ANTI-NUCLEAR CAMPAIGN

WASTE DUMPING NEWSLETTER No 9

Address for all contributions (please), subs., complaints, etc:
22, Criffel Avenue, London, SW2. 01-671-6169.

Dateline for next issue 1st June

Because of the appalling, unreadable results last time I've decided to abandon electrostencils, and try typing everything. Thus, no cartoons or graphics, just dense print and spelling mistakes. I'd appreciate feedback about whether this works, or if I should try electrostencils again.

Atomic Times is still on the planet, despite a long gap since the last issue. One of the two people involved has suffered a 'fairly serious accident', but more issues are promised. Get well soon, the world isn't the same without you. Atomic Times, Virginia House, Palace Street, Plymouth. Sub £3.50/yr, for a fairly comprehensive file of clippings covering the whole nuclear field.

Thanks to the people who renewed their subscriptions after the reminder with the last issue. Rates are £2.50 a year, five or six issues. Please renew when the time comes, for without a readership the whole thing is a bit pointless.

On April 18th the SCRAM offices in Edinburgh were seriously damaged by fire. The Guardian headlined it 'Arson at Anti-Nuclear Offices' and estimated thatbooks and documents worth £1,500 were destroyed. Deidre Armstrong for SCRAM said that intruders climbed up scaffolding to the fourth floor offices, ransacked rooms and then lit a fire in the archives. SCRAM was about to give evidence at the inquiry about power lines from Torness. Police are 'investigating'. The last issue of the Energy Bulletin came with a leaflet appealing for funds. This fire is obviously going to cause them considerable difficulties: sympathy, offers of help and MONEY to SCRAM 30 Frederick St, Edinburgh.

Nuclear Engineering International, March 82 carries an article about the Australian Synroc process. They have been experimenting with synthetic rock as the matrix into which high level waste is introduced, as opposed to the vitrification (ie glass) processes being looked at in Britain, France and the US. Although no Synroc including high active waste has yet been produced, preliminary results look promising. Leach rates for caesium and strontium are thought to be about 1000 times lower than for the US glass, with the advantage increasing with time and temperature: leach rates from Synroc at 300°C are below those for glass at 100°. Irradiation in a reactor to 'Synroc age' of 100,000 years have shown only micro cracking, with no increase in the open porosity. The article claims that "(Synroc) is a more versatile and temperature tolerant waste form than conventional borosilicate glasses. For example, reduction or elimination of interim storage, and disposal in deeper, and therefore hotter, repositories, could be contemplated with Synroc."

Power, February 82, carries an economic analysis of the advantages of volume reduction of the low-level waste material produced by nuclear plants. It estimates that each plant produces, annually, some 15,000 cu ft of liquid wastes (primarily salt solutions and resin slurries) and 15,000 cu ft of dry active waste (paper, rags, uniforms and so on). The article applies mainly to the US, where the closure of three of six burial sites has meant that transporting the waste is the most important cost factor. It concludes that operating and capital costs combine to give a volume reduction of 8-10 as most cost effective.

Nuclear Engineering International, March 82, expresses 'surprise' at Tom King's announcement in December that the high-level borehole programme was to be abandoned. Saying that the decision is 'regrettable', the article says that the press misleadingly argued that the decision resulted from fears about the effect of radiation on the leachability of glass. "Rather, short-term political concerns seem likely to have been the dominant consideration" to "relieve an increasingly election-concious government of the burden of an unpopular programme, an unpopularity often based on misunderstandings...."

In a review of the Three Mile Island saga in the Guardian, 29th March, reference is made to the problems of decommissioning reactors. Cornell University has discovered that "one of the elements added to strengthen steel turns into the highly radioactive Niobium-94, which emits powerful gamma rays and has a half life of 20,300 years." It is not/clear if this change takes place as a result of chemical corrosion or simply through being irradiated. The point was taken up in a letter by Louise Flower a few days later, which was, in turn, not answered by the CEGB, also in the letters column.

