them simply sigh in relief at the passing of a train or ship, that may be realistically the best that can be hoped for.

One would have expected positive coverage of the DOE transport, with its lofty non-proliferation objectives. Instead, what the media showed was much resignation among the public. DOE transports are not new. What is new is public awareness of them. In fact, what we see on both the European-Japanese side and the DOE side is that many people are satisfied with the safety of the transports. What is opposed is the materials that are being transported.

The DOE transport went through with less "ado about nothing" than the commercial transport

through the canal. But that was a case of the government coming in and doing something, public like it or not, with secrecy and costly security. The DOE also is not concerned about the future viability of a commercial business. What it accomplished was acquiescence, which will make it possible for future shipments. As the transports become more commonplace, protest is likely to decrease, and the media will have less to write about.

The public acceptance work undertaken by BNFL, COGEMA and the Japanese industry has had some success, though the proof of the pudding, as the British say, is in the eating. We will see what happens during future transports. For the Europeans and Japanese, operating in a commercial market, government enforced secrecy for transports is no longer an option. At the same time, for the broad industry in which nuclear enterprises are globally

interdependent, failure to address public issues about materials transport could undermine the future for the entire field. Thus, continuing vigilance to safety and public openness is probably the least costly, most realistic option in the long term.

Machiavelli wrote in his work the *Discourses*, that the true democrat aims high of the mark in order to reach the greatest realistic achievement. The nuclear industry must do that too. *El Panama America's* Ruth Rodriguez was right when she wrote, "The important thing is that in spite of the Greenpeace protests, the vessel made its transit schedule." While we should recognise that much of what we have come to refer to as "public acceptance" is likely to be "acquiescence", the nuclear industry must persist in its emphasis on continued safety and openness wherever and whenever possible.