UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 4
ATLANTA FEDERAL CENTER
61 FORSYTH STREET
ATLANTA, GEORGIA 30303-8960

February 7, 2001

4EAD

Mr. Andrew Kugler
U.S. Nuclear Regulatory Commission
Mailstop 0-11F1
Washington, D.C. 20555

RE: Correspondence regarding license renewal of Hatch Nuclear Plant, Units 1 and 2

Dear Mr. Kugler:

As stated in the February 6, 2001 letter from Heinz Mueller, EPA, to the U.S. NRC, regarding EPA review and comments on the Draft Generic Environmental Impact Statement for the license renewal of Hatch Nuclear Plant, EPA has been the recipient of a number of written comments from the public regarding the proposed license renewal. As stated in our letter, these comments are in regard to issues which are under the authority of the NRC. Therefore, we are forwarding this correspondence to you for your consideration.

Thank you for your attention to this matter. If you have any questions, please contact me at (404) 562-9615.

Sincerely,

Ramona K McConney

Ramona K. McConney
Environmental Scientist

Enclosures

A083

4 pages, plus enclosures. 1.

PAMELA BLOCKEY-O'BRIEN, D23 GOLDEN VALLEY
7631 Dallas Hwy, Douglasville, GA 30134 USA

Mr. Heinz Mueller,
Chief, NEPA Compliance Branch,
Environmental Protection Agency,
Region IV,
61 Forsyth Street,
Atlanta, GA 30303

Nov. 29th,2000

Dear Mr. Mueller,

Here are the documents I promised to send you in regard to the GEIS from the NRC concerning nuclear power plant HATCH, Units I and II, near Baxley , Appling Co. Georgia on the banks of the Altamaha River. My correspondance withNRC is documented in it, but the correspondance is not included in it, neither is a copy of my oral presentation to them at their May 10th public hearing, nor does it appear to be referenced unless I've missed it. Neither are the comments of others, or copies of their correspondance, specifically Altamaha Riverkeepers' opposition from Ms. Sheppard, or Ms. Kilpatricks oral presentation or her correspondance from Georgians for Clean Energy (formerly Campaign for Prosperous Georgia).

U.S. NRC intends to hold a hearing on this GEIS on Dec. 12th in Vidalia. As the NRC has BLATANTLY DISREGARDED everything I have raised, including a 2.206 Petition against this dump of a facility I submitted to them, as well as various reports that were taken up by Congress (e.g. CRAC-2) years ago, and their own staff recommendations on reactors of the Hatch type (neither to build or license them) or my pleadings concerning the environmental and health effects in event of a meltdown, which they conceeded to me by phone could happen, after a blazing argument -something the entire known world knows(but NRC doesn't want to discuss) - I do not intend to go to the hearing. After all, if there is a major accident, as you will see from the enclosed, the intention is to radioactively gas South Georgia to gain time. Knowing how this dump operates, and considering that the day of the last hearing when I was down there, radioactively contaminated water slopped all over the floor and contaminated workers shoes etc and they had to be discarded, I have no intention of being there in case something else goes wrong. In the last three months alone, there have been the usual string of problems, including one which (yet again) resulted in low reactor water level. One of these days that place will make the evening news worldwide, and the outrage and hearings that will follow will make the current debacle over the presidency look like a pic-nic in comparison, and the blame will be their own fault, and all the agencies and people who never opened their mouths about the situation down there and the current contamination of the Altamaha sediment, fish,etc. etc.won't look too good either, to say the least.

This dump had a loss of coolant accident last year (LOCA) the Union of Concerned Scientists agrees with me on that. NRC came up with a tortured explanation , but the fact remains. NRC has ignored groundwater impacts, ignored the electromagnetic fields issue by using DOE stuff, and not Dr. Adeys Congressional Testimony. They are using a string of DOE contributors (see Appendix B to the GEIS) including Lawrence Livemore Labs, yet ignoring what Dr. Gofman, its first medical director said (attached to my oral testimony) who also was part of the team that first isolated plutonium for Oppenheimer and the Manhattan Project. On Page 8-3 of the GEIS , the NRC is more concerned with local realtors worrying about the effect on their housing market if the dump closes than the fact that a meltdown at Hatch would end the housing market, period.

I also filed a detailed 2.206 Petition Under 10 CFR Chapter 2o with the US NRC against Plant Hatch and submitted additional letters under it, plus had a phone meeting with the NRC about it which was transcribed. I would like the EPA to request everything I submitted under it and the phone transcription. Why ? Because the NRC tossed it out and refused to accept it and it contains important environmental and health issues and refers to documents which resulted in the aftermath of Chernobyl - situations we would face here in event of a meltdown (and Chernobyl did not meltdown, contrary to public belief and it released only a fraction of its radioactive core inventory). EPA needs all those letters and additions I submitted to the NRC after the phone conversation which was transcribed. Furthermore, the Union of Concerned Scientists ALSO filed a 2.206 against Hatch with NRC, that too got the same treatment I believe. EPA must be sure to get NRC to provide a copy of all of that.

Some of the May 1oth Public Hearing in Vidalia on Hatch - ie. comments I made prior to starting my oral presentation enclosed - concerning my awarding the Southern Company/Georgia Power etc. with the "Radioactive Toilet Seat Award" for contaminating Georgia's air, Soil, water, wildlife, vegetation, crops, birds people , are included in the transcript of the hearing I believe, as are Rita Kilpatrick's testimony , at the NRC web-site at : www.nrc.gov/nrc/public/lr/scopingmtg.html
I have not seen it, but I was informed about that so please check that and read Ms. Kilpatricks comments. Comments of a Mr. Drury shouldbe on it too - he was furious with NRC and Southern /Georgia Power and the entire situation. He is with Georgia Coastal Watch. They should be read by EPA.

It is my understanding that under NEPA , the objectives of this National Environmental Policy Act, include some of the following :

Acting as trustees of the environment for succeeding generations, assuring for all Americans safe, healthful productive , aesthetically and culturally pleasing surroundings, attaining the widest range of beneficial uses of the environment without degradation, risk to health or safety etc., and many similar objectives, plus supports preserving natural aspects of the nations environmental heritage. As you will see from the enclosed, a dangerpus, old, radioactively degraded, inherently unsafe, catastrophicly designed, radiation and toxic chemical emitting dump of two nuclear reactors PLUS a high level radioactive wast dump immediately adjacent to the Altamaha River complies with none of this. The original licensing application and documents on this facility and Offsite Dose Calculation Manual (ODCM) etc. have to be read to be believed. The later stud y on the fish was done years ago - the fact is, that radiation is a powerful suppressor of the immune system response and it also affects fertility, as you will read in the enclosed, this will affect the fish and wildlife birds and entire ecosystem. THE GEIS IS GENERIC it is NOT SITE SPECIFIC. It continuously states what Southern Nuclear wants or has decided. The outdoor deadly storage of radioactive"spent" fuel was not addressed.

THE FACT THAT THERE IS NOTHING WHATSOEVER THAT CAN BE DONE TO RENDER SOMETHING RADIOACTIVE HARMLESS IS A NATURAL LAW, YOU CAN"T BURN IT, DILUTE IT, NEUTRALIZE IT, IT CONTINUES TO DECAY UNTIL IT REACHES ITS NATURAL STABLE STATE. The GEIS gives the impression it can somehow be treated or is removed from effluent. Noble gases going out decay rapidly to Cesium-137 Strontium-90, Yttrium-90 and others to name a few, none of this is mentioned The appalling allowable levels set in the Offsite Dose Calculation Manual would never be considered today, and never should have been granted to begin with.

You may wonder why there is no outcy coming from the Nature Conservanc

about this in a full-throated roar, since they purport to a great love of the Altamaha - one explanation may be that they recieve funds from Georgia Power. The Altamaha Riverkeeper is, to my knowledge, the ONLY Riverkeeper group that will not take funds from Georgia Power/Southern, and is against this relicensing. . Interestingly, the fuss about protecting the Altamaha carefully starts much downstream of PlantHatch, and although most people, in particular fishermen and others who live near the river off the record are frightened of the plant (as well they should be) and know it has impacted the river and that the catch is down and it is not only due to runoff or any toxics released far upstream, they are afraid to speak out in public because of the power of the Southern Company/Georgia Power, but urge me to speak out for them. I touch on the issue of job loss if it closes, but it will still require staff of small size for generations to come to monitor the radioactivity from the site, and pass down generation to generation for people to stay away and keep wildlife and domestic animals fenced out and fences repaired, Even if they remove the entire hulk, which Southern /SouthernNuclear/Georgia Power should be required to do, the land and the groundwater will remain contaminated for hundreds of years as will anything that grows upon it or lands upon it.

The GEIS infers possibilities of gas fired plant to replace it - I will not comment on that at this time, except to say, THAT UNDER NO CIRCUMSTANCES WHATSOEVER SHOULD ANYTHING ELSE BE BUILD ON THE SITE. THE CONSTRUCTION WILL STIR UP THE RADIOACTIVE SOIL AND DISPERSE THE RADIOACTIVE DUST.

Trying to get this relicensed is equavelent to someone wanting to import an old nuclear power plant set it up on the contaminated site and try and patch it together. These plants were originally licensed for a set period of time because it was known that the radiation degrades everything about them, and that would include any of the underground structures such as pipes, a fact the Union of Concerned Scientists tried to point out.

The EPA should require the testing of all plant species , birds, reptiles, etc. on the site to determine the extent of contamination, and no DOE, or DOE affiliated contract labs such as SREL should be used.

Contaminants of concern are of course plutonium (created during reactor ops) uranium, cobalt-60, strontium-90, Cesium-137, radioactive iodines, and tritium, to name a few.

A very CAREFUL reading is required of what I have included, plus EPA should request an actual hard copy of EVERY Violation, Inspection Report, LER, PNO, Contamination event, spill, spent fuel pool problem, torus problem, pipe break, Contamination event including Personel contamination (EPA must be SPECIFIC, LIST THEM AS I HAVE) listed on the docket for both Units since STARTUP. This can be provided by the NRC Public Document Room inDC. The NRC can provide this. US Fish and wildlife asked Southern (its on the record, but Southern talked its way around and out of it in their response. If you read them, and I mean the long form, not the abreviated form, you will not only no longer be able to sleep at night, but will see why this entire project must NEVER recieve NEPA certification and must be shutdown.

This is a place of localized death, slow death at the microscopic and genetic level. If it blows, we are looking at quick death of hundreds, even thousands due to the spent fuel pool location, among other issues. NRC exists to license plants. They are partly funded by licensing and inspections, just as the State Radiation Division is, who in turn contracts with Geor Georgia Techs lab, who, along with Georgia Power and the Atomic Energy Commission (now DOE/NRC) brought the Tech reactor to Georgia to train the operators on so the South could be nuclearized with nuclear power . I know this because I fought for years to get the Tech reactor shut and it is part of my sworn testimony to the Atomic Safety and Licensing Board Judges. It is now

shut. End of story. You can request a copy of that testimony given in May 1996 before Judges Bechhoefer, kline and Lam, plus the over 5oo pages of supporting documentation, from the NRC .
The EPA is also chastized in it !

The fact of the matter is this: the existing contamination there should not be there, it is man-made. It's from the facility.It is not a question of"levels", cobalt-60 and Cesium-137 for example are not found in nature, kritium levels in nature are infinitisimal also. Decay products in the uranium decay series come from the uranium in the fuel rods during operations etc. The place is a blight on the land.

Thank you for your consideration of all this material, and thank you for your assurance that an entire team will be assembled to deal with this, obviously it should include biologists who specialize in the effects of radiation. Nuclear engineers are NOT biologists, health physicists only interpret the existing NRC or Plant specific ODCM standards. Nuclear engineers and physicists can only interpret the engineering etc. Too often nuclear engineers are assigned to address medical radiation issues in which they have no experience.If there is something wrong with a car, one takes it to a mechanic, not a doctor. on issues of human health and radiation doctors and epidemiologists who specialize in the effects of radiation should be consulted. In the entire NRC, nationwide, NRC has ONE doctor, on contract I believe, on top of which no obstetricians or gynaecologists and pediatricians who specialize in the effects of radiation in women and children and the developing foetus, all with lower ability to withstand the effects of radiation than men. The vulnerability of the developing embryo and foetus of all species to radiation is documented for over 50 years. However, the DOE and the NRC doesn't care, nor does the ICRP .How mush the ICRP doesn't care is in the attached second supplement to the oral testimony. After Chernobyl, in Kiev, over 20,000 pregnancies were aborted as you will see.

Plant Hatch is two counties upstream from the coast. The ramifications of a nuclear accident would wipe out coastal fisheries ,completing the destruction that the Savannah River Nuclear Site has caused these fifty years and the radioactive contamination from the Trident Nuclear Submarines based at St. Marys in the area there. Never forget, it is the radioactive decay heat from the radioactively contaminated discharges that increases the water temperature. Just as the ocean testing of nuclear weapons in the Pacific increased the water temperature . Hatch contaminated the sediment down to the coast at Darien.Enough is Enough!

Please call if you have any questions. Thank you again.

Pamela Blockey-O'Brien.

Pamela Blockey-O'Brien

Copy to Rita Kilpatrick, Director CCE.

Encl: Testimony and three additional supplements to NRC on Plant Hatch, including Dr. Gofman's letter.

(1) ORAL PRESENTATION IN FRONT OF N.R.C. (- COPY PROVIDED TO N.R.C. FOR RECORD) WITH ATTACHMENT OF DR. GOFMAN'S LETTER.

May 10th, 2000

Statement and Testimony of Pamela Blockey-O'Brien, on behalf of the F.O.R./I.F.O.R (National and International Fellowship of Reconciliation) to the U.S. Nuclear Regulatory Commission, AGAINST the request of Southern Nuclear Operating Company - a subsidiary of The Southern Company - - on behalf of itself and co-owner licensees, namely : Georgia Power Company, Oglethorpe Power Corporation, Municipal Electric Authority of Georgia and the City of Dalton - for a License Renewal under the Atomic Energy Act of 1954 as Amended for Renewed Operating Licenses for Nuclear Power Plants Edwin I. Hatch Units I and II, Dockets Number 50-321 and 50-366, located on the banks of the Altamaha River, in Appling County, Georgia, with the Application for License Renewal dated February 2000. The Application is 1200 pages according to NRC, the pages are divided in sections and numbered according to section. After some difficulty I recieved a copy last week. Since then every waking moment(and in my nightmares)I have been going over this Application - an Application , by the way, that reminds one of a crooked used car salesman trying to sell a junk vehicle without disclosing too much about the bomb s on board, the ingredients in the bombs, that some of the ingredients are released to the environment as the vehicle travels and that the engine block is more or less held together with baling wire and spit balls .

It saddens me to have to come to a community held hostage by the fact that around 70% of its tax base comes from a radioactive hulk which threatens their existance by its mere presence, with a high level radioactive waste dump inside it and another one being created outside it, the contents of which will be radioactive essentially for eternity. When the Georgia Power Company teamed up with the Georgia Institute of Technology and the forerunner of the Nuclear Regulatory Commission and forerunner of the Department of Energy, namely the Atomic Energy Commission and brought a research reactor to Georgia Tech on which to train reactor operators so the South could be nuclearized with power plants, you can bet your stock options that few were told the ultimate consequences, just like today. So let us examine the truth :

Just as in a nuclear bomb, inside a nuclear power reactor such as Hatch, the atom is split, or "fissioned" releasing incredible energy, but inside a reactor, with luck, the nuclear reaction is "controlled" and can be stopped. Water is hauled out of the ALtamaha River ,forced between the hundreds and hundreds of fuel rods containing enriched uranium , the rods grouped in bundles called assemblies, as the atom is split, the water is simulataneously cooling the rods so they don't melt-down, and generating steam to power turbines for generators for electricity In the process, more than eighty different possible radioactive "split' products, called "fission products"are formed,capable of releasing ionizing radiation, X-Rays, alpha and beta particles, gamma rays or neutrons. For example, Xenon-137 is created which gives off (negative) beta radiation which becomes cesium-137,which gives off gamma radiation. "Activation products"are also created, the violence of the nuclear chain reaction causes existing chemicals in air,water, nearby materials etc. to absorb energy change structure and become radioactive. Approx. 300 different radioactive chemicals created, must then go through many half-lives as they decay back to their natural stable state, all the while emitting radiation. Radioactive particles created decay into other radioactive so-called "daughter products". During the process plutonium is also created in the fuel rods, along with other radioactive "goodies" like Cobalt-60,Cesium-137 and Strontium-90. When there are insufficient atoms left inside the uranium in the fuel to split to maintain a steady power state, rods are said to be "used", or called "spent fuel", The

rods in their assemblies are now the most radioactive thing on the face of the earth more or less, besides an atomic bomb explosion. They are removed from the reactor core underwater for shielding against the incredible radioactive decay heatcoming off them and stuck in a pool of water, which is an inside radioactive dump, to sit there forever and forever until someone, somewhere goes one better than The Creator and changes the laws of physics,energy , matter etc. and can render nuclear waste safe. According to information provided me, as of last Nov. Hatch had approximately 302,808 radioactive rods in the pool and 69,440 in the combined cores of Hatch I and II. The Brookhaven Study done for NRC in 1997 regarding radioactive spent fuel estimated a worst case scenario, full pool at a BWR, of 138,000 dead after one year in a 500 mile radius and 2,170 square miles of contaminated land in event of accident, in the pool.The poolis located between the fourth and fifth floor level approx. It is patched because they already dropped a bolt weighing hundreds of pounds into it, ruptured the liner and contaminated the hell out of the place,and have had leaking fuel in reports, yet Southern does not seem to mention this or discuss it under Severe Accident Mitigation Alternatives or under Aging Effects regarding the pool, except to discuss water chemistry, when it is known that radiation degrades the cement, steel etc. alloys etc. and causes all types of corrosion,irradiation embrittlement, pitting, and a host of problems they even admit to in the application, for everything at the plants from the reactor to the fuel,pool,an everything involved from the ground up. The CRAC-2 Report to congress back in the early 1980's concerning a core melt at Hatch and releeases would cause hundreds of dead per Unit, thousands of injuries and up to $56 Billion in damages causing radiation injury over a 70 mile radius . It would be the death of middle and south Georgia, Due to high groundwater the coremelt would hit the Altamaha faster than Southern's executives could leave the State. If it happened at a time when the Altamaha's flow was high, as in 1993/94/95, when in some months it ranged between around 45,000 cubic feet a second to around 70,000 cubic feet a second at the Doctortown gauge south of the plant by some miles according to USGS documents, or the December 1948 flood in the applicants own documents of 130,000 cubic feet a second north of the site, it wouldn't take too long to reach Georgia's prime fishing and tourism area, the Golden Isles and the Atlantic. Yet Southern has the absolute gall to state that the offsite economic cost would be $99,659 , and the offsite exposure cost $72,565 and also that quote: "As the environmental impacts of potential severe accidents are of small significance and because additional measures to reduce such impacts would not be justified from a public ~~health~~ risk perspective Southern Nuclear Company concludes that no additional severe accident mitigation alternative measures beyond those already implemented during the current license term are warranted for HNP." Southern modelled all releases, except one only, at ground level, buoyant plume rise was not modelled, They used ONE years worth of site metereology, instead of 30 year wind roses offsite, onsite metereology since startup, precipitation and temperature from Georgia records going back a miniumum of 100 years, because this information is vital under accident conditions as NRC well knows and needed for daily use - but hey, Georgia Powers Annual Report on Plant Radioactive Effluent Releases for 1996, a report that must be submitted because all nuclear power plants constantly release radioactive contaminants to the environment in order to operate, with subsequent uptake to crops, water, fish, sediment, children, people in general for miles I'll get to later on, Georgia POwer told the NRC in writing that they were not submitting it they had it on file and would supply it on NRC request .