Greenpeace and PERG have produced a report about the emmissions from Windsdale (woops, Sellafield), in which they allege a significantly higher rate of various cancers and leukaemia among the local population. France is the only other country to discharge plutonium because it is "an extremely toxic carcinogen, a thousandth of a gram of it in the lung will lead to death within a month". A quarter or a ton has been dumped on the Cumbrian coast. There has been a"1000 fold increase in the radioactive fallout levels in the livers of sheep grazing in Cumbria". Windscale is between 100 and 1000 times 'dirtier' than Cap la Hague. "Using conservative figures (the report) concludes that between 30 and 150 people have been killed by the cumulative discharges at Windscale." The reportis available at £5.50 + 32p p&p from PERG, 34 Cowley Road, Oxford or Greenpeace, 36 Graham St, London, N1. (from Guardian, 6th April). Letters of reaction to this included one from Brighton ANC pointing out the following, "If Windscale is a million times dirtier than the military reprocessing plant at Rocky Flats Colorado, as Albert Booth MP for Cumbria stated in the article, those who live around Windscale and the Irish Sea are in dire peril. The Public Health Dept of Jefferson County, Colorado, has found an average 24% increase in cancers within 25 miles of the plant, as well as a 250% rise in testicular cancers and a 58% increase in female leukaemia rates. An official US government study in 1977 predicted one extra cancer death due to the plant; the health department has already found an extra 500."

ATOM VAULTS: N-WASTE DUMP IN CITY PLAN — Western Morning News, Plymouth, 26th February. Front page, main story.

"Hush-hush plans to store radioactive material in the heart of Plymouth were uncovered yesterday. The contaminated waste was earmarked for dumping in underground vaults in Mount Wise. Civic leaders, Devonport MP David Owen and others were stunned when the WMN broke the news last night. They knew nothing of the amazing scheme, sanctioned as long ago as 1979 by the last Socialist government. The plan was to ditch the N-waste in a network of man-made tunnels built as war time shelters, and caverns, some of which convey sewage pipes."

Reg Curry, leader of Devon CC, whose home is about 100 yards from Mount Wise said, "I was not aware of this at all." David Owen said " A city centre is no place to store nuclear waste under any circumstances. Any question of long-term storage is quite unacceptable, and the MoD must explain the situation. I hope it turns oot that this is only a reserve storage area to be used in an emergency; but I wish to know why the MoD applied for approval for the storage of radioactive waste in the first p place- and under Mount Wise of all places." The well-kept ~~s~~ secret was broken when an extract of a minute from the health physics department of thenuclear part of Devonport naval docks was leaked. The minute said, as an instruction, "The disposal of low- and medium-level solid radioactive waste in caverns under Mount Wise should be progressed with safety and despatch." The Secretary to the Port Admiral said, "In February 1979 the DoE gave approval for the use of/underground vault at Mount Wise for storage of low- and medium-level solid radioactive waste. This is not a classified piece of information, and not embarrassing to us in any way. The local authorities have been aware of the situation for three years." This included Plymouth, Devon and the South West Water Authority. He said that the approval had not yet been taken up, "We have no plans to use it at the moment. He discounted suggestions that spent fuel rods from submarine reactors would be dumped.

Discussions with Cornwall Anti-Nukes reveal suspiciaon about the vaults not having been used. Swiftsure and Dreadnought class nuclear subs are to be decommissioned at Devonport, with HMS Swiftsure, the first of the class, already being broken up (HMS Dreadnought is in the same position in Chatham). Work may have already started on the reactor.

Dr Owen asked about the situation in the Commons on March 1st, and was told that the vaults have not been used and that there are no plans to do so.

Perhaps it would be a good idea if we approach all of our local authorities to find out whether Plymouth is an isolated case, or if such back-door arrangements are commonplace. I'm very interested in any answers any one gets.

NUCLEAR TIP PLANNED IN ARGENTINA, Guardian 18.3.82 (ie, before the invasion)

Buenos Aires: Underground caverns beneath the Patagonian desertin southern Argentin may become a dumping ground for the worlds nuclear waste, the head of Argentina's nuclear programme was quoted as saying yesterday. The director of the National Commission for Atomic Energy, Admiral Castro Madero, told the daily Clariw that Argentina was planning to build underground storage for radioactive nuclear wa s waste. The plant would be near Gastre, a small village 938 miles from B.A. in the sparsely populated Patagonian desert. He said that the plant was intended to mainly store waste from Argentina's own nuclear power stations, but it was possible that other countries might also send waste to be buried there. Admiral Castro Madero said that any foreign nuclear waste would be stored as a result of a political decision but he added "It is unquestionable that the province of Chubut (where the plant is to be situated) and the country as a whole would benefit." He said that the waste would be stored in containers buried in caverns hewn out of granite 1,600 to 2,200 feet below ground level. He said the project should be ready by the late 1980's or early 1990's.

A BBC documentary on April 19th revealed the existence of an Argentinian reprocessing plant with the capacity to produce enough plutonium for up to 10 nuclear weapons per year. This plant is unknown to the IAEA; Argentina has not signed the non-proliferation treaty and plans to sell plutonium abroad; they are not prepared to submit to "full-scope" inspections of nuclear facilities (to prevent the manufacture of Pu for military purposes, and, most important, their motivation . to develop a nuclear industry which is independant of the US. On the basis of these two stories, it appear that they may be the nation to finally expose the myth that nuclear technology can be contained to 'civilised, responsible' nations. But we should still not be at war with them.

DUMPING PACKAGED LOW LEVEL WASTES IN THE DEEP OCEAN Nuclear Engineering International, Feb 82.

A long (six page) article drawing on research carried out by the Pacific North West Laboratory for the US Department of Energy. It reviews the radiological basis for existing regulations governing sea dumping, the international regulations and their historical development, IAEA involvement and their definition, historical dumping practices, with particular reference to the N-E Atlantic site (used by the UK) the transport of radionuclides in the marine environment and then looks to the future. Taken together with the Science article (see p) and the Campaign Against Sea Dumping booklet (out of print, photocopy 50p + postage, this address) this tells you more or less everything you're likely to want to know. Worth reading, photocopies available. Below I'll mention the newest and most easily digested information it contains.

The Nuclear Energy Agency of the Organisation for Economic Cooperation and Development (ie western industrialised capitalist countries) is to set up a "research and environmental surveillance programmerelated to the disposal of radioactive waste in the North Atlantic". (terms of reference of group of this name from NEA, Paris; precied in article) The objective is to strengthen the scientific bases of future assessments of the dumping site, which is likely to mean the development of a site-specific model for the transport of radionuclides from the sea-bed back to people. The site currently has NEA approval until 1984, following a mandatory review in 1979 which used a generic model (developed by MAFF, the authorising agency for some 90% of the waste dumped!) and was unable to confirm that the dumping fully meets IAEA regulations. Similar work is being undertaken by GESAMP (a joint UN Agency scientific body), by the IAEA and in the US. The countries to participate in this study include UK, US, Canada, Belgium, Holland, W Germany, Portugal, Denmark, Sweden, Italy and (indirectly) Japan. They have prepared a detailed work shedule until 1984, but recognise that a detailed site specific model will not be ready by then, "However, useful research resultscan be obtained by 1984 which will contribute to reinforcing the scientific basis for the next review". No details of physical monitoring of the site are mentioned- a tall order anyway in 4000m of water.

The March Atom includes a review of the General Accounting Office (US) report on sea dumping. They conclude that "congressional and public concern about this issue has been over-emphasised." Didcot, Oxon

The April Atom has a review of an NRPB (National Radiological Protection Board,/~~xxxxxx~~) report on the standard of treatment and packaging required for intermediate level wastes for ~~(xxxxxxx)~~ land-based dispoal, in argillaceous rock. "The selection of methods for managing such wastes is becoming a matter of increasing priority", another case of stable doors, since the stuff has been accumulating since the start of the nuclear programme and is now coming out of their ears. If someone has £3 to buy this a review would be very useful.