Hatch is A General Electric Mark I , its a lemon. the 1975 GE so-called "Reed Report" detailed major safety and economic problems with their reactors. Even earlier when the NRC was still the Atomic Energy Commission, your own top staff wanted to ban reactors of the Hatch type becaUSE THEY HAVE NO PROPER CONTAINMENT DOME AT ALL and their pressure -suppression system using a Torus and a piddling containement chamber could lead to disaster, and as late as 1987 NRC confirmed, their pathetic system was virtually certain to fail in a major accident. Hatch has known drywell leakage and you better read all the PNO's and Licensee Event Report on the Torus since startup all about leaking valves, torus water temperature reaching 97 degrees caused (they Docket says) by contimuous hot weather increasing the temperature around the reactor building, faulty wiring and a crack in the vent header and the like. To top it off, the reactors for Unit I has a cracked core shroud held together by metal braces which could fail due to embrittlement and vibration.

But I want to get to serious environmental issues, concerning the dioactive contamination of the environment around Hatch and the contaminated sediment in the Altamaha down to the coast at Darien thanks to this dump. As NRC knows, A Curie is a measurement of radiation standardized to radium. One Curie gives off thirty seven billion macroscopic nuclear explosions a second, euphemistically called "disintegrations"or "transformations" , for comparison, radioactive contamination in the environment is measured in microCurie and Pico Curie levels, usually in the last. It is also measured in milliRems. The State of Georgia maintained until very recently in their Environmental Radiation Sur-Veillance Reports, that average so-called background radiation in Georgia was 40-42 millirem a year- we all know that fallout from past nuclear tests now contributes only one millirem a year, though DOE and NRC (and now the State by the look of it) have been increasing it for years to suit their purposes, saying its "background" when most of it comes from the nuclear fuel cycle and related activities such as emissions from nuclear facilities. Allowable release levels were set, historically, in order to allow quote "reasonable latitude for the expansion of atomic energy programs in the forseeable future." The purpose of NRC Regulations, is ONLY to make sure the standards for protection NRC came up with in their Part 20 Regulations are not exceeded as the regulation says. NRC (and DOE) set the standard to operate, industry must not go above those standards. It has nothing to do with health or environmental protection or worker protection, Neither NRC nor DOE gives a fig about the workers. Because radiation can't be seen, smelled, etc. tortured mathematical formulas were invented to try and figure out the cell damaging effects , which are immediate and essentially irreversable according to the best medical specialists in the world specializing in radiation, and I do not mean the appalling ICRP who set pe-permissible genetic doses to sperm and ovum. According to the governments own documents, radiation damages the genetic material in reproductive cells and results in mutations transmitted from generation to generation. There is no "safe" dose below which there is no damage, this has now been conclusively proven for the umteenth time. In the environment the effects are cumulative. It bioaccumulates up the food chain. Emissions from reactors, such as Hatch, are poured out the stacks as "Noble gases" seep out of myriad minute openings in the system, and are dumped back to water. For this reason measurements are taken - yet the true effects measureable in blood tests to the population and the animals, and assessment of individual mutations and chromosomal abefation is not done, and it should be. For Southern to be saying that there are no water quality issues in the vicinity of Hatch with the river, that the quality of the groundwater in the vicinity of Hatch is good,

is disgusting, but predictable. Among other things, they contaminated the groundwater at Hatch beginning in 1979, the aquifer to be precise, then in 1982 150,000 gallons of riverwater flooded the turbine and radioactive waste buildings which will have also seeped into the ground water which discharges ultimately to the Altamaha, or could also seep into the other aquifers, In 1986 there was a spent fuel pool
cident accident where 141,500 gallons of water highly contaminated with Cobalt-60, Zinc-65,Manganese 54, Cesium-134,Cesium-137,+Tritium. Back in 1979, Cs-137 was still below 20 pCi /kg in sediment, it has since hit 67,000 pCi/kg,- fish, a year after the'86 spill contained Cs-137 up to 750 pCi/kg. In 1999 river sediment in published reports still hit 380pCi/Kg dry,the cobalt-60 in sediment in 1998 still hit 190 pCi/kg 4 miles downstream and the K-40 14,000 pCi/kg. The Beryllium-7 whch Georgia Power admited to me of course comes from the reactor and it goesuap and own like yo-yo in vegetation -10,600 pCi/kg in '97,as does the Cesium-137 for example in'97 it hit 473 pCi/kg vegetation 10 miles south of the plant which even though its one of the wind
:hs, the State calls it background - but then, as I explained to the Atomic Safety and Licensing Board Judges how the State operates back in '96 that's no huge surprise either. You need to impound and read every test ever done at the Georgia Tech Lab for the State, the State files and the Utilities records since startup. Not to mention every inspection report the NRC wrote since start-up and violation and so-called non-cited violation, for starters to begin to get the picture, bearing in mind that the Hatch offsite Dose Calculation Manual and Final Safety Analysis Report were written in the stone Age and are outrageous. For example, the ODCm says gaseous radioactive releases at and beyond the site boundary can go to 500 millirems a year to the body and 3,000 mRems a year to the skin for noble gases, and then say they have no limits on the noblegases they can release, and that, for radioactive iodine -131 and 133, tritium (radioactive hydrogen) and all radionuclides in particulate form with half-lives greater than 8 days, up to 1500 millirem to ANY organ, all of the aforementioned as dose rate limits, this is worse than absurd. They say (under ODCM Methodology in their 96 report) that the percent of the ODCM limits are not applicable because they have no Curie limits for gaseous releases. This is the outfit that uses what they term "hypothetical" chilren as their controlling receptor for the releases, in actuality their own words was "a child in the NW quadrant" if I remember correctly - This is the outfit busy dosing the children and adults at the Roadside Park, the Camping Area, the Recreation Area and the Visitors Center. This is the outfit dosing the Boy Scouts in that camping area according to their own manual. I don't care how low a dose they maintain the kids are getting from the noble gases or particulates, if the Strontium 90 ,being a calcium displacer lodges in the kids bone and gives it bone cancer, both child and parent don't ask how little did it get. Strontium-90 decays to Yttrium-90. which is known to concentrate in the hormone producing soft-tissue organs such as the ovaries,testes and pituatary gland, and, according to published reports by the radiation medicine community is a powerful hormone disrupting radioactive chemical not just a powerful carcinogen..
Southern is permitted by Georgia to withdraw a monthly average of 72 Million gallons of water a day with a maximum rate of 103.6 mgd. Georgia must have lost its mind to permit this. The annual average is 57.18 million gallons a day_they say consumtive losses approximate 46%. Translated into "people-speak" that includes the evaporating radioactive steam etc."losses to the atmosphere"

as they so cutely put it. They say their withdrawal to the alluvial

aquifer recharge is small in impact. That the recharge is also provided by the minor confined aquifer of the Hawthorn Formation to which the alluvium is interconnected. First the Hawthorn is not minor, Hatch sits on top of it as well as the alluvium which is under and on both sides of the Altamaha and the Hawthorn continues on the other side according to the DOE survey of the site and as it is all interconnected and they contaminated the aquifer onsite and so forth the extent of the effects could be massive. Furthermore, a comparison of the DOE survey of soil sample data in the area from long ago, with what has been measured since regarding K-40 and Cesium-137 data ,—even though the DOE lies and says Cesium-137 is natural, when its man-made, and the plant had been operating a short while and releasing radioactve crud,—shows that the area has been contaminated. For example, most K-40 was zero, and the Cesium-137 never went over 310 pci/kg in soil. K-40 was at 1600 pci/kg in soil in '99 in one measurement and 6300pCi/kg in an '88 measurement for comparison, and 3,500 pCi/kg in 84. Cs-137 in soil in '98 in State data provided (which may not be all data—knowing them) reached 240pCi/kg, in '89 640 pci/kg and in '84 920 pCi/kg. NRC's attitude has been :oh well, it's lower now. Site geology is actually extremely complex, and, as Hatch also withdraws 1.1 million gallons a day average from the Floridan aquifer also beneath the site, for, among other things "process use" such as demineral ized water, which is of course using a huge amount of water when calculated over just one year . Georgia, Alabama and Florida are currently engaged in what is termed "water wars" over their water needs , and those needs do not only cover river withdrawals, I don't think. Water issues are among the biggest issues environmentally worldwide and nationwide and are becoming critical, due to the type of pollution from facilities like Hatch , not only other pollution sources. Farmers also rely on this system. At least their needs should take precedence over the needs of a local pollutter that could and should have utilized alternative energy years ago.

The Applicant's go into rhapsodies about the ecology of the site, including the wetlands that they contaminated with the spent-fuel pool spill disaster. They neglect to mention that it has been documented for over 40 years that mammals and birds waterfowl etc. are contaminated via ingestion of contaminated seeds, berries and other foods contaminated by nuclear emissions and direct radiation from the facilities and that contamination affects their reproduction, health and is also accumulated in their bones. Migratory species carry the contamination with them . When they die, if ingested by something else, that also becomes contaminated and so it continues. The radioactive iodine from Hatch is measured in the milk in the Tattnall Co dairy, as is the Cs-137 and tritium and strontiums due to uptake via the grass/cow/milk/child pathway. It used to be measured at Appling and Toombs dairies also, which it should be, maybe it still is and I don't have the data.A According to NRC and the State, both partly funded by the licensee, the nuclear industry, the attitude is all this is Ok, within the levels, remember. A '94 milk sample of Hatch's showed 500 pCi/L tritium. Although it has been established since decades that tritium at very low levels is particularily hazardous to the developing foetus EPA set a helpful allowable level in water of 20,000 pCi/l . Tritium irradiates as it passes through the body , continued ingestion means continued irradiation and continued damage . One thing is that I believe the Tattnall Co. Dairy is the massive State Prison dairy, which brings me to another issue : Southern has figured out that everyone is going to do the " radiation stumble" namely, that they are all going to evacuate in case of a severe accident - you know, a meltdown and massive release

to air , going at 2.5 Meters - about 7 feet a second in a radial distance. The evac. Zone is only 10 miles under the law, but CRAc-2 says the kill-zone is 20 miles. First responders are of course the local fire department and little, cute Appling CO. Emergency headquarters people. Anybody told them that if they try and go in under such circumstances they'll die ? Is Southern/Georgia Power going to evacuate the workers, schoolchildren, shut-ins, prison guards and prisoners from the various area prisons, hospitals, nursery school children at 7 feet a second ? That dump has had three serious events in the last year, the February event could have led to a meltdown. How many times can you get lucky ?

I did not even bother to look at the General Electric data submitted - why should they be trusted ?

Regarding their NPDES Discharge Permit issued by the State of Georgia under the Clean Water Act to Allow discharges to the Altamaha, and also the other Water Quality Certification letter from 1972 by the State.

N.B.

1) According to the EPA Definitions for NPDES Discharges the NRC provided, they have absolutely no say-so whatsoever over the dumping of most radioactive contaminants, because the Atomic Energy Act of 1954 is involved, they do not cover so called "source, byproduct or Special Nuclear Materials, nor radium or accelerator produced-isotopes as examples. However, "heat " is covered. 2) They did not seem to explain in the attached documents, that the radioactive decay heat is part of what causes the "THERMAL PLUME" . Did they tell the State Water people they dump radioactive water, or that the sediment in the river contains man-mades ? Did they tell National Marine Fisheries or State Fish and Wildlife about this or about the radioactive air emissions when they asked them by letter to evaluate Endangered Species and fish entrainment and similar ? The answer is "NO", one cannot even find the word "radioactive" . I called some of them, they had not been told. Now, the Sturgeon is a bottom feeder, it is Endangered, ingesting a Cobalt-60 particle with its damage to blood and the central nervous system alone is not a nice way for any living being to die. Nor is slow death from constant irradiation from Cesium-137 in its muscles. The fish entrainement study dates back to 1980. Interestingly it noted among the 22 species of fish an unknown egg and an unknown larvae. What was it ? Were there more ? Talk about loss of biodiversity. Extinction is forever.

They speak of reforesting areas with the longleaf pine - we know that pines retain radioactive contaminants due to uptake from radioactve air emissions and deposition falling in rain, just like other trees, I did not have time to look up how long the longleafs hold their "needles" if you will, obviously the longer the uptake from soil and water etc. the more contaminated they'd become and when the needles drop the litter would be that much more radioactive for all ground-dwelling species in contact with them, plus re-contaminate the ground at higher levels. Ever tested the Gopher tortoises burrowing on the contaminated site ? If the turtles contaminated on and offsite of the monstrous Death of the Earth (DOE) squad site on the Savannah River are any indicator, the gopher tortoises are probably also contaminated, though probably to a lesser extent.

With regard to transmission lines , the testimoney of the eminent Dr. W. Ross Adey , before Congress in 1987 on the issue of electromagnetic (as oppossed to ionizing) radiations sent shivers down the spines of the collective electric power industry, partly because of his credentials. The effects on cell membranes and foetal development in animals for example was ghastly and included information on statistically significant increases in leukemia and lymphoma in studies of children exposed to power distribution systems, high voltage power lines

and the like. These effects must be addressed. His testimony needs to be considered by NRC as he is one of the worlds experts on this isue. Southern has not considered it. Further studies since then agree.

I feel particularily sorry for the workers in the area whose jobs would be impacted. However, the NRC has repeatedly cited the facility over the years for its terrible personnel contamination record among other things, which is why NRC needs to read EVERY Inspection Report ever done. NRC has taken little concrete action, except to repeat that they are "concerned" for the past decades. It should be remembered there are no medical doctors on staff who specialize in health effects of radition, some of the reports on what has gone on are a nightmare.Like the workers trapped in the drywell. NRC said they had no way of knowing whether or not they died. If I remember correctly, somewhere on the Docket it said they forgot to test them appropriately afterwards.
The workers should be compensated, the community should be compensated, and Southern , with its considerable financial and political clout could easily help get replacement work located outside the kill-zone and pay for job retraining and transportation to work. A problem I see always is tha worker frustration over potential job loss, which is totally understandable, is sometimes directed at those who explain the dangers, when it should be directed at those who brought the equivalent of a nuclear bomb with a slow leak into their community to begin with. The ultimate tradgedy, is that Southern or Georgia Power, has [redacted] probably not explained to them that due to them getting contaminated inside the plant, even their bodily excreta can become radioactive, and that is the essence of what was behind the NRC taking Hatch to task over the spreading of sewage sludges from the site under the power lines , [redacted] It is doubtful they were told that as soon as they enter the site, under NRC Regulations, they are no longer considered "members of the public". If they were to die inside the plant due to contamination - in theory industry and NRC can state No member of the public died that day as a result of radiation exposure.

The Applicant's documents only touch on the terrible, dangerous high-level radioactive waste dump they have prepared outside to put deadly radioactive spent fuel ONLY inside casks that have never been tested in the real world, and simulated tests involved Hatch sticking a hot water pad inside one to simulate radioactive fuel rods, which the NRC gently pointed out - oh , so politely - that it "did not accurately simulate the temperatures." The casks - space for 48 is created - will stream gamma radiation into the environment and workers on the pad at a weekly rate of 21,000 millirem off the sides alone, next to the casks, each cask.A former military nuclear scientist has assured me that terrorists could blow the top off the cask in a twinkling of an eye from considerable distance, other research shows a few rounds from a Milan anti-tank weapon could blast it to smithereens from 6000 feet with catastrophic results. People are being told it is temporary storage and that it will either be sent to Yucca Mountain or to a site on the Goshute Indian Reservation in Utah being prepared by a consortium that includes Southern, and the company, PFS that has prepared the site in Georgia. One of the leaders of the Goshute opposition to this wanted me to remind everyone, that their tribal chair does not speak for them all, and they do not intend to be at the recieving end of 4,000 casks from across the country into their valley where they already must endure myriad hazardous industries and military weapons test sides on their borders. In the end, in all probability, South Georgia is going to be left with a nuclear dump inside the plant and one outside, forever. The outside one would be eliminated if the plant is shutdown quite soon and no more nuclear waste is generated.

5000 more assemblies at sixty rods a bundle will be generated without shut-

down. This insanity must stop. Yucca Mountain is also basically dead in the water, literally.

This is the South. If a Sheriff found out that someone had a decrepit junk car, with a cracked engine block wrapped with baling wire, that not only couldn't pass emissions tests, not only leaked gasoline into the local creek, but carried a deadly cargo locked in the trunk capable of killing an entire county, and a second deadly cargo strapped inside, in a patched bucket, and the exhaust leaked into the car and gassed passengers periodically, plus sprayed neighbors crops, kids and livestock with a fine gasoline mist as a bonus, not only would the offender be jailed for reckless endangerment and a lot more besides, but both the sheriff and the judge would laugh in the face of any such a car owner, if they told the judge and sheriff, having such a car kept mechanics employed, that the people in the car were paid to be gassed periodically or that misting neighbors crops and kids was OK, because the owners manual and the people that wrote the owners manual said it was. That's more or less the situation - only the sheriff and the judge got written out of the loop by the Atomic Energy Act and the NRC and a lot more besides. The NRC is in the loop and holds the power . For the love of God, at least prevent a meltdown and shut this dump down. When the spent fuel pool goes, NRC can watch it on TV from Washington - until the plume hits it. But don't worry about that, I'm sure there's a regulation that says the dose won't damage you all, that NRC wrote.
Just remember this, we are all accountable to the Almighty for our actions and I doubt the Creator is pleased with the despoilers of life on earth.
Thank you.

Pamela Blockey-O'Bonnie

UNIVERSITY OF CALIFORNIA, BERKELEY

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SANTA BARBARA · SANTA CRUZ

May 11, 1999
LETTER OF CONCERN.

BERKELEY, CALIFORNIA 94720

To Whom It May Concern:

During 1942, Robert E. Connick and I led the "Plutonium Group" at the University of California, Berkeley, which managed to isolate the first milligram of plutonium from irradiated uranium. (Plutonium-239 had previously been discovered by Glenn Seaborg and Edwin McMillan.) During subsequent decades, I have studied the biological effects of ionizing radiation --- including the alpha particles emitted by the radioactive decay of plutonium.

By any reasonable standard of biomedical proof, there is no safe dose, which means that just one decaying radioactive atom can produce permanent mutation in a cell's genetic molecules. My own work showed this in 1990 for xrays, gamma rays, and beta particles (Gofman 1990: "Radiation-Induced Cancer from Low-Dose Exposure"). For alpha particles, the logic of no safe dose was confirmed experimentally in 1997 by Tom K. Hei and co-workers at Columbia University College of Physicians and Surgeons in New York (Proceedings of the National Academey of Sciences (USA) Vol.94, pp.3765-3770, April 1997, "Mutagenic Effects of a Single and an Exact Number of Alpha Particles in Mammalian Cells").

It follows from such evidence that citizens worldwide have a strong biological basis for opposing activities which produce an appreciable risk of exposing humans and others to plutonium and other radioactive pollution at any level. The fact that humans cannot escape exposure to ionizing radiation from various natural sources --- which may well account for a large share of humanity's inherited afflictions --- is no reason to let human activities INCREASE the exposure to ionizing radiation. The fact that ionizing radiation is a mutagen was first demonstrated in 1927 by Herman Joseph Muller, and subsequent evidence has shown it to be a mutagen of unique potency. Mutation is the basis not only for inherited afflictions, but also for cancer.

Very truly yours,

John W. Gofman

John W. Gofman, M.D., Ph.D.
Professor Emeritus of Molecular and Cell Biology

Dr. Gofman holds degrees in chemistry, nuclear chemistry and is also a medical doctor. He is the co-discoverer of the fissionability of Uranium-233 and holds two patents on two processes for isolation of plutonium. He was the first medical director of (DOE/AEC's) Lawrence Livermore Labs + first biomedical division head/founder.

(2) FIRST SUPPLEMENT TO ORAL TESTIMONY TO N.R.C.

May 29th,2000

From: Pamela Blockey-O'Brien

To: U.S. Nuclear Regulatory Commission
License Renewal Application Section
Chief of Rules and Directives,
Div. of Administrative Services,
Office of Administrator,
Mailstop T-6
D-59, U.S. N.R.C.,
Washington, D.C.

Re: License Renewal application by Southern Nuclear Operating Co. and others for Nuclear Plant Hatch I and II, Georgia. Supplemental statement and Testimony to my May 10th statement and Testimony, on behalf of F.O.R./I.F.O.R. AGAINST the License Renewal Application, to be attached to and made part of the May 10th document and considered by NRC.

First, a correction : page 5 of the May 10th paper, line 16, a zero was left off from the K-40 figure, it should read "K-40 was at 16,000 pCi/kg" NOT 1600.
Also, on page 4. at the end of line 8, it should have been stated that the contamination went to the wetlands and river, among other areas.
The May 10th,2000 hearing was meant to focus on the environmental aspects in particular according to NRC. The Applicant(s) are being deceptive when they only consider the Altamaha as being the area of watersned that covers where the Altamaha is named "Altamaha". The Altamaha is one of the two most important river systems in Georgia. It is called the "MIGHTY Altamaha" for a reason, because it is formed by two huge rivers that have their heads far to the north,namely the Oconee and Ocmulgee, and the State of Georgia considers the Oconee-Ocmulgee-Altamaha system one of Georgias five river basin groups for River Basin Management Planning and are based on"river basin location,contributing drainage,physiographic features, and related water resource issues " according to the State. The Oconees reach extends to the Atlanta area. The Altamaha's floodplains are three miles to twelve miles wide. The tidal influence extends some 40 miles inland according to publication. Two thirds of the State's shad come from the river. It contains river islands and cypress swamps. Lewis Island ,part of the vast State Waterfowl Management Area and areas of significant wildlife resources has a 300 acre stand of virgin cypress over 1,000 years old. The Big Hammock Wildlife Management Area near Hatch (and in the windpath) covers around 6,400 acres.The Big Hammock Natural Area is adjacent to it. On the other side of Hatch (again in one of the windpaths) is Bullard Creek Wildlife Management Area. The Big Hammock Natural Area stretches eleven miles along the river and Watermelon Creek. Nearby creeks that drain into the Altamaha (from all windpaths and rainfall deposition/radioactive contaminant deposition areas) include : Bells Mill Creek, C obb Creek, an unnamed creek near English Eddy (village) ,Milligan Creek, Alligator Creek, Little Alligator Creek, Bullard Creek, Ten Mile Creek and Little Ten Mile Creek, also an un-named creek that enters wetlnds/ swamp near Hatch; plus there is a Lake called Big Pond. All of these areas recieve radioactive fallout from Plant Hatch's air/noble gas releases. Wildlife,birds (and people) will recieve radioactive

iodine,tritium and the decay products of Cesium-137 and Strontium-90 among others to their thyroid,muscle,bone etc. etc.
All the aforementioned surface waters will have this radioactive garbage dumped in them, in particular when it rains and deposition increases. The area recieves massive rain systems . Speaking of which, Hatch's own FSAR under the section on floods, cites USGS dta data on a Jan. 22nd 1925 historical record flood at the plant site of 200,000 cubic feet a second PLUS there was a calculation of a peak discharge of 612,000 cubic feet a second corresponding to a stage at el 105 feet based on a 1916 storm. Why did Southern not include these figures in the application ?
Southern has basically refused to discuss all the so-called Class I issues. This is really an outrage, and done a toss-out of SAMAS. They have said the population is sparse and it's mainly forested or agricultural. This is a prime farming area. Vidalia Onions are a major crop not too far away - they are considered the best type of onions in the world by chefs and sell all over, yet they are in Hatch's windpath also. This is a disgrace.. Class one issues should cover effects to pollinators, including effects on their reproduction pollinators like bees and butterflies. Herman Müller won the Nobel Prize in 1943 for his work on the genetic effects of radiation, and showed through his work on Drosophila, a fruit fly, that ionizing radiation affects not only the biological organism exposed but the seed within the body from which future generations are formed, and one of the effects is of course sterility. Bees are particularily vulnerable to effects of pesticides and radiation - in"Silent Spring" by Rachel Carson so many years ago, she pointed out the synergystic effects of Strontium-90 combined with toxic chemicals/pesticides. There is a crisis with pollinators. Bees are literally being physically brought in in hives, by truck, back and forth across farming areas in the entire South, with hives set up for some days to co-incide with blossoms for pollination. It is an insane situation that threatens the nations food supply. Biologist Carson was ridiculed and vilified by the industry who produced the pesticides etc. - of course she was right, and is now on a postage stamp. NRC simply cannot allow Plant Hatch to continue to operate in an area vital to agriculture.
Between Soperton and Vidalia there is a sizable goat farm. The milk (Or perhaps cheese) they produce should be tested also, as well as the grass. In one of Hatch's Annual Reports the months they listed that they did the garden census on, were actually going into winter when everything would be dead or dying off. Typical.
The bioaccumulation factors up the food chain are of great importance. The area is generally a low income area. Many people hunt,fish and have gardens - it's all a matter of survival. When all pathways are considered together the effects are serious.
Shutdown of Hatch would eliminate a large portion of the air discharges and dumping to the Altamaha. The radioactive spent fuel pool issue and need for recirculating water for it etc. would of course remain, With the reactors shutdown, the danger of the cracked core shroud and braces blowing would also be more or less taken care of. The fuel in the core should be immediately removed to the pool.
The outdoor radioactive spent fuel storage must NOT HAPPEN. IT IS A MAJOR ENVIRONMENTAL ISSUE and as the pool is almost full the relicensing is interwoven with the storage of the spent fuel. It cannot be ignored or shoved under the rug. To pretend that sticking the DEATH of the Earth outside in an untested cask - even a tested

one - is not a major environmental issue and is not part and parcel of the relicensing is obscene. The workers are at grave risk as well. Both Southern and Private Fuel Storage are "HOG's", i.e. HOLTEC ~~HRRS~~ OWNERS GROUP members. HOLTEC makes the cask to be used. Private Fuel Storage is trying to set up the site in Utah that many of the Goshute Indians do not want on their land. The State of Utah doesn't want the stuff in Utah either. The cumulative consequences of the incredible amount of gamma radiation streaming off those casks (and a few neutrons) to workers, the surrounding population, the environment etc. will be terrible. The slab they sit on becomes radioactive as NRC knows, the water from rainstorms running over them will also be radioactive and will enter groundwater and/or the Altamaha. Southern has been putting out PR on the casks saying ridiculous things like What will the casks look like, instead of telling the public they contain death, and the explosion of such a cask would have horrendous consequences. A high level radioactive waste dump is being created outside next to the Altamaha and that community is going to get stuck with it, along with the existing indoor one, and neither NRC nor Southern is telling that community that it'll be a cold day in hell when that all gets moved out of there. To add insult to injury NRC doesn't want to include the issue nor does Southern. Well, we demand it be included. This is an environmental and an economic justice issue and so is the entire relicensing. Southern does not want to address the environmental and economic justice issues, although it is a low income community. Of course they don't, that's why that poor, rural community got stuck with this monster to begin with. Why it wasn't put next to the Governors Mansion. It's a classic case - the Applicants own documents show that there is a disproportionate number of low income households in the 50 mile radius. Appling County itself has 22.35 % of its households below the poverty level Other counties have even higher numbers in many instances. As stated earlier, many people rely on the land to help them survive, some also supplement their diet that way even though they may not technically fall intto the poverty level classification. They will be disproportionately affected from a health perspective . Two Appling Co. census tracts have a higher percentage of households below the poverty level namely 29.1 % and 26.2% Adjacent Toombs co. has two census tracts with over 32% of households in poverty. Compare that to the given Georgia total of 14.85%. The continued operation of Hatch has environmental consequences due to its discharges on the environment on which the poor also depend in order to sustain themselves, this affects their health. It is a major issue. Looks like the boasted tax revenues from Hatch didn't do much for the poor...makes one wonder who benefitted.

Another key issue is the fact that many large prisons are located in the area, including the massive State prison at R~~e~~idsville IN THE WIND PATH across the river. Is Southern going to get that evacuated at seven ft. a second during a meltdown ? In particular if it's visiting day ? Is NRC aware that countless families travel hundreds of miles in some cases down to those prisons, and the State prison in particular, to visit the incarcerated relatives. Anyone who thinks they could evacuate that sort of scenario in a hurry has lost touch with reality.

The area prisons were not addressed. They should be.

Regarding the sewage being dumped to the Altamaha after some treatment: because contamination is also rinsed off in showers and workers can have contaminated excreta, it will be radioactive. In E.Coli, radiation induces an error-prone DNA repair system which leads to mutations that would otherwise occur only rarely according to the National Academy of Science someone swimming in the Altamaha downstream, unaware of sewage discharges, could ingest

could ingest water contaminated with E.Coli if the system is not functioning as it should, and this E.Coli could be a mutated version. This could have serious consequences, including cancer in the infected individual perhaps, at the very least a form of E.coli infection that is hard to treat. - The Applicant mentions that pathogenic microorganisms are ubiquitous in nature occurring in the digestive tracts of wild mammals and birds and thus in natural waters, but are usually only a problem when the host is immunologically compromised. Radiation is a powerful suppressor of the immune system response. Women and children are more vulnerable to its effects as NRC well knows (or should), the continous low level radiation exposure to the surrounding populations in an at least fifty mile to 100 mile radius will have compromised the immune systems of the most vulnerable in particular to some extent, this will make them more vulnerable to infection if they drink water containing pathogenic microorganisms.

There are enough species on or adjacent to Hatch that are listed as Endangered or Threatened or Rare/Unusual, such as the Wood Stork Bald Eagle, American Alligator and Shortnose Sturgeon to warrant permanent shutdown on that issue alone. Gassing woodstorks in the wetlands east of the "cooling towers" with noble gases while they forage in radioactive leftovers from the spent fuel pool spill makes a sorry picture. The listing could shift to "extinct".

It is imperative that NRC read every single DETAILED inspection report and all the violations , indeed the entire Docket since start-up , that way the environmental and other impacts can be better assessed. That way NRC gets to see things like the fission particulate monitor and noble gas monitor being inoperable .The reason what has happened over the years is important is that it shows a pattern of serious problems and events , in some cases repetative, which willl recurr or become worse due to aging etc. In the May 10th Testimony, I spoke of the pine needles and contamination. In the past, pine needles at the Baxley Health Dept. contained 220 pCi/kg Cesium-137, 730 pCi/kg Cerium-144 and 4300 pCi/kg of Beryllium-7 (no, it comes from the plant, not the cosmic ray song and dance gone through ad nauseum) Spanish moss at the Roadside Park contained 460 pCi/kg of Cesium-137 ,500 pCi/kg Ce-144 and corn husks west at 0.75 miles Cesium-137 at 56 PCi/kg. Grass yo-yo'd up to 1500 pCi/kg for Cs-137 The City of Baxley's groundwater showed alpha at 7 ± 4 . How much pCi/l higher is all this now ? Its hard to tell from published reports, not only because experience showed data was being left out, but locations get changed etc. however, as one example, in 1999 Beta radiation in groundwater was 7 pCi/l 1.6 miles NNW and Beta at 5 pCi/l at the roadside park in groundwater in 1997. Isn't Beta meant to be separated out above 4 under EPA ? Beta deposition in rain was 253 pCi per square meter, at 0.5 miles west south west , and 222pCi/M2 at 1.8 miles north east near the river in 1997, so Hatch is spreading its radioactive poisons around nicely-aren't the local people lucky ? Radioactive rain, pitty patting down on their children, crops and those Endangered and Threatened Species - but hey, why should Southern and Georgia Power care - money is rolling in. Any company that is as environmentally unconcious as to spray herbicides in wetland areas (p C-37) and under transmission lines

and thinks they are helping the flatwoods salamander , and spews radioactive gases into the air etc. as well should be ~~wearing~~ distributing bumper stickers to their stockholders saying " The Environment ? Who cares ? We don't." Glyphosate (in Accord) IS toxic and IS an irritant (EPA) . They should hire extra people (for the price of the herbicides is not cheap) instead to remove unwanted vegetation - vegetation that of course may support other species - after warning the people about the electromagnitic radiation off the transmission lines and breathing in Hatch's radioactive noble gases.....

To get some idea of how things go at Hatch, both the public and the NRC should review Inspection Report Nos: 50-321/95-01 and 50-366/95-01 (Public can get this from NRC Washington Public Document Room Tel 1800- 397-4209 access the PDR by pressing "0" - it will cost under five dollars,ask the PDR for cost.) this is not even one of the worst reports, just a report. Then remember one of Hatch's recent events , the Loss of Coolant Accident, could ultimately have led to a meltdown and that one of the systems, the High Pressure Core Injection (HPCI) kept messing up, just as it has done since years and no one knows the cause (its kind of an important issue since its part of the Emergency Core Cooling Systems)and then add to that, that Hatch has a cute little gizmo called the DIRECT TORUS ~~XXXXXX~~ VENT SYSTEM - in plain English, what this does in the event of a certain set of accident criteria, is that in order to gain time and avoid corumelt somewhat, and assuming that either all core cooling sprays keep the core doused with water and there is no Loss of Coolant Accident,or, in event of a LOCA they can avoid the drywell blowing one way or another -while its melting down - they intend to VENT THE RADIOACTIVE BUILDUP, BYPASSING THE STANDBY GAS TREATMENT SYTEM, OUT THE STACK OVER THE POPULATION OF SOUTH GEORGIA BIGTIME. THIS WOULD BE AN ATTEMPT TO RELEASE THE PRESSURE. Under normal conditions, the Standby Gas Treatment System filters particulates and radioactive iodines in order to REDUCE - NOT ELIMINATE, REDUCE- the level of airborne radiation contamination released to the environs via the main stack and can filter (again it cannot eliminate everything) exhaust air from the drywell and the torus/pressure suppression pool. They hope stack filters may trap some particulates (which assumes that operates, in the past documents it is not clear whether or not they actually have an in stack filter,that needs ascertaining, also whether they have the Post Accident Sampling System in the stack or if they got out of having that -(did they ?) - since they kept getting extensions on PASS.. Furthermore,if and when they decide to radioactively gas south Georgia with the stuff going out under high pressure, the entire gaseous piping system could be massively degraded due to aging, pitting,corrosion,from radioactive decay heat/steam etc. and its anyones guess what the consequences could be ,yet for some reason it does not appear that is not going to be considered, and it should all be examined,etc.

NRC better understand that radioactively gassing South Georgia is NOT an option. Neither is continuing to allow the operation of this disaster waiting to happen NRC's own staff said was in need of being banned (the Mark I, which Hatch is)..

Samuel W. Jansch, Former Chief Administrative Law Judge, U.S. Atomic Energy Commission, said in his foreward to "Meltdown - the Secret Papers of the Atomic Energy Commission" : As citizens you will also have to decide what to do about the one hundred nuclear

plants~~x~~ that are now operating- WITHOUT BENEFIT OF THE IMPARTIAL SAFETY REVIEW REQUIRED BY LAW - around the United States."
And further :
" For what was the Joint Commitee (Congressional Joint Commitee) on Atomic Energy doing as the Atomic Energy Commission and the Nuclear Regulatory Commission HID data about potential nuclear plant hazards ? And what has the White House been doing - except looking the other way - as official bodies, such as the President's Commission on Three Mile Island Accident, warned of the gross mismanagement that has occurred in the commercial nuclear power program ?"

("Meltdown - the secret papers of the Atomic Energy Commission," 1986 by Daniel Ford, former Executive Director of the Union of Concerned Scientists, is based on tens of thousands of pages of US A.E.C. internal documents he aquired using the Freedom of Information Act and Ford began his research in 1971 according to Ford.)

One example of how little things have changed, is that it was found out that in many turbine situations for nuclear power plants, one was oriented rotating towards the reactor, the other away. If the turbine shaft snapped, the one oriented towards the reactor would go barrelling towards it. This is the case at Plant Hatch, Plant Farley AND at Plant Vogtle built AFTER this issue was known and it still was allowed. Degredation of Hatch's turbine shaft (or blades) due to aging etc. is a very real possibility, and if this is not included in the review (I may have missed it, but I couldn't find it) there should be a Rule to include it as well as anything else left out. The consequences of a huge turbine rotating on the loose would be horrible, the environmental (and human) damage would be profound.

Last, but most important, on the map Altamaha School is near Hatch. Children, with their developing bodies, bones, brain, reproductive organs etc. are more vulnerable than adult males to the medical and biological consequences of radiation exposure. For the school children to be subjected to breathing in the radioactive noble gases emitted up the road is a disgrace. 1) In event of a meltdown/explosion/air release catastrophic accident those children may well die of radiation sickness or be damaged for life, with shortened lifespans and myriad health problems. 2) Because such an event can happen so quickly with reactors of the Hatch type, according to NUREG-1079, and they have no containment DOME over the reactor, fast evacuation would be impossible. 3) First responders are local. Appling County Emergency Rescue and the local fire dept. are totally ill-equipped to deal with such an emergency and evacuation and it is outrageous to expect them to. 4) the recent LOCA is an example of the beginning of what could occur as documented in the AIT report and should serve as a warning. 5) The July 20th 1999 NRC Special Team Inspection Report conducted June 16 to June 25th, 1999 is further proof of the potential for catastrophe on the horizon if the MSIVally had continued to fail, the RCIC system had not even operated manully and the recirculation pumps continued to fail etc. etc. and of course an RHRSW vent line cracked and leaked eight hours. 6) Because gassing the

the children and surrounding population via the DTVS ,bypassing the SGTS, trying to avoid overpressurization of the pathetic, inadequate existing form of so-called containment trying to avoid early meltdown is a) outrageous o) doesn't solve the meltdown problem .7) Because NRC's own staff wanted to ban pressure suppression "containments" like at Hatch , plus said there was a 90% probability of that containment failing, and 8) because neither Southern, Georgia Power, GE, the NRC can prove beyond a shadow of a doubt that an accident resulting in meltdown and/or major radioactive release to the air and/or water will not happen at this aged dump of a reactor nor can they prove beyond a shadow of doubt or even reasonable doubt that children at the school, as well as Appling County and surrounding county children will not die or be damaged due toradiation exposure, and children in utero likewise (no matter how low the dose, or high the dose) and the risk to the children is simply too great to allow continued operation, I THEREFORE SUBMIT THIS LAST PARAGRAPH AS A FORMAL REQUEST UNDER SECTION 2.206 OF 10 CFR Ch. 20 FOR PERMANENT SHUTDOWN OF PLANT HATCH UNITS I and II, AND PERMANENT LICENSE REVOCATION, THE BASES BEING THE ENTIRE PARAGRAPH AND POINTS ONE THROUGH EIGHT, Considering the children whose lives are at risk and the health damage and the bases, denial of this 2.206 would constitute MALFEASANCE AND NEGLIGENCE in particular in event of serious accident.

Pamela Blockey-O'Brien

Copy to : The Executive Director, US NRC, Washington, D.C.
(i.e. Executive Director for Operations,U.S. NRC,Wash.DC 20555)

Ms. Rita Kilpatrick,Executive Director,CPG, Atlanta, GA.

(3) SECOND SUPPLEMENT TO ORAL PRESENTATION TO N.R.C.

From: Pamela Blockey-O'Brien

To: US NRC
License Renewal Application Section
Chief of Rules and Directives,
Div. of Administrative Services,
Office of Administrator, Mailstop T-6,
D-59, US NRC,
Washington, D.C. 20555

June 4th 2000

Re: License Renewal Application by Southern Nuclear Operating Co. and others for Nuclear Plant Hatch I and II, Georgia. Additional supplemental statement, and correction to my May 29th, 2000 supplement AGAINST the License Renewal, to be attached to and made part of the May 10th, May 29th statements and testimony and considered by NRC.

1) Correction : May 29th Supplemental Testimony, the word "ALSO" was accidently left out between the words "paragraph" and "as" on page seven, 16 lines from the page top - I meant that NRC consider it as part of the License Renewal testimonies and ALSO as a 2.206. Further, the word "not" on page 5, ten lines up from the bottom, second word from the right, should be left out and the word next to it, "is", changed to "it's" - so that it reads "does not appear that it's going to be considered"..etc."