The SCRAM Bulletin for April/May has an article about sea dumping by Pete Wilkinson of Greenpeace. He suggests that the government, having abandoned the high level borehole programme, will turn to the sea for the disposal of high level waste. After a suitable storage and cooling the waste could be packaged in such a way that leach rates will be comparable to those of the medium level waste already dumped at sea. Discussions in the annual London Dumping Convention meeting last October appeared to attempt to "reclassify radioactive waste from any source to the point where it can be shoe-horned into the existing limits for disposal at sea. Meanwhile work against all sea dumping continues: the National Union of Seamen is about to decide on policy regarding carriage and disposal of nuclear cargoes (if anyone has local contacts, now is the time to start lobbying, contact Greenpeace for further details). Next year's London Dumping Convention (a meeting of signatory governments) will be lobbied by Pacific island representatives and for only the second time in its history will be asked to vote on two resolutions calling for a ban on dumping.

A DEADLY LEGACY BY ROBERT COWAN

TOWN & COUNTRY PLANNING, Feb. 1982

(Robert Cowan is the Editor of Town & Country Planning- journal of the T&CPA. He is hoping the article will provoke correspondence: address is 17 Carlton House Terrace, London, SW1.)

"Britains nuclear power programme raises crucial questions about what is to be done with the highly radioactive waste that is produced. But in the face of public opposition to its disposal plans, the government has found a way of avaiding the issue. That is the easiest way out, and the most irresponsible."

'It sounded like good news when at the end of last year the government announced that it had abandoned its programme of geological test drillings intended to find out if highly radioactive wastes could safely be disposed of deep underground. The programme ad faced widespread opposition, and the TCPA had argued strongly that the government was more committed to the idea of burying nuclear waste- rather than disposing of it in one of the alternative ways- than it was prepared to admit.

Four public inquiries into test-bore appeals had already been held. The TCPA submitted to them the results of some painstaking detective work by assistant director Kelvin MacDonald. From an examination of official and semi-official documents, MacDonald concluded that there was strong evidence that the government was already satisfied that underground disposal was feasible, and that its test-bore programme was part of a search for actual disposal sites.

Why did the government abandon the programme? In announcing the decision Tom King said "The Radioactive waste management Advisory Cttee reccomended in its Second Report published earlier this year that serious consideration should be given to the desirability of storing high-level waste at the surface in solid form for a period of 50 years and possibly much longer." He said of disposal underground "The government's objective has been to establish in principle the feasibility of that potential method of disposal, and now believes that in the light of its review of progress of work overseas that this is now established in principle."

Mr King's statement conflicts with what the R-AWMAC told the then Secretary of State, Peter Shore. In a letter dated 1 March 1979, the cttee's chairman made it clear that the feasibility of burying the waste had not been established, and that expalnatory drilling was essential. "The Advirory Cttee is in no doubt thatit will be unable to discharge its responsibility to advise government on policy in this field unless it is in possession of all the relevant facts on each of the options. In the vital matter of the disposal of highly active waste to geological formations, these facts can only be brought to light by exploratory drilling." The cttee repeated that view in its annual report a year later.

So perhaps the cttee has changed its mind since then, having suddenly discovered that highly radioactve waste loses its heat over time and should therefore be left to cool on the surface for a few decades? Certainly anyone reading the statement to parliament would have thought that was the case. But Mr King's statement brought a protest from a senior member of the cttee, DrStanley Bowie, a leading geologist. In Dr Bowie's view, "far more emphasis has been paid to that paragraph of the (cttees) report than should have been. The thing has been warped." Because of the opposition to the drilling , he said, the paragraph has been"picked out and greeted by an enormous sigh of relief" by the government. He added "What we need is site-specific imformation, not general information from desk studies. They are not going to tell us more about UK geology than we know already." The Natural Environment Research Council protested that it had not been consulted about the decision. A spokesman for the council said it would want to advise ministerson the work that would have to be done before it could form a fair view on the feasibility of underground disposal.