2) Additional supplemental statement : Another reason site meteorology should be assessed as outlined in my May 10th testimony on page 2, if not better, and one years worth is as good as useless, is, for example, that in 1999 Savannah recieved 11 inches of rain in 12 hours in that area and went underwater and the system could easily have moved across the Hatch area under other circumstances, and it must be borne in mind that a region is considered to have a 100 year flood when 10 inches of rain falls in 24 hours - it does not mean it is a flood that only happens every 100 years. In 1984 tornadoes and high winds caused $14 million in damages across an area including Toombs and Tatnall Counties next to Appling Co where Hatch is. In 1986 tornadoes struck south Georgia and one touched down in Baxley, Appling Co. injuring four and destroying five homes. In other counties that year others were injured in torndoes. There are many other examples of serious weather, damaging storms, etc. across South Georgia yearafter year, including hurricanes crossing the area bringing drenching rains if one goes back even 50 years. Georgia is known for its volatile weather -ice storms can cause freezes almost to the coast on occassions (ice storms to the north) . Futhermore, updated earthquake data is now available for the South, including Georgia , and it must not be forgotten that the Charlston earthquake caused chimneys to fall in Atlanta, shattered windows and knocked down a house there, and according to a 1996 news report, experts predict a 25% chance of a Charlston magnitude earthquake that will hit SOMEWHERE in the east in 25 years. In its comments on the CRAC-2 report, the Subcommittee on Oversight and Investigations report to Congress, noted that "Peak" does not necessarily mean worst case results because the CRAC-2 model considers only one years worth of data and does not model precipitation frequency beyond a distance of 30 miles from a reactor, may not adequately characterize the frequency of precipitation events and this was significant as

as highest consequences from accidents are predicted to occur when a radioactive plume encounters rain over a densely populated area. Furthermore, that assuming fatal doses i.e. assumtions regarding fatal doses, may be subject to question as, they stated, the model assumes that "supportive treatment" is available of special sterile proceedures, massive use of transfusions and antibiotics, and considerable medical attention , and that the Reactor Safety Study concluded that such a level of attention would be available to only 2,500 to 5,000 people EVEN IF THE TOTALITY OF SUCH RESOURCES IN THE ENTIRE U.S. WERE USED.

I would add to that, that the level of knowledge required to treat patients suffering radiation exposure in most hospitals here and abroad is sorely lacking. One of the best hospitals in the world for this being in Japan (as a result of the nuclear destruction of Hiroshima and Nagasaki.) The psychological trauma of medical staff faced with trying to deal with persons dying from radiation exposure of the worst type - with the blood pouring from every orifice in the body as the body literally "melts down" because the molecular internal structure of living cells is breaking down (or, to quote the essentially government funded (including DOE etc) National Research Council of the National Academy of Sciences Biological Effects of Ionizing Radiations Report No. 5, on effects of low level radiation (which left much to be desired although the nuclear club hated it) "Ionizing radiation is energetic enough to displace atomic electrons and thus break the bonds that hold a molecule together."-that sort of trauma could lead to staff meant to be helping, unable to. How many lead lined coffins does Georgia possess in which to bury radioactive remains ? Southern should answer that. The attempts of international bodies including the notorious International Atomic Energy Agency ant the awful International Commission on Radiological Protection (who do not recognize direct medical experience with Atomic Bomb victims, Chernobyl or other radiation victims as being relevant according to the Permanent People's Tribunal Session on Chernobyl, Vienna, 1996) to cover up the true effects of Chernobyl is relevant in connection with attempts to project effects of major nuclear accidents, because people labor under the delusion few died, and accidents elsewhere may be similar. Chernobyl only lost between 4 % and 10% (estimates differ) of its radioactive core inventory. There was no full meltdown - in part due to the heroic efforts of the workers - 800,000 of them drafted to assist in emergency response, thousands of whom are now dead. The Russian so-called "Secret Protocols", serious scientists from across Eastern Europe and others, come up with more than 25,000 killed immediately in the course of the disaster. A RUssian nuclear physicist from Kiev stated in the year following Chernobyl, "over 20,000 pregnancies have been aborted due to the Chernobyl catastrophe only in Kiev". When the amount of hospitalized passed 10,000 during the catastrophe, it was solved by increasing the levels of "accepted" radiation levels to people by fifty, i.e. were automatically healthy and dischargeable, so they presumably died at home - or somewhere. A few days after the Ministry of Health Care put out the edict, the number of hospitalized (incoming) decreased, and the discharges increased. An Excerpt of the Protocol of May 12th, 1986 states :" It is reported by Mr. Schtepin that in the course of the last day 2,703 more persons have been hospitalized generally in Byelorussia, 678 presons discharged from hospitals, 10198 persons are undergoing treatment and medical examinations in hospitals". In parliamentary hearings in the Supreme Council in 1990, it was admitted that 1.6 million children recieved "irradiation doses that are worrying us" and if they lowered the dose limits (back down) relocation

of"1.6 million people would have to be considered," (i.e. off what is really contaminated land) . The research in what used to be the former Soviet Union on Chernobyl is massive, the results are horrendous. So bad is the contamination, that one proposal was to raise the permissable level of nuclear contamination in soil,especially in unoccupied areas,relocate the population on to that land, and relax contamination standards in food and water. According to the aforementioned Tribunal Session on Chernobyl, comprised of experts from all over the world and across Russia, they may have got the idea from a new policy of the notorious ICRP stating after a nuclear accident the principle of applying ALARA (a terrible policy in itself which states that radiation doses etc. should only be kept"as low as reasonably achievable" (alara) depending on technology, how much money industry etc. wants to spend on it etc. which is how nuclear industry and plants operate worldwide and has nothing to do much with health) simply NO LONGER EXISTS, that it requires risk/benefit studies to justify evacuation, restricted land use or consumption of food and similar criminal attitudes. Is this what people can look forward to if Hatch or any other plant blows ? Will people be told to eat their radioactively contaminated food while watching their children die of cancer or their wives aborting and told to shut up and be thankful because ICRP and IAEA has decided so ? And besides, NRC is agreeing to new generations of nuclear power plants so industry can continue to generate nuclear waste and create their beloved plutonium-uranium economy worldwide ?
Is this why Southern put the severe accident dollar figures so low ? In the interests of protecting public health and the environment, NRC must pass a Rule forbidding this from happening. (If a plant near Washington blows NRC will be glad it did.)
It is also unclear whether Southern took into consideration the colleges that could be in the windpath of a nuclear release from Hatch, such as in Statesboro, or the huge Army base at Fort Stewart- the military would be about as pleased as a disturbed rattlesnake if Southern/Georgia Power radioactively gassed its troops - who knows, they might even consider returning the favor and wipe out north Georgia in the process.

You know, Mutually Assured Destruction, that old standby.
Better shutdown Plant Hatch before that happens.

Pamela Blockey-O'Brien.

From: Pamela Blockey-O'Brien

(4) THIRD SUPPLEMENT TO ORAL TESTIMONY TO N.R.C.

To: US NRC
License Renewal Application Section
Chief of Rules and Directives,
Division of Administrative Services
Office of Administrator, Mailstop T-6,
D-59, US NRC
Washington DC 20555

June 7th, 2000

Re: License Renewal Application by Southern Nuclear Operating Co and others for Nuclear Plant Hatch I and II, Georgia.
Extra ADDITIONAL supplemental statement and testimony to be attached to and made part of my May 10th, May 29th, and June 4th statements and testimony and considered by NRC.
THIS IS THE THIRD SUPPLEMENT TO MY MAY 10th 2000 TESTIMONY.

Last weekend, on T.V. fishermen who fish the Altamaha and coastal area, who were complaining about the state of part of their catch HELD UP DEFORMED, MUTATED CRAB AND ULCERATED SORE COVERED FISH protesting Altamaha pollution. While there are undoubtedly other sources of pollution more easy to control, as NRC well knows, effects or radioactive contamination from ionizing radiation include deformed offspring, mutations, reduced fertility, cancers, leukemia, massive suppression of the immune system response making vulnerability to other diseases and illness increase, spontaneous abortion, sterility, abnormal larvae (in fish), mutations in insects, skin burns from "hot" particles, and on and on. Over the years the following radioactive contaminants have been found in sediment which the applicant itself does not rule out came from Hatch ;or admits to doing: Cobalt-60 (admits) Cobalt-58 (admits), Zn-65 (admits), Ce-141 (not ruled out), Ce-144 (not ruled out), Cs-134 (not ruled out), Cs-137 (fudges the issue) Ru-103 (does not rule out, Zr-95 (does not rule out)
Here are some surface water samples collected by Georgia Power Co and one by Georgia EPD after the radioactive spent fuel pool spill at a location known as Deans Landing : Tritium 109,000 pCi/l, 88,000pCi/l 118,000 pCi/l, 77,000 pCi/l - all by GPC, 208,000 pCi/l (EPD).

Co-60 140 pCi/l GPC, 1600 pCi/L EPD.

Cs-134 2200 pCi/l, 420 pCi/l GPC. 2,100 pCi/l EPD.
CS-137 3,400 pCi.l, 570 pCi/l, 550pCi/l GPC. 3000 pCi/L EPD
RIVERS TRANSPORT SEDIMENT DOWNSTREAM.
Some sediment samples taken by GPC MONTHS after the spent fuel pol release and designated by EPD as "From Plant Hatch Spent Fuel Pool release" ; Picocuries per dry kilogram-pCi/kg

Cobalt 60 : 35,000 pCi/kg (thirty five thousand) Deans Landing
290 pCi/kg Estuary and US 17 Darien (at coast)

Zn-65 : 12,000 pCi/kg , down at the estuary it was 170 pCi/kg

Cs-134 : 36,000 pCi/kg - then down at estuary 2200 pCi/kg
Cs-137 67,000 pCi/kg , then down at the estuary 4,700 pCi/kg
Mn-54 7,300 pCi/kg - down at estuary 61 pCi/kg
It should be noted that of course this radioactive contamination could have been more extensive, as that is only what got published.
It is interesting that on the Cesium-137 from Hatch in sediment, In one of their anual reports they fudge the issue, but the EPD sys in one of their reports it came from Hatch, and in another that is more recent that it may or may not have come from Hatch now.

Due to the almost incestuous relationships which exist down here when it comes to nuclear issues - some of which I detailed to the Atomic Safety and licensing Board Judges during the matter of the relicensing attemptof the Georgia Tech Nuclear Reactor by Tech which Georgia Power and the Atomic Energy Commission helped Tech bring here to begin with, and my attempts to get the staggering CURIE quantity of Cobalt-60 stuck in the Tech Reactor spent fuel pool out of downtown Atlanta which threatens the campus and downtown, to no avail - (I must admit, I didn't realize that the former Governor I appealed to for help sits on Georgia Powers board in the Applicants submission - though Tech reactor staff did tell me since then that Georgia Power still needs the Cobalt to do testing to see if co-60 degrades cement.....though I did know that the former NRC Regional Head, O'Reilly, went to Georgia Power.)- anyway, as I was saying, the contorted relationships make it imperative that INDEPENDANT, non-industry,non-government affiliated testing be done on all these issues I have raised, and others have, and by companies which have never held government contracts or nuclear industry contracts or their subsidiaries,affiliates, brothers, cousins,dogs or cats . That would eliminate companies like Death Of the Earth Squad (DOE) contract folk such as DOE, and SAIC, and Chem-Nuclear etc. And of course Law.

All the crab, clams, mussels, etc. and fish - including sturgeon and eggs if possible, and turtles,tortoises(land) frogs, aquatic plants etc. need to be tested. And those tests must PROHIBIT doing the sort of thing that sometimes goes on, like mixing up contaminated and non-contaminated stuff/fish, or hanging onto samples until some of the short lived contaminants decay before testing and similar.

It needs to be found out if everything is more contaminated than we already know - and that includes the groundwater,sediment and so forth.

It should also be noted, that the ODCM, which I already said was written in the Stone Age previously - allows things like Reporting Levels like 300 pCi/l for Co-60 in water and 10,000 pci/kg wet in fish for crying out loud, or Iodine 131 of 20 pCi/l if no drinking water pathway exists.... the thing should be thrown in the trash.

It's a wonder restaurants aren't asking customers if they'd like their cobalt-60 pan fried of just plain grilled, with a little radioactive iodine sauce on the side.

The Applicant has stated that in reference to the Georgia COastal Zone Management Act that "Based on the distance to the coastal zone, past HNP performance with xxgaxix respect to discharges and releases,and the fact that no major changes in operations are expected during the license renewal term , SNC believes that direct impacts to the coastal zone from HNP operations during the license renewal term are unlikely,"and they believe certification is inapplicable. Oh, really. What's the encore to the spent fuel pool spill, or loss of coolant ? A meltdown ? Due to the long full radioactive lives of the radioactive contaminants, the spill-and the other spills- are significant and cannot be disregarded. Deformed, mutated crab cannot be disregarded, neither can fish covered in sores.And now about that chlorine spill ? discharge ? And the chemicals used to dissolve radioactive crud buildup ? Combined with radioactive contaminants no wonder that dump of a plant is a blight, a plague on the land.

Pamela Blockey-O'Brien.

STOP HATCH RELICENSING!

Dear Mr. Mueller: I am firmly opposed to the EPA granting National Environmental Policy Act certification of the Generic Environmental Impact Statement #4 regarding Southern Nuclear Operating Company's request to relicense nuclear Plant Hatch. I urge that this aged, dangerous nuclear facility NOT BE RELICENSED!!! The public record has documented accidents, spills, equipment malfunctions and degradation, and radioactive contamination to the coast, fish and groundwater. Relicensing will only worsen the contamination and further increase Hatch's mounting, high level radioactive waste problem—so severe that waste is being stored on a cement storage slab near the banks of the Altamaha River. I implore you to deny NEPA certification, in the interest of the people and environment of this region.

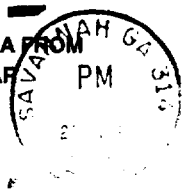
My additional comments are:

Valerie J. Hinesley

Name Address/Zip Code

Valerie J. Hinesley 1 Sorrelwood Cross Sav. 31411

SAVE SOUTH GEORGIA FROM
BECOMING A NUCLEAR
WASTELAND!!!



Mr. Heinz Mueller
Chief, NEPA Compliance Branch
U.S.EPA, Region IV
61 Forsyth Street, SW
Atlanta, GA 30303

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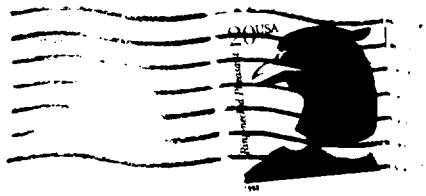
My additional comments are:

Name

Address/Zip Code

Sea Island, Ga. 31561

SAVE SOUTH GEORGIA FROM
BECOMING A NUCLEAR
WASTELAND!!!



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Mr. Heinz Mueller
Chief, NEPA Compliance Branch
U.S.EPA, Region IV
61 Forsyth Street, SW
Atlanta, GA 30303

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My additional comments are:

ROBERT W., THOMAS H., SCOTT C. AND JEFFREY T. CHAMBERS

Name Address/Zip Code

17TH ST. SEA ISLAND GA 31561

SAVE SOUTH GEORGIA FROM
BECOMING A NUCLEAR
WASTELANDIII

Mr. Heinz Mueller
Chief, NEPA Compliance Branch
U.S.EPA, Region IV
61 Forsyth Street, SW
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My additional comments are:

Name Caroline K. Friesner

Address/Zip Code POB 270
Crescent, GA 31304

SAVE SOUTH GEORGIA FROM
BECOMING A NUCLEAR
WASTELAND!!!

Mr. Heinz Mueller
Chief, NEPA Compliance Branch
U.S.EPA, Region IV
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Atlanta, GA 30303

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My additional comments are: With the poor track record of nuclear facilities in the past (e.g. SRS), there can be no down stream cancer be subjected to poor technology.

Name [redacted]

Address/Zip Code DR. CHARLES W. BELIN, Jr
841 MERIWEATHER DR.
SAVANNAH, GA. 31406

SAVE SOUTH GEORGIA FROM
BECOMING A NUCLEAR
WASTELAND!!!

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U.S.EPA, Region IV
61 Forsyth Street, SW
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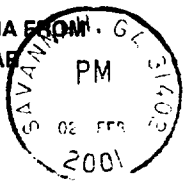
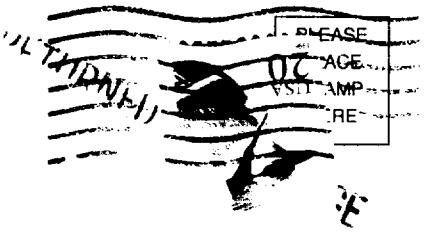
My additional comments are:
Please don't relicense Plant Hatch!

Name Courtney Gaines Address/Zip Code
70 Shipwatch Rd
Savannah, GA 31410

Courtney K. Gaines

SAVE SOUTH GEORGIA FROM
BECOMING A NUCLEAR
WASTELAND!!!





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Chief, NEPA Compliance Branch
U.S.EPA, Region IV
61 Forsyth Street, SW
Atlanta, GA 30303

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My additional comments are: I am not completely opposed to nuclear power but Hatch has a history of problems with a future of more to come. I am particularly disturbed by the proximity of spent fuel to the Altamaha River.

Name Chip Cotton Address/Zip Code 3251 Five Forks Rd. Bowman, GA 30624

SAVE SOUTH GEORGIA FROM
BECOMING A NUCLEAR
WASTELAND!!!

Mr. Heinz Mueller
Chief, NEPA Compliance Branch
U.S.EPA, Region IV
61 Forsyth Street, SW
Atlanta, GA 30303

30303+8931

STOP HATCH RELICENSING!

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My additional comments are:

Please work to ensure the protection of the Altamaha & other Georgia Rivers from inland pollution. The health of our coastal resources depends on that.

MARINE MANAGEMENT COMPANY

Paul Glenn, C.M.M.
P.O. Box 899
Darien, GA 31305

Address/Zip Code

Paul Glenn

SAVE SOUTH GEORGIA FROM
BECOMING A NUCLEAR
WASTELAND!!!

Mr. Heinz Mueller
Chief, NEPA Compliance Branch
U.S.EPA, Region IV
61 Forsyth Street, SW
Atlanta, GA 30303

0302+8931

STOP HATCH RELICENSING!

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My additional comments are: As a veteran & teacher I support clean, safe, renewable resources + oppose Hatch!

Name

Address

Peter J. Paluch
Judy Holley
730 Brookridge Dr NE
Atlanta, GA 30306

SAVE SOUTH GEORGIA FROM
BECOMING A NUCLEAR
WASTELAND!!!

Peter J. Paluch
Judy Holley
730 Brookridge Dr NE
Atlanta, GA 30306

Mr. Heinz Mueller
Chief, NEPA Compliance Branch
U.S.EPA, Region IV
61 Forsyth Street, SW
Atlanta, GA 30303

Main Office:
1427 Moreland Avenue, NE, Suite 100
Atlanta, GA 30307
404-659-5675 (phone) 770-234-3909 (fax)
georgia@cleanenergy.ws

Georgians for Clean Energy

www.cleanenergy.ws

Savannah Office:
3025 Bull Street, Suite 101
Savannah, GA 31405
912-201-0354 (phone and fax)
savannah@cleanenergy.ws

Mr. Heinz Mueller
Chief, NEPA Compliance Branch
U.S. EPA Region IV
61 Forsyth Street, SW
Atlanta, GA 30303

December 5, 2000

Dear Mr. Mueller:

Per your request that I understand you made to Pamela Blockey-O'Brien during a recent phone conversation about the license renewal application and related proceedings concerning nuclear Plant Hatch near Baxley, Georgia, I am providing you with the following items:

- Georgians for Clean Energy (formerly Campaign for a Prosperous Georgia) comments on the Environmental Impact Statement for the License Renewal Application for Edwin I. Hatch Nuclear Reactors I and II, June 9, 2000
- Georgians for Clean Energy 2.206 Petition Filing regarding the Edwin I. Hatch Nuclear Plant, February 22, 2000
- Altamaha Riverkeeper comments on the Environmental Impact Statement for the License Renewal Application for Edwin I. Hatch Nuclear Reactors I and II, June 9, 2000
- Union of Concerned Scientists 2.206 Petition Filing regarding the Edwin I. Hatch Nuclear Plant, May 3, 2000
- Website links for oral comments presented by concerned organizations and individuals at the proceedings of the U.S. Nuclear Regulatory Commission Public Scoping Meetings in Vidalia, Georgia, May 10, 2000. We have never received paper copies of the proceedings:
    - afternoon session: http://www.nrc.gov/NRC/REACTOR/LR/HATCH/transcript1.htm
      Rita Kilpatrick, Deborah Sheppard, Pamela Blockey-O'Brien, Janisse Ray, Gary D. Drury
    - evening session:
      http://www.nrc.gov/NRC/REACTOR/LR/HATCH/transcript2.htm
      Rita Kilpatrick, Pamela Blockey-O'Brien

Georgians for Clean Energy, along with other organizations, including Union of Concerned Scientists, and citizens, have participated in everyway possible during these licensing proceedings to no avail. It appears that public concerns raised about plant re-licensing have been dismissed as irrelevant. I urge you to investigate the draft EIS with close scrutiny. Please feel to contact me if you have further questions or concerns, 912-201-0354.