The true story of the waste disposal programme is different from the yarn the government is spinning. We can reconstruct it as follows. The government and nuclear industry decide that underground disposal looks the most convinient option. This faces them with the problem of finding suitable sites. Knowing that any announcement that a particular site is being consideredtas a possible radioactive dump would raise vigorous opposition, the government pretends that the search is merely a geological survey to establish feasibility. But the public is not fooled, and when the proposed test drilling sites are announced,the government is faced with the opposition it had hoped to avoid. The political cost of that opposition is unacceptable, so they abnadon the test drilling programme. Instead, it by-passes the issue of permanent disposal by announcing that it is happy for the waste to be left in temporary storage

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above ground for years to come.

Highly radioactive waste has been stored in stainless steel tanks since the 1950's In 1977, the then governments response to the Flowers Report stated that finding a long-term solution for containing highly radioactive wastes safely for the indefinite futurewould be the dominant factor in any process preceding decisions about further nuclear power programmes. Since then, the present government has committed itself to a greatly expanded nuclear power programme, but it shows no signs of taking seriously its responsibilities ~~of~~ with regard to nuclear waste.

The government should face up to the problem nuclear wa te presents. It should explain to the public that the means must be found for disposing of the wa te that x already exists, and that this may involve unwelcome environmental costs. It should devise a process for deciding openly now and where that disposal is to take place. It should admit that the same sort of environmental costs would have to be faced as a consequence of the expanded nuclear programme; and that is these costs are unacceptable then the nuclear power programme itself is unacceptable.'

'Since this article was written Tom King has hinted at a new approach to the problem. In an interview on BBC Radio on 24th January he said there was "always a possibility" that the waste might never be buried. He said he did not have any apprehension about the problem of protecting and monitoring the waste for thousands of years.

Questioned about this possible new approach the day after the interview, a spokesman for the DoE told T&CP that he knew nothing about it, and he doubted whether Mr King's remarks could have been intended. "After all" he said, " the R-AWMAC has always said that sotage is no substitute for disposal." '

Shortened slightly.

In connection with the statements of Dr Bowie, above, a correspondent tells me that Bowie thinks that the government has simply caved in to us. The R?AWMAC thinks the same, apparently.

In a letter to the Economist (13th Feb) Dr Roberts, Director of AERE, Harwell, states that "The government statement ... did not imply any doubt about the feasibility of disposal deep underground- quite the reverse. The government stated that the feasibility of this method was now established in principle. But no actual disposal of highly active waste will be required for a long time." "Methods are now available for the management of these wastes. This has been accomplished by the adaptations of well known technologies." So now you know.

New appointments to the R-AWMAC (Atom, Feb '82) Marchioness of Anglesea (former member of Royal Commission on Environmental Pollution); Professor C Hanson (Prof. of Chemical Engineering, Bradford Uni.; member of Advisory Cttee on Nuclear Installations); R R Matthews (Director of Health & Safety, CEGB);

As I assume that most people receive Atom (free from AEA, 11 Charles II St, London, SW1), I'll dono more than note a long article about Danish research into salt dome disposal of high level waste. The conclusion is that only human penetration into the dome storage area "might result in a release of radioactivity to the biosphere."

March 1982

Nuclear Engineering Internationl, Feb 82, carries a review of a1981 paper by V R Barton, published by the AEA, which assumes that it is "advantageous to maintain cooling for, say, 100 years before final disposal', and compares the benefits of shielding the vitrified waste in 100mm or 305mm thick iron cases. It considers the waste emplaced in 'dry' sites (above the water table, on coastal hillsides) or 'wet' sites seaward of the saline/fresh water divide with long pathways for radioactivity to return to humanity. It concludes that the corrosion and handling properties of the thicker containers make this preferable, particularly as they may be suitable for ocean disposal. It also, curiously, suggests that liquid high level waste is "appreciably denser even than seawater, giving a stable lower layer after displacing interstitial water in rocks", and that this theory should be tried out using medium level wastes already discharged by pipeline.

US OCEAN DUMPING (cont)

nuclear pile in Chicago. Waste material from this operation was used as landfill and ended up in peoples back yards, where it emmitted radiation well above background levels. During the past few years the DoE has scraped up the contaminated soils as part of a major effort to clean up the residues of old weapons making facilities. It is now faced with the problem of what to do with the stuff. According to Bob Ramsey, who is in charge of clean-up operations at DoE, dumping the material in the ocean may be the best and cheapest way of dealing with it. "I just don't see why the federal government s should have to poimanently monitor a pile of dirt," he says.

A problem is that the London Dumping Convention, which internationall governs ocean dumping, may allow both submarines and this soil to be dumped without packaging, since exemptions to the packaging requirements are made in cases where the radioactivity is part of a solid matrix (as in sub. reactors) or where the contamination is only trace amounts of naturally occurring radionuclides, as may be the case with the soil, although the EPA have not yet analysed it. The General Accounting Office noted in a report published last year that the costs of land burial and ocean dumping are "approaching parity- particularly for high-volume, low activity wastes being disposed of in shallow land burial repositories- and there is increasing interest in the ocean disposal option by both the government and some comercial organisations."

Opposition is mounting: "The oceans may seem to be politically attractive receptacles for our wastes because there are no voters in the ocean, but the Reagan administration is mistaken if it believes it can resume ocean dumping without a fight", Karna Bridge the Cap, a Los Angelese based environmental group.

A train carrying a 50-tonne nuclear flask was partly derailed in Leeds on 10th March. Firemen carrying geiger counters checked it for leaks and pronounced it safe. It was carrying spent fuel from Bradwell to Windscale. Guardian, 11. 3. 82.
The Fire Brigades Union has recently affiliated to the Anti-Nuclear Campaign.

A SEASONAL SIGNAL IN OCEAN CURRENTS TO ABYSSAL DEPTHS, Nature, 21st Jan 1982. This article indicates the presence of previously unknown seasonal variations in the kinetic energy of eddy currents in deep, mid-latitude ocean waters. The sites investigated are simply close to the site used for dumping radwaste in the N Atlantic.

The survey ship Farnella has returned from a six month survey of the N Atlantic and the Gulf of Mexico. It carried a unique underwater echo sounder (called GLORIA) which produces a 32-mile wide acoustic map of the sea-floor. The purpose of the trip was to provide information about potential new oilfields and (you guessed) possible sea bed sites for dumping radioactive waste'. Times March 30th. This article drew a very strong letter from James Dawson, the Hon. Sec. of the Explorers Club, British Chapter (on 2.4.82) pointing out that one of the world major currents (called the Cromwell current) which is 8,000 miles long, was found accidentally in 1951; that the Marine Technology Society in Washington prevented radwaste dumping in the Puerto Rican trench, on the grounds that the contention of still waters at these depths was quite incorrect, and that the chart used in the search for the H-bomb lost by the US off Palomares in Spain in the sixties dated from 1895.

New Civil Engineer, 18th Feb reports that Taylor Woodrow Construction is about to embark on a feasibility study into the disposal of nuclear waste below the sea bed. The £300,000 desk study will look at drilling and grouting methods of placing canisters of waste in the ocean floor. It will last about 2 years and is expected to produce a detailed analysis to compare costs against land disposal methods. The article does not say whether high- or medium-level waste is under consideration, but the chances are that it is high; the contract is part of a 5-year EEC investigation costing £500,000 into ocean/disposal methods. EEC pays 40%, the DoE 30% and Taywood 10%. Over half the work is being carried out by UK organisations, including MAFF and the IOS. "Eight areas in the Atlantic Ocean have been identified as being suitable for radioactive w waste disposal."

No Nuclear Wags for March/April gives an article from the Salt Lake Tribune about US plans for high level waste dumping. They are searching for a geologically stable formation in which to deep bury the waste. Sites under consideration include salt domes in Utah, Texas, Mississippi and Louisiana, basalt in Washington, near the Hanford reprocessing plant, and a volcanic 'tuff' site at the Nevada weapons testing range. A decision will be made by December 1983.

U.S. CONSIDERS OCEAN DUMPING OF RADWASTES Science, 5 March 1982.