Sincerely,

Sara Barczak
Safe Energy Director

June 9, 2000
sent via certified mail

License Renewal Division
Chief of Rules and Directives
Div. of Administrative Services
Office of Administrator
Mail Stop T-6, D59
U.S Nuclear Regulatory Commission
Washington, D.C. 20555

RE: Environmental Impact Statement for the License Renewal Application for Edwin I. Hatch Nuclear Reactors I and II by the Southern Nuclear Operating Company and others.

COMMENTS OF CAMPAIGN FOR A PROSPEROUS GEORGIA

The following comments are filed by Campaign for a Prosperous Georgia (CPG) as part of the Environmental Impact Statement process for the License Renewal Application for Edwin I. Hatch Nuclear Reactors I and II by the Southern Nuclear Operating Company and others. The comments herein are a supplement to oral comments made by Rita Kilpatrick, May 10, 2000, before the NRC in Vidalia, Georgia.

CPG is a non-profit conservation and energy consumer organization headquartered in Atlanta with a field office located in Savannah. We are a statewide organization with members throughout Georgia and have focused on energy and nuclear concerns for 17 years.

Area of Vital Ecological Significance

The area where the Hatch nuclear plant is located in Appling County along the banks of the Altamaha River is an area of vital ecological significance to Georgia and the region. The livelihood of hundreds of thousands of people depends on this river and billions of dollars of resources from fisheries, agriculture, tourism, and other coastal activities are at stake here.

Earthquake Zone

One major concern is that Plant Hatch is located in an earthquake zone that threatens the public and the surrounding environment. On Jan. 18, 2000 there was an earthquake with a magnitude of 2.5-4 with the epicenter at Lake Sinclair. According to specialists at the Georgia Institute of Technology, there was no fault but rather a zone of weakness and these shifts occur regularly every 2-4 years. These shifts, in addition to the Charleston earthquake zone, would further threaten the operational integrity of the plant.

Vulnerability to Hurricanes and Wildfires

A major concern is that every decade in the 50's, 60's, 70's and 80's, a hurricane has crossed South Georgia. The NRC report "Effects of Hurricane Andrew on Turkey Point Nuclear Generating Station (August 20-30, 1992)" shows serious consequences. Also, the severe gridlock that has occurred during hurricane evacuations in Florida is comparable to the type of gridlock that would occur in the event of a catastrophic event surrounding Hatch.

In addition, wildfires pose a threat to the area. At present, there is a wildfire that firefighters are trying to contain near Waycross in South Georgia. As recently occurred at the nuclear facility in Los Alamos, wildfire forced the town and workers to evacuate the area. A similar or worse occurrence at Hatch would force worker evacuation and threaten plant and public safety.

Natural Deterioration of the Plant

The plant is decayed and contaminated at present. This will worsen with time due to the deteriorating effects that radiation has on a nuclear plant. The Hatch reactors have a cracked core shroud, held together by steel braces which become brittle and corroded due to exposure to radiation. These have the potential to snap due to vibration leading to severe problems.

Continuous serious problems at Hatch that included automatic shutdowns (6-15-99, 6-28-99 and 1-26-00) are other examples of major problems, faulty equipment and aging machinery. The aging status of the plant and the lack of aging monitoring are of high concern to public safety.

Added concerns, which CPG supports, are identified in a May 3, 2000 petition filed by the Union of Concerned Scientists regarding aging effects due to radiation, specifically the degradation of liquid and gaseous radwaste systems.

Unacceptable Contamination of Air, Water, and Land

There has already been unacceptable damage and risk to the immediate environment. Extending plant operations will worsen the situation.

During the December 3-4, 1986 spill of 141,500 gallons of highly radioactive contaminated water from the spent fuel pool resulted in 44,000 gallons of that contaminated water released between the reactor buildings and contaminated on-site soils, equipment, asphalt, walls, turbine buildings, control building, hot machine shop, nitrogen storage area among other locations. This was in part due to leaking seals, lack of attention to documented problems, equipment failures, inadequate licensee action, and inoperable leak detection systems, all of which resulted in the highly contaminated water also contaminating the river, sediment, wetlands (swamp) and would have seeped into the groundwater adding to the existing groundwater contamination from numerous prior events. Prior events include the 1979 failure of a pump seal in the condenser tank system that contaminated the local aquifer or the release of radioactive RHR service water system containing Manganese 54, Cobalt 60, Zinc 65, and Xenon 135.

State documents from 1999 confirm that Hatch has contaminated sediments in the Altamaha River. Radioactive contamination of sediments attributed to operations of Hatch have extended as far as Jesup and Darien.

Hatch is situated over a major regional limestone aquifer system of groundwater resources and the surrounding community relies on underground wells; therefore water quality and health are of top concern. One of the local aquifers near the plant is an unconfined Miocene/Pliocene aquifer (Hydrologic Atlas 18).

A June 2, 1995 Inspection Report shows that leaking fuel caused increases in radioactivity in liquid effluent dumped into the Altamaha River in 1994 and increases in particulate forms of radioactivity as gaseous effluents released to the air, including Cobalt 58, Cobalt 60, Zinc 65, Cesium 134, Cesium 137.

The absence of independent analysis on levels of radioactive contamination in the river and waterways is a high concern. Independent analysis is sorely needed. It should be noted that state analysis only involves cross-checking and cannot be considered independent analysis.

The NRC Docket shows the site has become a radioactive dump inadequately held together; for example, the wall thinning and pitting of the piping systems is so bad (resulting from conditions such as but not limited to flow-assisted corrosion and microbiological corrosion and radioactive decay products) that the Southern Company has sought relief to use alternative repair techniques which would result in adding more metals around the pipes to restore wall thickness rather than replacing the pipes, requesting permission to use an ASME-approved code which has not been incorporated into NRC regulatory guide 1.147 and thus is not available for application at nuclear power plants as the Southern Company has stated in its third 10-year interval Request for Relief RR-25.

Detailed inspection reports from 1999 alone showed multiple equipment failures that could have had serious consequences, including meltdown.

The Hatch licensee dumped radioactive contaminated sludge on the land since 1982 without ever surveying the sludge until May 1992, which would have seeped into groundwater (Jan. 8, 1993 Inspection Report). The State of Georgia was negligent as an agreement state in issuing National Pollutant Discharge Elimination System (NPDES) permits for disposing of sludge, which did not address measurements for or content of radioactive material in the sludge.

A practice existed for years of upending radioactive contaminated drums, so that the residue would drain onto the ground from the drums which held radioactive waste oil and water, contaminated the soil and an underground storage tank with Cobalt 60, Manganese 54, Zinc 65, and Cesium 137. Subsequently contaminated soil was removed, but it is unclear where it was taken. Although the contaminated underground storage tank was removed and stored on-site at Hatch, the groundwater and possibly workers would have been contaminated and this issue was never addressed (Special Report 1-sp-80-3 Contaminated Soil at Waste Oil Storage Area).

The dam on Lake Sinclair owned by the Southern Company was completed in 1953. This is an old dam and would not have been built to current specifications of a modern dam. A severe earthquake could break the dam, which would release a massive amount of water. The effect of dam breakage particularly in times of major flooding on the Oconee, Ocmulgee and Altamaha rivers could have catastrophic consequences not only to Hatch but to the Independent Spent Fuel Storage Installation (ISFSI) for high-level radioactive waste currently constructed next to the Altamaha River.

The NRC has revealed that the ISFSI casks will give off 125 millirems/hr on the side of the cask over pack and 85 millirems/hr on the top. This will stream to the environment and will further add to the radiological burden to people in the area and to the environment, including wildlife and migrating birds, at levels over and above already existing contamination and above daily releases of radioactive contamination to water and air, due to current plant operations.

Goat farms and families with goats located in and around Appling County face added risks because tritium has a high transfer factor (17 times higher for goat milk than for cow milk), according to study done for the U.S. Department of Energy.

Worker Contamination

After years of operation the licensee has problems refueling without contaminating workers and the surrounding site; for example, Mar. 12, 1990 Inspection Report where the particulate airborne Cobalt releases were 5.2 times the already high maximum permissible concentration in air and 17 individuals were contaminated (14 contaminated internally), the contamination events actually started in Aug. 1989 and continued until Jan. 1990 and the contamination of personnel, equipment, and fuel water was significant. Over the years the NRC has repeatedly put concerns in writing due to "the continuing radiological and contamination control deficiencies" yet the NRC has been ineffective in bringing corrective change.

Historic Preservation and Ecologically Significant Sites in the Wind Paths and Surrounding Area

The following, among other local historic and ecologically significant sites, would be lost forever in the event of a catastrophic accident:

- J. Clayton Stephens Museum of Local History located in an adjacent county where local history is assembled;

- The Little Ocmulgee State Park on the Little Ocmulgee River in McRae;

- Horse Creek Wildlife Management Area in the Ocmulgee proper;

- The Gordonia-Altamaha State Park at Reidsville;

- Altamaha River Bioreserve.

Low-Income Population Impacts

There is not adequate attention to issues surrounding economic justice and the long-term, negative economic implications of Plant Hatch on the community. The area is being contaminated to the extent that the location is made undesirable for future economic development. This will only worsen with extended plant operations.

Unacceptable Fatalities and Injuries in the Event of Serious Accident

If there were a meltdown, there would be an unacceptable number of immediate fatalities and peak early injuries due to radiation and additional unacceptable fatalities and injuries from an accident and meltdown in the radioactive spent fuel pool.

Hatch's aging reactors, spent fuel pool and proposed ISFSI pose unacceptable risks to people, agriculture and fishing in the surrounding area. It would constitute malfeasance and negligence on the part of the NRC to re-license this plant and to allow the storage cask scheme to go forward.

The licensee's analysis of severe accident mitigation alternatives is grossly deficient.

The Brookhaven National Laboratory study done for the NRC in 1997 determined that spent fuel accidents with a full storage pool as exists at Hatch would cause 101 prompt fatalities within a 500-mile distance, 138,000 latent fatalities and 2,170 square miles of land that could never be de-contaminated. According to other government documents, reactors of the Hatch GE Mark I type can begin to melt down in as little as 40 minutes due to known design deficiencies.

The lack of a traditional containment dome at Hatch adds to public health and economic risks.

Increased Liability for Local and State Governments

The utility industry is undergoing dramatic change involving deregulation, plant sales, and company mergers that create an unstable and unsafe environment for nuclear plants and the surrounding communities. New companies that may purchase old facilities are often unaware of the historical record at nuclear plants. Southern Company, which operates the plant, is undergoing continual reorganization that heightens uncertainties. The company has encountered notable problems with risky investments in global expansion, as evident in reviewing the company's annual reports and filings with the U.S. Securities & Exchange Commission.

As nuclear companies close down and walk away from radioactively contaminated areas in the future, the liability for clean-up will fall on local governments to deal with the contamination at the site and in the surrounding area. There is no mechanism for remediation or responsibility for dealing with high levels of contamination that will only escalate with continued plant operations in the future and the site could fall to a "third party," most likely the state or municipality. Generation of more waste including the proposed 5000 additional assemblies will exacerbate growing liability to local governments.

Handling of Generic Industry Problems

We have concern that the NRC frequently categorizes problems as generic industry problems. We request that the NRC treat all problems and areas of concern raised about Plant Hatch in this re-licensing proceeding and others as "site specific problems," not generic industry problems.

Inadequate Analysis of Alternatives

The applicant's analysis of alternatives is inadequate and does not consider a viable set of alternatives. Also, the extent of economic analysis done on the alternatives is unclear in the application. Some alternatives are clearly not in the public interest nor the company's economic interest: (1) new coal, (2) new oil, and (3) new nuclear.

The most recent long-range Integrated Resource Plan for Georgia Power Company, approved by the Georgia Public Service Commission, identifies ways that the company plans to secure power supplies in the long term based on future, projected demand. It should be noted that this PSC-approved plan assumes that Hatch reactors will retire according to Hatch's original license in 2014 and 2018.

The applicant has not properly assessed the following renewable energy options:
(1) Wind power options: The applicant states that there are not adequate wind/ land resources in Georgia, and that wind is not an option. Land use maps indicate that the northeast corner of Georgia has small but good sites. It is important to note that throughout the U.S., many good sites are not on any resource maps. When energy developers are asked to find a resource at a reasonable price they seem to find the wind resource. The applicant could also negotiate with other companies to wheel wind power from other states. Off shore is a growing resource.

(2) Solar: The applicant states that solar is too expensive, and that Georgia does not possess adequate resources. The most cost effective photovoltaic (pv) applications are roof top and building integrated where distribution and reliability issues are addressed. Roof top pv and building integrated pv installations have no environmental impact.

(3) Geothermal: Geothermal heat pumps are a viable option in Georgia, already under development, with potential to expand significantly.

(4) Wood energy and biomass: The upgrade of inefficiency of current biomass plants should be considered. Also, agricultural waste, urban wood waste, and methane gas recovery from landfills should be considered.

Renewable energy supplies in combination with energy efficiency and cleaner generation (fuel cells, cogeneration, micro turbines, high efficiency gas, bio-fuels, etc.) can make a major, low cost impact on the applicant's dirty and unsafe generation profile. The do-nothing approach presented in the application is inadequate. There is a clear need to ramp up renewables, efficiency and cleaner generation today if customers future needs are to be met.

Similar to Americans nation-wide, Georgians are asking for clean air and clean water. The applicant parties can make this happen if they use economic leverage to support clean power. Regarding renewable energy programs, CPG urges that the Southern Company and its partners begin participation in the Center for Resource Solutions, a voluntary certification program that requires utility participants to follow specific guidelines that promote renewable resources. The goal of this program is to help regulated utilities offer programs to its customers to meet a high standard of public accountability. The Tennessee Valley Authority, which serves part of Georgia, launched a Green Power Switch program in April 2000 which give its customers the choice of paying a small premium to ensure that some of their electricity comes from non-polluting, renewable energy sources. We believe the applicant can significantly surpass TVA in "green power" development.

Attached herein is an excerpt from the Integrated Resource Plan by Georgia Power Company, filed in the past at the Georgia Public Service Commission for consideration in the company's long-range planning. Several of these programs were never implemented. Although current policy at the Georgia PSC requires a "ratepayer impact measures" screening test for energy efficiency programs to be approved for rate-based customer service programs, the company has in the past and currently has the ability to develop programs that go beyond the screening test. The company has had ample opportunity to develop its own energy-efficient programs for customers outside of rate-based approved programs. Unfortunately, to date, such programs have been designed primarily to build customer electric load which encourage usage at times that bolster nuclear supplies. This load-building effort is detrimental and should be abandoned, along with the pursuit of extended operations at Hatch.

Georgia is exporting power equivalent to that generated by Hatch. No analysis was presented about the contract terms and the potential for retaining the power in the state.

<u>False Claims to be "Environmentally Clean"</u>

The bravado with which the nuclear industry touts that nuclear power is "environmentally clean," including during the public hearings on Hatch re-licensing, requires that the record be set straight

about complaints raised to date. In 1998, the federal Better Business Bureau ruled that advertisements placed by the Nuclear Energy Institute on behalf of the nuclear industry were misleading and that the industry should "discontinue" its "inaccurate" statements. Last year, the Federal Trade Commission also agreed that the industry "failed to substantiate its general environmental benefit claims." Attached herein is the Federal Trade Commission's finding.

Conclusion

Building a safe, affordable and efficient energy supply that provides safe jobs to the area is a top priority.

In closing, we request the following:

- rejection of the licensee's application to extend Hatch's operating life;
- clean-up of the contaminated areas;
- pumping of the radioactively contaminated groundwater;
- retrieval of all particulate radiation, in particular Cobalt 60 in sediment, sub-surface soil, groundwater, and river water both on site and in the Altamaha River and in any adjacent creeks, tributaries, wetlands, and swamps within and without the licensee's protected area;
- decontamination of all equipment, material and buildings on-site;
- adequate compensation of contaminated workers and any of the general public who may have been affected or whose well water may have been affected;
- and irreversible revocation of the plant license;
- a halt of the proposed Independent Spent Fuel Storage Installation.

Respectfully submitted,

Rita Kilpatrick
Executive Director

CAMPAIGN
FOR A
PROSPEROUS
GEORGIA

February 22, 2000
via facsimile 301-415-1759 &
301-415-1222

Director
Nuclear Regulatory Commission
U.S. Nuclear Regulatory Commission
Washington, DC 20555

RE: 2.206 Petition

Dear Director:

We are hereby submitting a petition under Section 2.206 of 10 C.F.R. regarding the Edwin I. Hatch nuclear power plant located near Baxley, Georgia in Appling County along the banks of the Altamaha River, an area of vital ecological significance upon which the livelihood of hundreds of thousands of people depend.

This petition is asking for shutdown of the facility, clean-up of the contaminated areas, pumping of the radioactively contaminated groundwater, retrieval of all particulate radiation, in particular Cobalt 60 in sediment, sub-surface soil, groundwater, and river water both on site and in the Altamaha River and in any adjacent creeks, tributaries, wetlands, and swamps within and without the licensee's protected area, decontamination of all equipment, material and buildings on-site, adequate compensation of contaminated workers, and any of the general public who may have been affected or whose wellwater may have been affected, and irreversible revocation of the plant license. Furthermore, the proposed Independent Spent Fuel Storage Installation should be halted for reasons which will be enumerated below.