At 2½ closely printed pages this article is too long to reproduce in full, or to do justice to if I attempt to shorten it. I'll try to present the main gist, but would add that it is a recommended read next time you pass a library. Or I can send a photocopy.

"After a pause of almost two decades the US may soon resume dumping radioactive materials into the oceans. The Navy has already expressed an interest in getting rid of the radioactive reactors of old nuclear submarines by scuttling the vessels in deep water, and the Deaprtment of Energy (DoE) is looking to the seas as a potential repository for thousands of tons of slightly contaminated soil from the clean-up of disused atomic weapons facilities. And the nuclear industry, which is facing mounting political difficulties in dumping low-level wastes on-shore is watching these plans with interest.

The US virtually abandoned dumping low-level wastes in the ocean in the early 1960's, although a few barrels a year were dumped until 1970. Burial sites on land opened in the early 60s and they offered a cheaper alternative to marine disposal. Recently, however the cost of onshore burial has increased sharply, and public opposition has surfaced in the two states (S Carolina and Washington) that have commercial burial sites in operation.

In 1972, 2 years after the last consignment of radwaste was shipped, Congress passed the Marine Protection, Research and Sanctuaries Act, which directed the Environmental Protection Agency (EPA) to write new regulations governing ocean dumping. These were published in 1977 and are still in force. They make it difficult to dump anything into the oceans. In essence, they allow dumping permits to be issued only when no alternative method of disposal exists; they thus virtually preclude weighing the costs and benefits of ocean dumping against those of dumping on land. As for radwastes, the regulations specify that they must also be packaged in containers which will remain intact at least until the radioactivity has decayed to innocuous levels. These stringent requirements all but rule out the disposal of radwastes in the oceans..

But these rules may soon be relaxed, for the EPA is rewriting the regulations. The revisions are based on the principle that ocean dumping, like other actions that affectthe environment, should be governed by cost-benefit analysis- an approach that the Reagan administration has been trying to incorporate into environmental policy making. This approach can be justified, said an official, because there is sufficient scientific understanding of the impact of many pollutants on the marine environment to assess the hazards of ocean dumping. Since the ocean dumping act was passed, he said, "we now know more about what the oceans can assimilate".

Some 90,000 drums of radwaste were dumped between 1946 and 1970 by US vessels. The exact composition of the wastes and the location of some of the dumpsites are, however, unknown, for the AEC did not require detailed records to be kept. Surveys conducted by the EPA (and others) in recent years have turned up some interesting findings First the drums were difficult to find. A look at the Farallon Islands site turned up fewer that 200 of the 47,000 drums expected. It also appeared that one fourth of the drums had imploded and several of them had leaked their contents. Exactly what happened to the radioanuclidesis uncertain. Sediment samples retrived from close to some drums did indicate higher than expected levels of some long lived isotopes such as those of plutonium, caesium and americium. As a recent report by the Rand Corporation points out, "the most significant transport pathways for radionuclides are not fully known. Also, the small amounts of radionuclides that may escape make it difficult to detect transport and to assess its effect on the marine environment."

EPA is not about the open the door wide, however. A draft of its revised regulations, states that permits for dumping radwaste will "be issued only underthe most pressing of circumstances and... the applicant would be required to make a most compelling demonstration of need before and application would be considered complete." A thorough analysis of the impact on the marine environment would also be required.

The US Navy announced in the Federal Register of 14th January that it willsoon prepare an environmental impact statement on the disposal of decommissioned nuclear subs. The notice states that the Navy will eventually need to dispose of 3 or 4 subs. per year over the next 30 years. Since each will contain up to 50,000 Curies, scuttling them would result in the dumping of more radioactivity in the oceans each year that the US dumped between 1946 and 1970. Already Larry Keene, a California state senator, has introduced a resolution opposing any resumption of ocean dumping. But the DoE has 30,000 tons of soil, contaminated with trace amounts of naturally occurring radionuclides stored at a federal site near Middlesex, New Jersey. The radioactivity comes from uranium ore that was crushed in a plant near Middlesex in 1942 to fuel Enrico Fermi's