The bases for this request are as follows:

Poor Personnel Practices

(a) Since the operation of Plant Hatch and its neighbor Plant Vogtle by persons under the influence of cocaine, marijuana, or alcohol in the 1990's is appalling (Inspection Report 50-321/94-23, 50-366/94-23);

Poor Facility Conditions, Maintenance, and Management

(b) Since the facility is decrepit, decayed and contaminated;

1083 AUSTIN AVENUE NE • ATLANTA, GEORGIA 30307 • 404-659-5675 • FAX 404-659-5676

(c) Since start-up (see reports Nov. 1, 1974 and Feb. 1, 1977), Hatch has had problems with exceeding the technical specifications and lost pieces in the reactor and left them there (Dec. 15, 1975 Georgia Power to NRC);

(d) Since, at start-up, Hatch personnel failed to document test steps and failed to calibrate radiation detectors and since there have been vibration problems (Sept. 19, 1975) and it is unclear if the vibration problems were ever fixed;

(e) Since Hatch was exempted from reporting on the status of the facility 9 months after criticality (March 23, 1979);

(f) Since the cracked core shroud (held together by steel braces) becomes brittle and corroded due to radiation exposure and could snap due to vibration leading to a disaster;

(g) Since a reactor vessel feedwater nozzle inside radius and bore cracking (1974-1980) exacerbates the situation;

(h) Since the Oct. 3, 1994 Inspection Report shows that the Southern Nuclear Company had ignored recommendations concerning looking for weld defects on the core shroud and even reduced inspection criteria; Since NRC inspectors only looked at videotapes of visual examinations of the reactor core shroud which is unacceptable as is the performance of General Electric examiners who wrongly positioned the scanning fixture on the core shroud wells (further problems are detailed in inspection conducted Mar. 25 - Apr.1 1994);

(i) Since the continuous serious problems at Hatch which included two automatic reactor shutdowns (6-15-99, 6-28-99 and 1-26-00) are other examples of major problems, faulty equipment and aging machinery at Hatch;

Unacceptable Damage and Risk to the Immediate Environment

(j) Since during the December 3-4, 1986 spill of 141,500 gallons of highly radioactive contaminated water from the spent fuel pool resulted in 44,000 gallons of that contaminated water released between the reactor buildings and contaminated on-site soils, equipment, asphalt, walls, turbine buildings, control building, hot machine shop, nitrogen storage area among other locations, in part due to leaking seals, lack of attention to documented problems, equipment failures, inadequate licensee action, and inoperable leak detection systems, all of which resulted in the highly contaminated water also contaminating the river, sediment, wetlands (swamp) and would have seeped into the groundwater massively adding to the existing groundwater contamination from numerous prior events, such as the 1979 failure of a pump seal in the condenser tank system which

contaminated the local aquifer or the release of radioactive RHR service water system containing Manganese 54, Cobalt 60, Zinc 65, and Xenon 135;

(k) Since Hatch is situated over a major regional limestone aquifer system of groundwater resources and the surrounding community relies on underground wells and since one of the local aquifers near the plant is an unconfined miocene/pliocene aquifer (Hydrologic Atlas 18);

(l) Since the June 2, 1995 Inspection Report shows that leaking fuel caused increases in radioactivity in liquid effluent dumped into the Altamaha River in 1994 and increases in particulate forms of radioactivity as gaseous effluents released to the air, including Cobalt 58, Cobalt 60, Zinc 65, Cesium 134, Cesium 137;

(m) Since, the Docket shows the site has become a radioactive dump inadequately held together; for example, the wall thinning and pitting of the piping systems is so bad (resulting from conditions such as but not limited to flow-assisted corrosion and microbiological corrosion and radioactive decay products) that the Southern Company is seeking relief to use alternative repair techniques which would result in adding more metals around the pipes to restore wall thickness rather than replacing the pipes, requesting permission to use an ASME-approved code which has not been incorporated into NRC regulatory guide 1.147 and thus is not available for application at nuclear power plants as the Southern Company has stated in its third 10-year interval Request for Relief RR-25;

(n) Since after years of operation the licensee has problems refueling without contaminating workers and the surrounding site; for example, Mar. 12, 1990 Inspection Report where the particulate airborne Cobalt releases were 5.2 times the already high maximum permissible concentration in air and 17 individuals were contaminated (14 contaminated internally), the contamination events actually started in Aug. 1989 and continued until Jan. 1990 and the contamination of personnel, equipment, and fuel water was significant, and over the years the NRC has repeatedly put concerns in writing due to "the continuing radiological and contamination control deficiencies" yet the NRC has been ineffective in bringing corrective change;

(o) Since the Hatch licensee dumped radioactive contaminated sludge on the land since 1992 without ever surveying the sludge until May 1992 which would have seeped into groundwater (Jan. 8, 1993 Inspection Report) and the State of Georgia was negligent as an agreement state in issuing National Pollutant Discharge Elimination System (NPDES) permits for disposing of sludge which did not address measurements for or content of radioactive material in the sludge;

(p) Since the practice that existed for years of upending radioactive contaminated drums, so that the residue would drain onto the ground from the drums which held radioactive waste oil and water, contaminated the soil and an underground storage tank with Cobalt 60, Manganese 54, Zinc 65, and Cesium 137; Since subsequently contaminated soil was removed, it is unclear where it was taken to, and although the contaminated underground storage tank was removed and stored on-site at Hatch, the groundwater and possibly workers would have been contaminated and this issue was never addressed (Special Report 1-sp-80-3 Contaminated Soil at Waste Oil Storage Area);

(q) Since Hatch is situated in an earthquake zone and on Jan. 18, 2000 there was an earthquake with a magnitude of 2.5-4 with the epicenter at Lake Sinclair and according to specialists at Georgia Tech, there was no fault but rather a zone of weakness and these shifts occur regularly every 2-4 years which, in addition to the Charleston earthquake zone, would further threaten the operational integrity of the plant;

(r) Since the dam on Lake Sinclair is owned by the Southern Company and Lake Sinclair in pounds contains 15,330 acres of water (extending into 3 counties) and construction began in 1929, stopped during the depression, re-started and then stopped during WWII, and was only completed in 1953, it is therefore obvious that this is an old dam and is not being built to current specifications of a modern dam. Since a severe earthquake could break the dam which would release a massive amount of water, the effect of dam breakage in particular in times of major flooding in the Oconee, Ocmulgee and Altamaha rivers could have catastrophic consequences not only to Hatch but to the Independent Spent Fuel Storage Installation (ISFSI) for high-level radioactive waste currently constructed next to the Altamaha River;

(s) Since the NRC's conversation Feb. 1, 2000 with Pamela Blockey O'Brien revealed that the ISFSI casks will give off 125 millirems/hr on the side of the cask overpack and 85 millirems/hr on the top which will stream to the environment and will further add to the radiological burden to people and the environment, wildlife and migrating birds at levels over and above already existing contamination and above daily releases of radioactive contamination to water and air due to current plant operations;

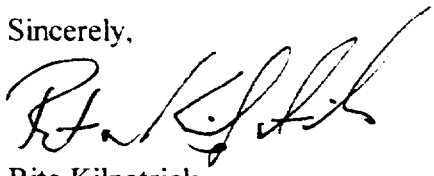
(t) Since radioactive contamination of sediments attributed to operations of Hatch have extended to Jesup and Darien;

(u) Since were there to be a meltdown there would be an unacceptable number of immediate fatalities and peak early injuries due to radiation and additional unacceptable fatalities and injuries from an accident and meltdown in the radioactive spent fuel pool;

We therefore pray and demand that this petition be granted because Hatch's aging reactors, spent fuel pool and proposed ISFSI pose unacceptable risk to people and agriculture and fishing in the surrounding area. We believe it would constitute malfeasance and negligence on the part of the NRC to deny this petition.

Had we been aware that our letter of February 3, 2000 would be taken up by the NRC Petition Review Board as a petition-initiating process, we would have accompanied it with this letter. We reserve the right to supplement the above materials as we deem necessary.

Sincerely,



Rita Kilpatrick
Executive Director, Campaign for a Prosperous Georgia

cc: Leonard Olshan, NRC Petition Review Board
NRC Director of Operations
NRC Docketing and Service Branch

June 9, 2000
License Renewal Division
Chief of Rules and Directives
Division of Adminsitrative Services
Office of Adminsitrator
Mail Stop T-6
D59
U.S Nuclear Regulatory Commission
Washington, D.C. 20555

To Whom It May Concern,

The Altamaha Riverkeeper (ARK) organization files these comments as part of the Environmental Impact Statement process for the License Renewal Application for Edwin I. Hatch Nuclear Reactors I and II by the Southern Nuclear Operating Company and others.

ARK is a non-profit organization working to restore and protect the habitat, water quality, and flow of the mighty Altamaha from its headwaters in North Georgia to its terminus at the Atlantic Coast. The health and safety of the Atlamaha River and its surrounding habitat is of great concern to our members. ARK members live, work, and pursue recreational activities in and along the river.

At it's April 20, 2000 meeting the Board of Directors adopted the following statement. "The Altamaha Riverkeeper is concerned about the ongoing and future operations of Plant Hatch. We oppose the effort to re-license the plant and are concerned about the impact of on site dry cask storage of spent nuclear fuel.

Discussion
Plant Hatch is located directly on the banks of the Altamaha River. Its proximity to the river and its potential for continued routine release of radiation and other man-made pollutants into the river and its drainage area create anxiety and concern, even among those who profess to support the use of nuclear energy in some circumstances.

In this case, we have an aging nuclear reactor with a history of "incidents" and "accidents" that have routinely increased levels of public exposure to radiation. While "fixing things up as you go" has merit in many circumstances, in a nuclear plant this practice leaves the public with serious questions and concerns about the safety and stability of the facility in question. Some of the greatest concerns are raised by workers or former workers who have participated in "finding solutions", but whose current and future jobs depend upon their silence.

While those whose current economic well being results from the continued operation of Plant Hatch strongly support this attempt to extend its license and create an on-site storage site for spent nuclear fuel, thousands of others whose livelihoods and way of life would be threatened or destroyed by a serious accident do not.

We fully understand why those whose incomes are derived from Plant Hatch support its continued operation and sympathize with their circumstance. However, we fear that the ongoing lack of heath studies on plant workers put these very people at greatest risk of harm, while they are being routinely admonished that their exposure is "routine and safe."

And certainly, we believe that no one currently or ever working at Plant Hatch takes actions that they believe will endanger their community or the overall health and safety of the region. But we know from review of NRC reports that human and mechanical errors do occur during the routine operation of Plant Hatch and often the combination of mechanical failure with human error creates circumstances that have not been predicted or modeled for solution.

We also know that in spite of several decades and millions of dollars of investment, we have no viable solution for the long-term safe storage of spent nuclear fuel. Any thoughtful observer must ponder the sanity of spending millions of dollars to re-license a nuclear plant whose capacity for on-site storage of nuclear waste has been exhausted. The creation of additional temporary on-site storage of nuclear waste in dry casks designed for transportation to some unknown place begins to sound like science fiction. Especially to people whose lives are based on tides and whose livelihoods are derived from understanding and respecting the laws of God and nature.

It appears that we lack a true understanding of the impact of the operation of Plant Hatch on workers, the surrounding area and especially on downstream fish, mollusks, anthropods, and other critters who live in the water and feed on the sediments and nutrients in the water column.

Simply calling downstream effects a generic problem and assuming that downstream effects of some model facility in another region equal the effects experienced by a specific hydrologic unit and its inhabitants is pure folly. While we do not presume to offer an exhaustive review of the literature on this topic, it appears that the few studies that have been done off site do show increased levels of radiation downstream in river sediments. We are aware of a recent award winning high school science fair project which shows levels of Cobalt 60 present in mussel shells from below Plant Hatch are higher than levels from mussels above Plant Hatch.

While the study did not attempt to prove causality and the recorded levels were considered "acceptable" there is no denying that this basic study and the Georgia Environmental Radiation Surveillance Report 1997 - mid 1999 show increased levels of radioactivity in sediments and organisms downstream.

Absent a comprehensive attempt to measure and document the presence of radioactive elements downstream in sediments, water, and numerous organisms representing various tropic levels in the food chain, no one can state that there are no or negligible effects downstream from the continued operation of Plant Hatch.

Furthermore, failure to assess the impact of these materials on the biological function of the organisms in question further suggests that Southern Nuclear and the NRC are inviting an entire region to continue participating in a dangerous long-term experiment simply because perceived economics dictate higher profits for the operating company and continued economic opportunity for local workers.

Recreational and commercial fishermen are reporting increased numbers of fish and crabs with sores and malformations. They also report decreased numbers of many species and often little to no evidence of adequate reproduction. This antidotal information further begs the need to conduct real, non-biased scientific biological assessments of the species in question as well as the upstream factors that may be contributing to the current decline in many species.

While no one would suggest that Plant Hatch is the only upstream facility or activity that could be associated with these emerging problems, neither can Plant Hatch be excluded from casualty by the use of "generic" data or studies.

As the coastal region continues to grow and dramatically increase in population, the impacts of normal operations and certainly of routine or catastrophic accidents at Plant Hatch on the resident population will only increase. Thousands of jobs in fisheries and tourism are also at risk and that risk must be measured and taken into account when evaluating alternatives and cost of continued operations at Hatch.

The additional risks imposed on the region by the on-site storage of high level nuclear waste are unbelievable to the average citizen. Given our recent history of hurricane evacuation and storm events including random deadly tornados, it seems careless and reckless to increase the risks of operating a nuclear plant by increasing the vulnerability of highly radioactive spent fuel rods. While no one chooses to imagine or speculate on potential natural disasters, one must only look to film clippings from our neighbors in North Carolina to witness the unbelievable impact of flood

waters on man-made structures and development.

A site visit to Plant Hatch and its on-site nuclear fuel storage facility confirms its proximity to the Altamaha River. To suggest that a major hurricane and related tornadoes and flood events would have no impact on this site is to defy forces of nature over which well-meaning humans have absolutely no control.

We offer these comments to the NRC as citizens who know and care about the Atlamaha River and its surrounding regions. While our resources do not allow
for exhaustive review of documents or independent research to evaluate our concerns, we expect that the Nuclear Regulatory Commission and the Southern Nuclear Operating Company will consider our comments and dedicate resources to objectively address these concerns before allowing for the renewal of Plant Hatch's operating license or the continued development of additional on-site storage of nuclear waste.

We thank you for your consideration and ask that the record remain open for addition comments as our resources allow us to evaluate these proposals and determine their impacts on our members and region.

Sincerely,

Deborah Sheppard
Executive Director

UNION OF
CONCERNED
SCIENTISTS

May 3, 2000

Dr. William J. Travers
Executive Director for Operations
Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: HATCH NUCLEAR PLANT PETITION PURSUANT TO 10 CFR 2.206; REQUEST FOR GENERIC COMMUNICATION ON DEGRADATION OF LIQUID AND GASEOUS RADWASTE SYSTEMS; AND PETITION FOR RULEMAKING FOR AGING MANAGEMENT OF LIQUID AND GASEOUS RADWASTE SYSTEMS

Dear Dr. Travers:

During a review of the license renewal application submitted by the owner of the Hatch Nuclear Plant, the Union of Concerned Scientists identified a number of apparent deficiencies in the aging management programs described for the liquid and gaseous radwaste systems. We originally intended to file a motion to intervene in the license renewal proceeding. However, further evaluation of our concerns indicated that the apparent deficiencies involve non-conformance with the existing design and licensing bases for the facility. Because license renewal at Hatch exacerbates rather than introduces these non-conformances, we determined that the more appropriate vehicle for UCS to raise these concerns with the NRC staff is via the 10 CFR 2.206 process. In the attached petition, we have documented two contentions. We are petitioning the NRC staff to issue a Demand for Information to the Hatch owner for answers to questions related to these contentions.

As the apparent deficiencies may apply to other operating nuclear power plants, we are additionally requesting that the NRC staff issue a generic communication to all plant owners about the potential problems.

Finally, we are requesting that the NRC staff initiate a rulemaking change to remedy a shortcoming with the license renewal rule.

Sincerely,

David Lochbaum
Nuclear Safety Engineer

Attachment: 2.206 Petition, Request for Generic Communication, and Petition for Rulemaking

Washington Office: 1616 P Street NW Suite 310 • Washington DC 20036-1495 • 202-332-0900 • FAX: 202-332-0905
Cambridge Headquarters: Two Brattle Square • Cambridge MA 02238-9105 • 617-547-5552 • FAX: 617-864-9405

Contention No. 1: The Hatch Nuclear Plant is being operated outside its design and licensing bases because the material condition of piping, tanks and other components of the liquid radwaste system are not being properly inspected and maintained.

Federal regulations require the liquid radwaste system at the Hatch Nuclear Plant to be designed, installed, operated, and maintained in accordance with the following standards:

> The nuclear power unit design shall include means to control suitably the release of radioactive materials in gaseous and liquid effluents and to handle radioactive solid wastes produced during normal reactor operation, including anticipated operational occurrences. Sufficient holdup capacity shall be provided for retention of gaseous and liquid effluents containing radioactive materials, particularly where unfavorable site environmental conditions can be expected to impose unusual operational limitations upon the release of such effluents to the environment.[1]

> Structures, systems, and components important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents.[2]

The petitioner has three specific concerns that the liquid radwaste systems at Plant Hatch do not conform to these licensing requirements and the plant's design bases:

- susceptibility of liquid radwaste system piping to degradation,
- susceptibility of liquid radwaste system tanks and vessels to degradation, and
- degraded capability of valves that isolate liquid radwaste discharge.

These concerns are detailed in the following sections.

Susceptibility of Liquid Radwaste System Piping to Degradation

The piping of the liquid radwaste systems at Hatch are designed to the standards of American National Standards Institute (ANSI) B31.1.0 - 1967.[3]

In its application for license renewal, the owner of the Hatch Nuclear Plant described a Flow Accelerated Corrosion Program, Treated Water Systems Piping Inspections, and an evaluation program for buried or embedded piping. The submittal stated that these programs monitor piping for degradation:

> The Flow Accelerated Corrosion (FAC) Program is a condition monitoring program designed to monitor pipe wear in those systems that have been determined to be susceptible to FAC-related loss of material.[4]

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[1] 10 CFR 50 Appendix A, General Design Criteria for Nuclear Power Plants, Criterion 60, Control of releases of radioactive materials to the environment.

[2] 10 CFR 50 Appendix A, General Design Criteria for Nuclear Power Plants, Criterion 4, Environmental and dynamic effects design bases.

[3] Hatch Unit 1 Updated Final Safety Analysis Report, Table 9.2-1, "Design Code for Major Liquid Radwaste System Components."

[4] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Section A.2.2, "Flow Accelerated Corrosion Program."

The plant Treated Water Systems Piping Inspections will provide for condition monitoring via one time examinations intended to provide objective evidence that existing Chemistry Control is managing aging in piping that is not examined under another inspection program.

Treated Water Systems Piping Inspections will examine a sample population of carbon and stainless steel tubing and piping in the treated water systems. The results of the sample population examinations will be recorded and evaluated, and subsequent examinations will be conducted where evaluation results warrant. If significant degradation is noted, the sample set may be expanded.

Inspections will be conducted using techniques appropriate for piping examinations and trending. This may include, but not be limited to, volumetric or destructive examination. The specific sample population, examination methods and acceptance criteria will be defined in the inspection and trending procedures.[5]

The buried or embedded environment includes components buried beneath the surface of the ground (in come cases with controlled backfills) or embedded in structural concrete.

The materials of construction having a buried or embedded environment include carbon steel, stainless steel, cast iron, and copper.

Underground carbon steel piping is covered with a protective coating that is expected to greatly reduce the rate of corrosion occurring on the external surfaces of buried piping.[6]

Hatch's owner reported "many deficiencies" with the protective coatings applied to buried piping at the plant:

A review of the condition reporting database mentioned in section 3.0 showed that many deficiencies were written that related to component exteriors for buried piping segments. Failures of buried components due to corrosion in areas where gaps in the existing coating have occurred during the life of the plant. No failures have been identified where the coating had been properly installed. However, there is some concern over the continued viability of the coating over the extended life of the plant.[7]

Hatch's owner also reported that portions of the liquid radwaste system piping were found to be improperly installed:

While performing concrete expansion anchor surveillance evaluation, it was determined that the radwaste sump discharge piping between the drywell penetrations and the second isolation valves is not supported

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[5] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Section A.3.2, "Treated Water Systems Piping Inspections."

[6] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Section C.1.2.10, "Buried or Embedded."

[7] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Section C.2.4.3, "Aging Management Review for Commodity External Surfaces exposed to a Buried or Embedded Environment."

per seismic Class I requirements. ... After reviewing the piping supports as presently installed, it as been determined that this piping was not adequately installed for the postulated seismic event.[8]

Hatch's owner specifically excluded the liquid radwaste system from the scope of its aging management programs for piping.[9]

The stainless steel piping of the condensate storage and transfer system which is exposed to demineralized water is within the scope of the aforementioned aging management programs for its pressure boundary function. The aging effects include loss of material and cracking.[10]

Hatch's owner has reported significant degradation of piping in the plant service water (PSW) and residual heat removal service water (RHRSW) systems:

HT-96676 Rev. 0: "This change allows the replacement of carbon steel small bore piping with stainless steel in the PSW and RHRSW systems to reduce the rate of microbiologically influenced corrosion."[11]

The liquid radwaste system piping at the Hatch Nuclear Plant is designed to an equal or lower quality standard than the piping of the condensate storage and transfer, plant service water, and residual heat removal service water systems. The liquid radwaste system piping is exposed to water of equal or lower chemistry quality than the water of these systems. The liquid radwaste system piping is therefore at least as vulnerable to degradation mechanisms such as flow-accelerated corrosion and microbiologically influenced corrosion as the piping of these systems. But the liquid radwaste system piping is not covered by the Flow Accelerated Corrosion program, the Treated Service Water Inspection program, or the buried or embedded environment program. Nor is the liquid radwaste system piping covered by the plant's Inservice Inspection program. Consequently, it is reasonable to expect that the liquid radwaste system piping is degraded to an unknown extent.

The consequences from a liquid radwaste system pipe failure can be significant because the system processes water that can contain harmful amounts of radioactivity. A liquid radwaste system pipe break inside one of the plant's buildings could result in significant radiation exposure to plant workers. The break of the piping from the sample tanks to the discharge line could result in radioactive water escaping into the ground without the prescribed dilution afforded by the Altamaha River. The resulting concentration of radioactivity could cause excessive radiation exposure to members of the public.

General Design Criterion 4 to Appendix A of 10 CFR Part 50 requires the liquid radwaste system to be designed

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[8] M. Manry, Georgia Power Company, Telegram to James P. O'Reilly, Nuclear Regulatory Commission, "Hatch Unit 1, Docket No. 50-321, Notification of Reportable Occurrence No. 50-321/1979-43," June 29, 1979.

[9] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Table 2.2-1, Plant Hatch System/Structure Function Scoping Results.

[10] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Table 3.2.4-5, "Aging Effects Requiring Management for Components Supporting Condensate Transfer and Storage System Intended Functions and Their Component Functions."

[11] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Annual Operating Report for 1999," February 22, 2000.

for environmental conditions encountered during normal operation. The liquid radwaste system piping is vulnerable to the degradation mechanisms that have already affected higher quality piping at Plant Hatch. Yet the liquid radwaste system piping is not covered within the plant's aging management programs. Therefore, it appears the plant is not in compliance with this licensing requirement.

Requested Demand for Information: The petitioner requests the NRC to ask the owner of the Hatch Nuclear Plant the following questions via a Demand for Information:

1. What assurance exists that the external surfaces of buried and embedded piping of the liquid radwaste system are not degraded?

2. What assurance exists that the internal surfaces of liquid radwaste system piping are not degraded by pitting, corrosion, and other degradation mechanisms?

3. Could a break in the liquid radwaste system piping from the sample tanks to the discharge line be detected? If so, how small a break could be detected (i.e., how much radioactive liquid could be diverted into the ground without being detected)?

4. To what extent does the preventative maintenance program at Plant Hatch cover the liquid radwaste system piping?

5. To what extent is the liquid radwaste system piping covered by programs which monitor degradation (e.g., erosion/corrosion, flow accelerated corrosion, microbiologically influenced corrosion, protective coatings for embedded/buried piping, etc.)?

Susceptibility of Liquid Radwaste System Tanks and Vessels to Degradation

The liquid radwaste systems at the Hatch Nuclear Plant consist of numerous tanks and vessels:

> The waste collector tank and the waste surge tank are constructed of carbon steel and were designed to the requirements of ASME Code, Section III, Class 3.
>
> The floor drain collector tank and the sample tank are constructed of carbon steel and were designed to meet the requirements of ASME Code, Section III, Class 3.
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> In keeping with the design objectives, the chemical waste tank is constructed of stainless steel and was designed to meet the requirements of AMSE Code, Section III, Class 3.
>
> The spent resin tank is constructed of carbon steel and was designed to meet the requirements of ASME Code, Section III, Class 3.
>
> The chemical waste and floor drain neutralizer tank is constructed of stainless steel and was designed to meet the requirements of ASME Code, Section III, Class 3.[12]
>
> The filter vessels are constructed of carbon steel and were designed to meet the requirements of ASME Code, Section III, Class 3.

[12] Hatch Unit 2 Updated Final Safety Analysis Report, Section 11.2.2.2.2, "Tanks."

A corrosion-resistant lining is provided to prevent erosion of the carbon steel vessels.[13]

The demineralizer vessels are constructed of carbon steel, were designed to meet the requirements of ASME Code, Section III, Class 3, and are equipped with a rubber lining. ... Fine mesh strainers are provided in the demineralizer vessel discharge and in the piping downstream to prevent resin fines from being transferred to other portions of the system.[14]

UCS reviewed the UFSARs for Hatch Units 1 and 2, the Inservice Inspection Program report for Hatch, and the application for license renewal submitted by Hatch's owner. These reviews did not identify any periodic inspections of the tanks and vessels of the liquid radwaste systems. Hatch's owner committed to examine the condensate storage tanks (aluminum for Unit 1 and stainless steel for Unit 2) prior to entering the license renewal term:

The plant Condensate Storage Tank (CST) Inspections will provide for condition monitoring via one time inspections intended to provide objective evidence that the aging effects predicted for the CST internal environments are adequately managed by programs credited for the renewal term.

Internal surfaces of each CST will be examined to verify that age-related degradation is not occurring. The examination will focus on the standpipes and the connections between aluminum standpipes and galvanized steel flanges, since these locations would be the most susceptible to corrosion.

There will be a one-time inspection of each CST.[15]

Hatch's owner reported that these tanks of the condensate storage and transfer system would be inspected because they are susceptible to aging degradation:

Stainless steel and galvanized steel tanks of the condensate storage and transfer system are exposed to demineralized water have a pressure boundary function. The aging effects include loss of material.[16]

In the license renewal application, Hatch's owner described a program for protecting tanks and vessels from their potentially corrosive contents:

The Protective Coatings Program provides a means of preventing or minimizing aging effects that would otherwise result from contact of the base metal with the associated environment. It is a mitigation and condition monitoring program designed to provide base metal aging management through application,

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[13] Hatch Unit 2 Updated Final Safety Analysis Report, Section 11.2.2.2.3, "Filters."

[14] Hatch Unit 2 Updated Final Safety Analysis Report, Section 11.2.2.2.4, "Demineralizers."

[15] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Section A.3.4, "Condensate Storage Tank Inspection."

[16] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Table 3.2.4-5, "Aging Effects Requiring Management for Components Supporting Condensate Transfer and Storage System Intended Functions and Their Component Functions."

maintenance and inspection of protective coatings on selected components and structures.[17]

Protective coatings surveillance is normally performed once per operating cycle for Service Level I components. Other component surveillance is performed as determined by the protective coatings specialist, based upon trends and plant specific operating experience.[18]

The Protective Coatings Program will be expanded to include the external surfaces of carbon steel commodities in-scope for License Renewal that are exposed to inside, outside, submerged, and buried environments as made accessible.

Affected systems will include, but may not be limited to, the nuclear boiler, standby liquid control, residual heat removal, residual heat removal service water, core spray, high pressure coolant injection and reactor core isolation cooling. Certain portions of the post-accident radioactive decay holdup, plant service water, instrument air, drywell chilled water, drywell pneumatics, standby gas treatment, nitrogen inerting, fire protection, diesel fuel oil, piping supports, raceway supports, and building structural steel will also be included. The affected components in these systems will be piping, valves, pumps, bolts, tanks, and structural steel components.

The Protective Coatings Program will be revised to require periodic inspections of in-scope components to ensure that they are properly coated and free of significant age-related degradation. Coated surfaces of certain components, including those normally inaccessible but made accessible due to maintenance or other activities, will also be inspected when they become accessible.[19]

According to the license renewal application, the Protective Coatings Program does not apply to the tanks and vessels of the liquid radwaste system. Yet they are at least as vulnerable to the deleterious effects as tanks that are within the scope of this aging management program.

Hatch's owner reported reviewing NRC generic communications regarding aging,[20] but not those involving degradation of liquid radwaste tanks and components. UCS reviewed the NRC generic communications and identified the following two examples of the NRC alerting plant owners to degradation of liquid radwaste tanks and components:

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[17] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Section A.2.3, "Protective Coatings Program."

[18] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Section A.2.3.2, "Sample Size and Frequency [of Protection Coatings Program]."

[19] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Section A.2.3.5, "Enhancements [for the Protective Coatings Program]."

[20] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Table C.1.5-1, "Generic Communications Reviewed as Part of the Systematic Evaluation to Determine Aging Effects Requiring Management."

> In November 1977, a radwaste tank ruptured at the Millstone Nuclear Power Station. ... Corrosion had weakened the capability of the radwaste tank to withstand pressure. .. This tank had a history of corrosion problems such that the corrosion probably caused some weakness which contributed to the rupture. The tank was constructed of type 304 stainless steel. ... Since radwaste tanks of this type are used at most power reactors, the potential may exist for similar events at other power reactors. Also, such events can be avoided by proper procedures and periodic examination if personnel are aware of the problem. ... Prevention of such events will minimize the possibility of personnel injury, in-plant contamination, releases of radioactivity, and occupational radiation exposure resulting from the repair and clean-up operations.[21]
>
> During a routine NRC inspection at Millstone, inspectors found that the Unit 1 radwaste facility equipment was significantly degraded, especially vessels and piping in the facility. In general, a lack of continuing and preventative maintenance appeared to have allowed several systems and components to significantly degrade, in some instances creating unnecessary adverse radiological conditions. Piping located in the mezzanine areas above the "C" and "D" floor drain collector tanks were notably rusted, with a dusting of flaked-off paint and rust deposited across all horizontal surfaces in this area. ... A video taken in November 1994 during the last manned entry into the filter sludge tank room indicated that a crack in the filter sludge tank led to the dispersal of highly radioactive spent filter sludge throughout the tank room. Discussions with licensee staff members indicated that a similar condition exists in the spent resin tank room, which in this case is caused by the overfill of the spent resin tank.[22]

It is evident from this NRC generic correspondence that degradation of liquid radwaste tanks has actually occurred at a US nuclear power plant. It is not evident from the Hatch license renewal application or the Hatch UFSARs that degradation of liquid radwaste system tanks and vessels is monitored. Yet the postulated failure of the liquid radwaste tanks is explicitly within the design and licensing bases for the Hatch Nuclear Plant:

> Although not analyzed for the requirements of Seismic Category I equipment, the liquid radwaste tanks are constructed in accordance with sound engineering principles and current ASME codes. Therefore, simultaneous failure of all tanks is not considered credible, though conservatively analyzed herein. ... The only event which might cause failure of all radwaste tanks is an earthquake sufficient in magnitude to exceed the design capabilities.[23]
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> An event which causes the simultaneous rupture of the liquid radwaste tanks is highly improbable. .. The only event which might cause failure of all the radwaste tanks is an earthquake sufficient in magnitude to exceed the design capabilities.[24]

Hatch's owner reported that the only event causing failure of multiple radwaste tanks is an earthquake. Perhaps, but the undetected corrosion of the tanks can weaken them, thus lowering the magnitude of the earthquake needed

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[21] Nuclear Regulatory Commission, Information Notice 79-07, "Rupture of Radwaste Tanks," March 23, 1979.

[22] Nuclear Regulatory Commission, Information Notice 96-14, "Degradation of Radwaste Facility Equipment at Millstone Nuclear Power Station, Unit 1," March 1, 1996.

[23] Hatch Unit 2 Updated Final Safety Analysis Report, Section 11.2.4.2.1, "Identification of Causes and Accident Description."

[24] Hatch Unit 2 Updated Final Safety Analysis Report, 15.1.34.3, "Accident Description [for Liquid Radwaste Tank Rupture]."

to cause failures. Undetected degradation of liquid radwaste system tanks and vessels can therefore increase the probability of occurrence of this design bases event.

In addition, the consequences from this design bases event may be increased:

> The concrete radwaste building retains and returns any spills or leaks from the liquid radwaste system to the system for additional processing. The radwaste building has the capacity to handle a major leak in the largest tank without permitting significant quantities of the liquid to escape offsite.[25]

If undetected degradation causes multiple liquid radwaste system tanks and vessels to develop leaks, the combined leakage may exceed that from a major leak in the largest tank. Consequently, significant quantities of the liquid (which can be assumed to contain radioactivity) may escape offsite. The Hatch Nuclear Plant has already experienced the accidental release of significant quantities of radioactive liquid:

> Technical analyses determined that approximately 141,500 gallons of water leaked from the spent fuel pool during the period in which the transfer canal seal was deflated. Approximately 17,000 gallons were recovered in the Unit I and II sumps, leaving some 124,5000 unaccounted for. ... Some of the water eventually entered at least one site storm drain which drained to a swampy area to the northeast of the plant site behind the cooling towers. ... Measurements in the swamp indicate that only 13% of the released activity entered the swamp, and approximately 7% of the activity reached the creekbed.[26]

The potential consequences from leakage of multiple liquid radwaste system tanks and vessels may be significant. The capacity of the system's tanks range from 1,200 to 65,000 gallons. The radioactivity content of the system's tanks can range from 110 to 27 million microcuries.[27]

Requested Demand for Information: The petitioner requests the NRC to ask the owner of the Hatch Nuclear Plant the following questions via a Demand for Information:

1. What assurance exists that the tanks and vessels of the liquid radwaste system are not degraded?

2. To what extent are the tanks and vessels of the liquid radwaste system covered in the preventative maintenance program at Plant Hatch?

3. To what extent are the tanks and vessels of the liquid radwaste system covered by programs, which monitor degradation?

Degraded Capability of Valves That Isolate Liquid Radwaste Discharge

While much of the water processed by the liquid radwaste system is recycled for use by the plant, Hatch routinely releases radioactive water to the environment:

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[25] Hatch Unit 2 Updated Final Safety Analysis Report, Section 11.2.4.2.2, "Analysis of Effects and Consequences."

[26] James C. Hardeman, Environmental Radiation Coordinator, Georgia Department of Natural Resources, "Loss of Spent Fuel Pool Water at the Edwin I. Hatch Nuclear Plant," December 19, 1986.

[27] Hatch Unit 2 Updated Final Safety Analysis Report, Table 11.2-2, "Capacity and Maximum Activity Contained in Liquid Radwaste Tanks."

The liquid radwaste system is designed to process and recycle the liquid waste collected in the waste holdup tank to the extent practicable. Liquid waste collected in chemical or floor drain tanks is normally discharged to the environment after treatment and dilution. During normal plant operations, the annual radiation doses to individuals from each reactor on the site, resulting from these routine liquid waste discharges, are within the 10 CFR 5, Appendix I, design objectives.[28]

Process and discharge streams shall be appropriately monitored and such features shall be incorporated, as necessary, to maintain releases below the permissible limits specified in the Technical Specifications.[29]

The liquid and gaseous effluents from the treatment systems are continuously monitored, and the discharges are terminated if the effluents exceed preset radioactivity levels.[30]

Prior to the release of any tank containing liquid radwaste, following the required recirculations, samples are collected and analyzed in accordance with the Edwin I. Hatch Nuclear Plant Offsite Dose Calculation Manual (ODCM) Table 2-3. A sample from each tank planned for release is analyzed for principal gamma emitters, I-131, and dissolved and entrained noble gases, by gamma spectroscopy. Monthly and quarterly composites are prepared for analysis by extracting aliquots from each sample tank from the tanks released.

The radionuclide concentrations determined by gamma spectroscopic analysis of samples taken from tanks planned for release, in addition to the most current sample analysis results available for tritium, gross alpha, Sr-89, Sr-90 and Fe-55, are used along with the corresponding ECL [effluent concentration limit] valves to determine the ECL fraction for these tanks. This ECL fraction is then used, with the appropriate safety factors, tolerance factors, and the expected dilution stream flow to calculate maximum permissible release rate and a liquid effluent monitor setpoint. The monitor setpoint is calculated to assure that the limits of the ODCM are not exceeded.

A monitor reading in excess of the calculated setpoint will result in an automatic termination of the liquid radwaste discharge. Liquid effluent discharge is also automatically terminated if the dilution stream flow rate falls below the minimum assured dilution flow rate used in the setpoint calculations and established as a setpoint on the dilution stream flow monitor.[31]

Liquid effluents are continuously monitored and discharges are terminated if the effluents exceed preset radioactivity levels.[32]

Liquid effluents are discharged through a 3-in. diameter line which feeds into a 42-in. diameter pipe

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[28] Hatch Unit 1 Updated Final Safety Analysis Report, Section 9.1, "Summary Description [for the Radioactive Waste Systems]."

[29] Hatch Unit 1 Updated Final Safety Analysis Report, Section 1.5.5 Radioactive Waste Disposal Criteria

[30] Hatch Unit 1 Updated Final Safety Analysis Report, Section 9.1, "Summary Description [for the Radioactive Waste Systems]."

[31] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Annual Radioactive Effluent Release Report," December 31, 1998, Section 1.3, "Measurements and Approximations of Total Radioactivity."

[32] Hatch Unit 2 Updated Final Safety Analysis Report, Section 11.2, "Liquid Radwaste System."

which has an average flowrate of 26.8 ft^3/s.[33]

> Offsite discharge is under operator control. Two console-operated parallel flow-control valves control flow at fast and slow rates. Console-operated, fail-closed shutoff valves are provided in the sample tank effluent line and in the discharge line to the conduit to the river. Activity in the discharge line from the sample tank above a preset level will initiate automatic isolation of the discharge line. Discharge to the conduit is prevented if there is not sufficient dilution water flow available from the cooling tower.[34]

The Updated Final Safety Analysis Report (UFSAR) for the Hatch Nuclear Plant assumed that these console-operated, fail-closed shutoff valves terminate the improper release of radioactive liquid to the Altamaha River. However, the UFSAR did not specify any stroke-time testing or leak-rate testing that verifies the isolation function will be performed. In fact, the UFSAR stated:

> The liquid radwaste system is normally operated on an as-required basis during operation of the nuclear plant, thereby demonstrating operability without any special inspections or testing. Data from equipment operation logs, records, and from laboratory testing of samples taken from the radwaste sampling tanks reflects day-to-day performance of the various radwaste subsystems. Abnormal conditions such as high-volume throughputs, short-filter or demineralizer runs, and high-effluent conductivity or activity, dictate special performance testing or analysis that my be required.[35]

The Inservice Inspection (ISI) program at Hatch frequently finds and corrects valve problems such as the following examples from a recently submitted ISI report:[36]

> Internals of valve are worn beyond repair. Replace valve with new like kind valve MPL 1P41-F208D
>
> Replace drain valves 1B31-F051A, F052A, they are leaking by the seat. Code case N-416-1 is used. MPL 1B31-F052A
>
> Small crack in weld to pipe connection found for valve 1D11-F129. Weld will be removed and replaced by a 2 to 1 fillet weld that is resistant to the fatigue.

The license renewal application submitted by Hatch's owner acknowledged the reality of component aging:

> The detrimental effects of aging are assumed to be continuous and incremental. Thus, the detrimental effects of aging may increase as service life is extended, assuming no replacement of components.[37]

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[33] Hatch Unit 2 Updated Final Safety Analysis Report, Section 11.2.4.1.2, "Release Points."

[34] Hatch Unit 2 Updated Final Safety Analysis Report, Section 11.2.3.4, "Control of Discharge to the Environment."

[35] Hatch Unit 2 Updated Final Safety Analysis Report, Section 11.2.5, "Tests and Inspections."

[36] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant - Unit 1 Third 10-Year Interval Inservice Inspection Program Owner's Activity Report," January 21, 2000, Table 3, "Unit 1, 1R16 Outage Abstract of Repairs, Replacements, or Corrective Measures Required for Continued Service."

[37] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Section 2.1.3.4, Components Subject to Periodic Replacement at a Set Frequency or Qualified Life.

Yet even though valves purchased to higher quality standards in safety-related systems at Plant Hatch have repeatedly demonstrated detrimental effects of aging, Hatch's owner specifically excluded the liquid radwaste system's valves from the scope of its aging management program[38] and from its ISI program.[39]

The valves that must close to terminate the improper flow of radioactive liquid to the Altamaha River are not within the scope of the ISI program at Hatch and are not within the scope of any aging management program described in the Hatch license renewal application. Therefore, it is uncertain how there can be reasonable assurance that these valves will close when required to protect public health and the environment from improper releases of radioactive liquid as required by the facility's current design and licensing bases. Of course, that uncertainty carries over into the license renewal term.

Requested Demand for Information: The petitioner requests the NRC to ask the owner of the Hatch Nuclear Plant the following questions via a Demand for Information:

1. What assurance exists that the liquid radwaste system valves and associated control circuits will close to terminate the release of radioactive water?

2. What is the scope, frequency, and acceptance criteria for all testing, including preventative maintenance tasks, of the valves and control circuits that must automatically close to terminate releases from the Hatch Unit 1 and Unit 2 liquid radwaste systems to the river?

3. What has been the maintenance history for the valves and control circuits that must automatically close to terminate releases from the Hatch Unit 1 and Unit 2 liquid radwaste systems to the river?

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[38] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Table 2.2-1, Plant Hatch System/Structure Function Scoping Results.

[39] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant - Unit 1 Third 10-Year Interval Inservice Inspection Program Owner's Activity Report," January 21, 2000, Table 3, "Unit 1, 1R16 Outage Abstract of Repairs, Replacements, or Corrective Measures Required for Continued Service."

Contention No. 2: The Hatch Nuclear Plant is being operated outside its design and licensing bases because the material condition of piping and components of the gaseous radwaste system are not being properly inspected and maintained.

Federal regulations require the gaseous radwaste system at the Hatch Nuclear Plant to be designed, installed, operated, and maintained in accordance with the following standards:

> The nuclear power unit design shall include means to control suitably the release of radioactive materials in gaseous and liquid effluents and to handle radioactive solid wastes produced during normal reactor operation, including anticipated operational occurrences. Sufficient holdup capacity shall be provided for retention of gaseous and liquid effluents containing radioactive materials, particularly where unfavorable site environmental conditions can be expected to impose unusual operational limitations upon the release of such effluents to the environment.[40]

> Structures, systems, and components important to safety shall be designed to accommodate the effects of and to be compatible with the environmental conditions associated with normal operation, maintenance, testing, and postulated accidents, including loss-of-coolant accidents.[41]

The gaseous radwaste systems at Plant Hatch consists of steam jet air ejectors which extract steam and non-condensibles from the main condensers and offgas systems:

> The [steam jet] air ejector off-gas radioactive waste is treated by an ambient charcoal bed adsorption system before discharge to the environment. The annual dose at or beyond the site boundary due to gaseous effluents from each unit during normal operation does not exceed the 10 CFR 50 Appendix I design objectives.[42]

> Waste gas release at Plant Hatch is confined to four paths: main stack (also called the offgas vent), Unit 1 reactor building vent, Unit 2 reactor building vent, and the recombiner building vent. Each is equipped with an integrating-type sample collection device for collecting particulates and iodines.[43]

The petitioner has two specific concerns that the gaseous radwaste system does not conform to these licensing requirements and to the plant's design bases:

- susceptibility of gaseous radwaste system piping to degradation, and
- degraded capability of gaseous radwaste system to preclude hydrogen burns and detonations.

These concerns are detailed in the following sections.

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[40] 10 CFR 50 Appendix A, General Design Criteria for Nuclear Power Plants, Criterion 60, Control of releases of radioactive materials to the environment.

[41] 10 CFR 50 Appendix A, General Design Criteria for Nuclear Power Plants, Criterion 4, Environmental and dynamic effects design bases.

[42] Hatch Unit 1 Updated Final Safety Analysis Report, Section 9.1, "Summary Description [for the Radioactive Waste Systems]."

[43] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Annual Radioactive Effluent Release Report," December 31, 1998, Section 2.2, "Release Points of Gaseous Effluents."

Susceptibility of Gaseous Radwaste System Piping to Degradation

The offgas systems at Plant Hatch are not subjected to specific testing:

> The gaseous waste disposal systems are used on a routine basis and do not require specific testing to assure operability.[44]

Because the offgas systems are not within the scope of the Hatch license renewal program,[45] it is not within the scope of aging management programs such as the following:

> The buried or embedded environment includes components buried beneath the surface of the ground (in come cases with controlled backfills) or embedded in structural concrete.
>
> The materials of construction having a buried or embedded environment include carbon steel, stainless steel, cast iron, and copper.
>
> Underground carbon steel piping is covered with a protective coating that is expected to greatly reduce the rate of corrosion occurring on the external surfaces of buried piping.[46]

Some of the offgas system piping at Plant Hatch is buried underground while other system piping is coated and embedded in concrete:

> Equipment Item: 146-min holdup line
> Malfunction: Corrosion of line
> Consequences: Leakage to soil of gaseous and liquid fission products
> Design Precautions: Outside of pipe dipped and wrapped[47]
>
> Carbon steel pipe embedded in concrete to be sand blasted and coated with one coat of red oxide primer 2-4 mils.[48]

Hatch's owner reported finding "many deficiencies" in the protective coatings applied to piping:

> A review of the condition reporting database mentioned in section 3.0 showed that many deficiencies

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[44] Hatch Unit 2 Updated Final Safety Analysis Report, Section 11.3.5, "Tests and Inspections."

[45] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Table 2.2-1, Plant Hatch System/Structure Function Scoping Results.

[46] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Section C.1.2.10, "Buried or Embedded."

[47] Hatch Unit 2 Updated Final Safety Analysis Report, Table 11.3-5, "Off-Gas System Equipment Malfunction Analysis."

[48] Southern Nuclear Operating Company, Inc., Note 21 to Drawing HL-26045 Rev. A., "Edwin I. Hatch Nuclear Plant Unit No. 2 Off Gas System P&ID," December 31, 1999.

were written that related to component exteriors for buried piping segments. Failures of buried components due to corrosion in areas where gaps in the existing coating have occurred during the life of the plant. No failures have been identified where the coating had been properly installed. However, there is some concern over the continued viability of the coating over the extended life of the plant.[49]

Unless the protective coatings applied to the buried and embedded piping of the offgas system are inspected, any installation deficiencies or subsequent viability challenges could result in aging degradation. Hatch's owner commented on aging degradation:

> The detrimental effects of aging are assumed to be continuous and incremental. Thus, the detrimental effects of aging may increase as service life is extended, assuming no replacement of components.[50]

The undetected degradation of offgas system piping can weaken the piping, undermine piping integrity, and increase the probability of an analyzed design bases event:

> The failure of the off-gas system is analyzed as event 15.1.35 in chapter 15. The related failure of the SJAE lines and the turbine gland-seal off-gas lines are analyzed as events 15.1.36 and 15.1.37, respectively in chapter 15.[51]
>
> This section provides the radiological analysis results for failure of the off-gas system.[52]

The undetected degradation of offgas system piping can also increase the consequences from an analyzed design bases event:

> The calculated exposure rate (at both the visitor center and U.S. Highway No. 1) is approximately 0.16 μR/h. For both iodine and noble gas releases, the calculated thyroid exposure is less than 10^{-3} μR/h for either location. Exposures due to off-gas to individuals in the vicinity of the power block are considered negligible.[53]

A break of the underground offgas piping running to the main stack (i.e., elevated release point) could cause the radiation exposures to individuals in the power block to increase above negligible.

Requested Demand for Information: The petitioner requests the NRC to ask the owner of the Hatch Nuclear Plant the following questions via a Demand for Information:

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[49] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Section C.2.4.3, "Aging Management Review for Commodity External Surfaces exposed to a Buried or Embedded Environment."

[50] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Section 2.1.3.4, Components Subject to Periodic Replacement at a Set Frequency or Qualified Life.

[51] Hatch Unit 2 Updated Final Safety Analysis Report, Section 11.3.4.2, "Accident Analysis."

[52] Hatch Unit 2 Updated Final Safety Analysis Report, Section 15.1.35, "Off-gas (RECHAR) System Failure (Radiological Consequences)."

[53] Hatch Unit 2 Updated Final Safety Analysis Report, Section 12.4.3.2, "Off-gas."

1. What assurance exists that the external surfaces of buried and embedded piping of the gaseous radwaste system are not degraded?

2. Could a break in the offgas system piping running to the main stack be detected? If so, how small a break could be detected (i.e., how much radioactive gas could escape without being detected)?

3. To what extent does the preventative maintenance program at Plant Hatch cover the offgas system piping?

4. To what extent do programs that monitor degradation cover the offgas system piping?

Degraded Capability of Gaseous Radwaste System to Preclude Hydrogen Burns and Detonations

Steam jet air ejectors pull steam and non-condensibles from the main condensers at Plant Hatch. The gases drawn from the main condensers include hydrogen and oxygen. The offgas systems feature catalytic recombiners that function to turn the hydrogen and oxygen gases back into water.

There have been more than 25 hydrogen burns and detonations within offgas systems at boiling water reactors like Plant Hatch. The most recent event occurred at the Cooper Nuclear Plant in September 1999. The root cause of this most recent hydrogen detonation is not known, but it has been attributed to a valve throttled due to a procedure error.[54]

The Inservice Inspection (ISI) program at Hatch frequently finds and corrects valve problems such as the following examples from a recently submitted ISI report:[55]

> Internals of valve are worn beyond repair. Replace valve with new like kind valve MPL 1P41-F208D
>
> Replace drain valves 1B31-F051A, F052A, they are leaking by the seat. Code case N-416-1 is used. MPL 1B31-F052A
>
> Small crack in weld to pipe connection found for valve 1D11-F129. Weld will be removed and replaced by a 2 to 1 fillet weld that is resistant to the fatigue.

The application for license renewal submitted by Hatch's owner acknowledged the reality of component aging:

> The detrimental effects of aging are assumed to be continuous and incremental. Thus, the detrimental effects of aging may increase as service life is extended, assuming no replacement of components.[56]

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[54] Nuclear Regulatory Commission, Bulletin No. 78-03, "Potential Explosive Gas Mixture Accumulations Associated With BWR Offgas Systems Operations," February 8, 1978.

H. W. Bertini, Nuclear Safety Information Center, Oak Ridge National Laboratory, "Descriptions of Selected Accidents That Have Occurred at Nuclear Reactor Facilities," ORNL/NSIC-176, April 1980.

Nuclear Regulatory Commission, Daily Event Report Nos. 36192 and 36195, September 17, 1999.

[55] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant - Unit 1 Third 10-Year Interval Inservice Inspection Program Owner's Activity Report," January 21, 2000, Table 3, "Unit 1, 1R16 Outage Abstract of Repairs, Replacements, or Corrective Measures Required for Continued Service."

[56] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear

Yet even though valves purchased to higher quality standards in safety-related systems at Plant Hatch have repeatedly demonstrated detrimental effects of aging, Hatch's owner specifically excluded the gaseous radwaste system's valves from the scope of its aging management program[57] and from its ISI program.[58]

The valves that must be positioned properly to preclude untoward accumulations of hydrogen and subsequent detonations are not within the scope of the ISI program at Hatch and are not within the scope of any aging management program described in the Hatch license renewal application. Therefore, it is uncertain how there can be reasonable assurance that these valves will function as required to protect public health and the environment from hydrogen burns and detonations as required by the facility's current design and licensing bases. Of course, that uncertainty carries over into the license renewal term.

Requested Demand for Information: The petitioner requests the NRC to ask the owner of the Hatch Nuclear Plant the following questions via a Demand for Information:

1. What assurance exists that the gaseous radwaste system valves will function as required to preclude hydrogen burns and detonations?

2. What is the scope, frequency, and acceptance criteria for all testing, including preventative maintenance tasks, of the gaseous radwaste system valves will function as required to preclude hydrogen burns and detonations?

3. What has been the maintenance history for the gaseous radwaste system valves will function as required to preclude hydrogen burns and detonations?

Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Section 2.1.3.4, Components Subject to Periodic Replacement at a Set Frequency or Qualified Life.

[57] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company, Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant Application for Renewed Operating Licenses," February 29, 2000, Table 2.2-1, Plant Hatch System/Structure Function Scoping Results.

[58] H. L. Sumner Jr., Vice President - Hatch Project Support, Southern Nuclear Operating Company Inc., to Nuclear Regulatory Commission, "Edwin I. Hatch Nuclear Plant - Unit 1 Third 10-Year Interval Inservice Inspection Program Owner's Activity Report," January 21, 2000, Table 3, "Unit 1, 1R16 Outage Abstract of Repairs, Replacements, or Corrective Measures Required for Continued Service."

Request for Generic Communications: UCS requests that the NRC issue a generic communication to all operating plant owners alerting them to potential aging degradation of piping and components of the liquid and gaseous radwaste systems.

The petitioner detailed specific concerns about potential aging degradation of the liquid and gaseous radwaste systems at the Hatch Nuclear Plant that may result in an increased probability and/or consequences from design and licensing bases events. This potential aging degradation may also apply to liquid and gaseous radwaste systems at other operating nuclear power plants in the United States.

The petitioner requests that the NRC issue a generic communication to all operating plant owners, with the possible exception of the Hatch owner, alerting them to the potential aging degradation. This generic communication should advise the plant owners to review their preventative maintenance and aging management programs for the liquid and gaseous radwaste systems.

The NRC has already issued at least two Information Notices to plant owners about degradation of liquid radwaste system components. A 1979-era Information Notice[59] regarding liquid radwaste system degradation problems at the Millstone plant was apparently not even heeded by Millstone's owner based upon a second Information Notice[60] issued nearly twenty (20) years later and also involving liquid radwaste system degradation problems at the Millstone plant. Because it also appears that Hatch's owner did not heed both of these information notices, the NRC should consider issuing a more meaningful generic communication this time around.

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[59] Nuclear Regulatory Commission, Information Notice 79-07, "Rupture of Radwaste Tanks," March 23, 1979.

[60] Nuclear Regulatory Commission, Information Notice 96-14, "Degradation of Radwaste Facility Equipment at Millstone Nuclear Power Station, Unit 1," March 1, 1996.

Proposed Rulemaking: Revise 10 CFR Parts 51 and 54 to include aging management for liquid and gaseous radioactive waste systems.

The petitioner detailed specific concerns about potential aging degradation of the liquid and gaseous radwaste systems at the Hatch Nuclear Plant that may result in an increased probability and/or consequences from design and licensing bases events. This potential aging degradation may also apply to liquid and gaseous radwaste systems at other operating nuclear power plants in the United States. The petitioner requests that the NRC initiate rulemaking actions necessary to revise 10 CFR Parts 51 and 54 to incorporate aging management for liquid and gaseous radioactive waste systems.

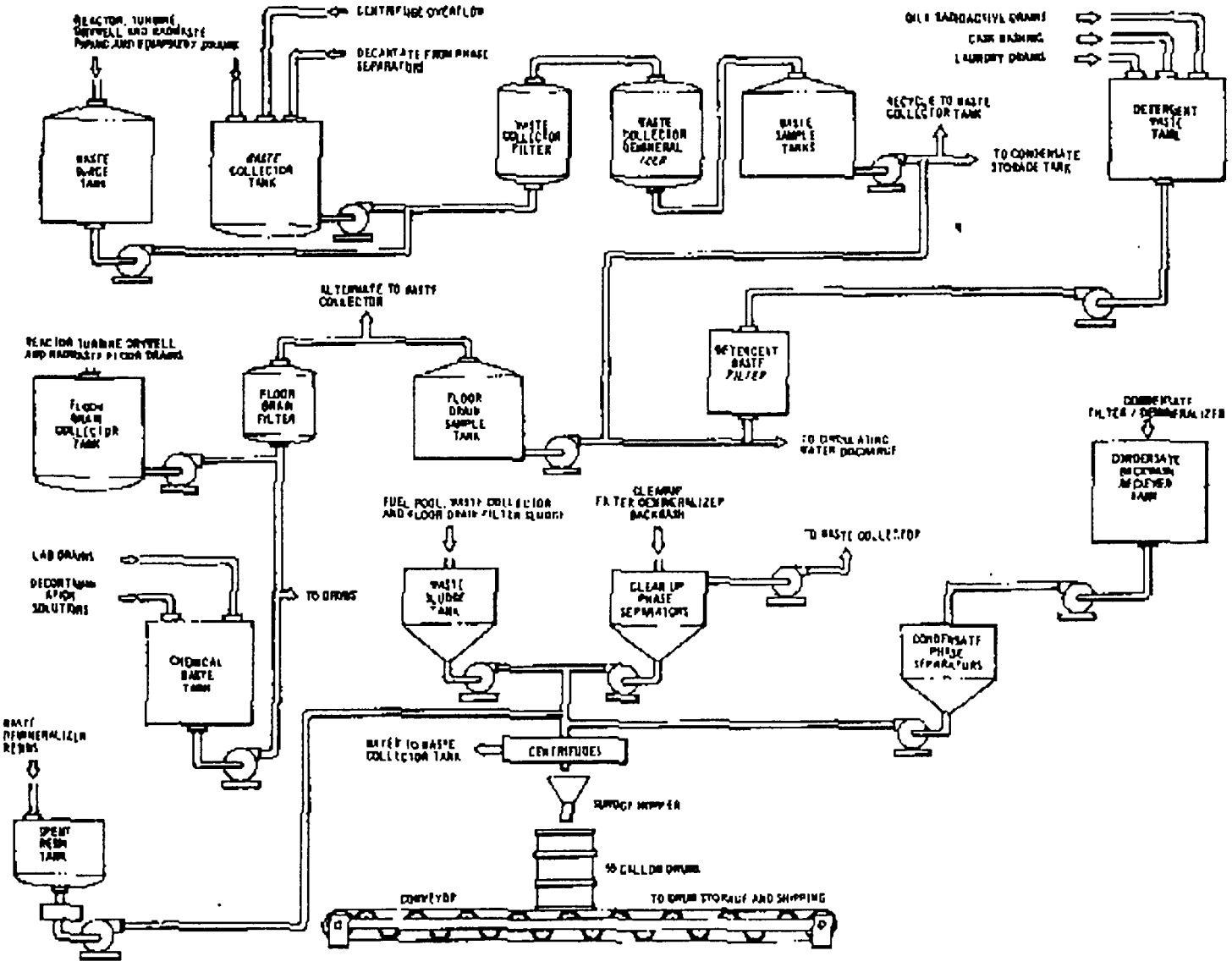
In 10 CFR 51 Appendix B to Subpart A, "Environment Effect of Renewing the Operating License of a Nuclear Power Plant," the NRC concluded that radiation exposures to the public and occupational exposures to workers during the license renewal term will continue at current levels below regulatory limits. This conclusion is predicated on the assumption that the components of the liquid and gaseous radwaste systems do not experience greater failure rates during the license renewal term. The aging degradation concerns described in Contentions Nos. 1 and 2 above can invalidate that assumption by increasing component failure rates. Hence, the conclusion of the NRC staff can only be valid when the liquid and gaseous radwaste systems are covered by aging management programs during the license renewal term.

10 CFR 54.4, "Scope," states:

> (a) Plant systems, structures, and components within the scope of this part are --
>
> (1) Safety-related systems, structures, and components which are those relied upon to remain functional during and following design-bases events (as defined in 10 CFR 50.49(b)(1)) to ensure the following functions --
>
> (i) The integrity of the reactor coolant pressure boundary;
>
> (ii) The capability to shut down the reactor and maintain it in a safe shutdown condition; or
>
> (iii) The capability to prevent or mitigate the consequences of accidents that could result in potential offsite exposure comparable to the guidelines in §50.34(a)(1) or §100.11 of this chapter, as applicable.
>
> (2) All nonsafety-related systems, structures, and components whose failure could prevent satisfactory accomplishment of any of the functions identified in paragraphs (a)(1)(i), (ii), or (iii) of this section.

From a review of the license renewal applications submitted by the owners of the Calvert Cliffs, Oconee, and Hatch nuclear plants, it appears that 10 CFR 54.4(a)(1)(iii) has been consistently interpreted to exclude the liquid and gaseous radwaste systems from aging management consideration under the rule. The petitioner requests the NRC to revise 10 CFR Part 54, and Part 51 if appropriate, to clarify that the liquid and gaseous radwaste systems must be covered by aging management programs during the license renewal term.

Liquid Radwaste System Schematic



Gaseous Radwaste System Schematic