

66 FR 39803

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515 West Point Ave.  
University City, MO 63130  
August 15, 2001

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Rules and Directives Branch

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Mr. Michael T. Lesar, Chief  
Rules and Directives Branch (MS T6 - D59)  
Division of Administrative Services  
US Nuclear Regulatory Commission  
Washington, DC 20555-0001

Dear Mr. Lesar:

Below are comments and questions regarding the University of Missouri-Columbia's Research Reactor, NRC Docket No. 50-186, Amended Facility License No. R-103, and regarding the NRC's Environmental Assessment and Finding of No Significant Impact (66 FR 39803, August 1, 2001). The University submitted an application to the NRC on December 27, 2000, that seeks to extend the license expiration date for five years — from November 21, 2001, to October 11, 2006. Application supplements were dated April 12 and June 6, 2001. It is expected that the University will submit an application for the Missouri University Research Reactor (MURR), during the five-year extension period, for an additional 20 years. The reactor began operating in 1966, 35 years ago, and is located less than a mile from the university.

A1 Clearly the extension itself would significantly affect the quality of the environment, and therefore would have to be accompanied by an environmental impact statement. Further, the anticipated secondary and cumulative impacts, such as those resulting from an additional 20-year extension, emphasize that effect, and the resulting need for an environmental impact statement.

1. Bomb-Grade Uranium:

Unlike other US research and commercial power reactors, MURR fuel contains highly-enriched uranium — that is, uranium enriched to a high percentage of the fissionable isotope, uranium-235 (20% or greater, as defined in the Code of Federal Regulations, Title 10, Part 50.2). It is my understanding that the MURR fuel contains over 93%. By comparison, the highest enrichment level of the Callaway nuclear power plant fuel is 4.5%. Because highly-enriched uranium (HEU) can be used for the manufacture of nuclear weapons, it is of great appeal to terrorists. Strict adherence to the NRC's safeguards regulations is therefore essential in order to try to protect against acts of radiological sabotage, theft or diversion during the storage and transport of MURR fuel. (10 CFR 73)

A3 a. Does the licensee plan to redesign and convert its reactor to use fuel with lower enriched uranium during the requested five-year extension? Or has the University been able to justify that it is entitled to a continuing "unique purpose" exemption from the NRC's requirement that all domestic non-power reactors were to convert from the use of HEU (as per 10 CFR 50.64, published in the Federal Register, 2/25/86)? Are there not advanced low-enriched fuels to which this reactor could be converted?

A4 b. If the NRC were to decide to extend the MURR license for an additional five years, would the Commission require that the licensee provide enhanced safeguards protection and surveillance at the reactor site during that period?

A5 c. How frequently does the campus security department and/or the reactor staff conduct drills at MURR designed to prevent the theft or diversion of the HEU fuel? How recently has the NRC evaluated such a drill? Has there ever been a surprise force-on-force test at the site, and if so, were deficiencies identified?

A6 d. How much weapons-grade uranium is currently in use and stored at MURR?

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E-LIDS = ADM-03  
Call = A. ADAMS (AXA)

When the NRC was deciding whether to allow the continued use of HEU at university reactors, noted nuclear physicist and former nuclear weapons designer Theodore Taylor testified as follows (quoting from Science, 2 March 1984, "NRC Targets University Reactors"):

"Taylor said there is 'no excuse whatsoever' for HEU to be used on [the UCLA] campus. 'HEU should be prohibited except under conditions that I would say are extraordinary [national defense work]. The prohibition should come first and the exception should come later. No research facility should have a quantity of HEU sufficient for building a weapon under any circumstances for any purpose.' It is possible to make a bomb with less than a kilogram of HEU, depending on the 'talents and experience' of the designer, he added.

"According to Taylor, 12 research reactors are authorized to store more than 4 or 5 kilograms of HEU, ranging in the highest instance to a limit of 45 kilograms. He doubted that campus burglar alarms give enough protection, since a black marketer or terrorist might be willing to pay \$100,000 to obtain a credible bomb threat. A blackmailer need only send authorities a small amount of HEU to make his threat credible. In view of this risk, Taylor said, 'there is no crucial research at university reactors of which I am aware that would require weapons-grade uranium.'" (emphasis added)

## 2. Graphite:

- A7 a. Does the licensee intend to continue to use graphite in MURR, both as a neutron reflector and in the thermal column? According to a November 12, 1986, article in the Columbia Daily Tribune, 400 pounds of graphite surround the beryllium shield that encompasses the reactor's fuel core.
- A8 b. What lessons were learned regarding the potential of a graphite fire as the result of the April 26, 1986, Chernobyl explosion in the Soviet Union and the 1957 Windscale reactor fire in England? To what extent are these lessons relevant to MURR?
- A9 c. Does MURR have a current, NRC-approved fire response plan and evacuation plan for a graphite fire that adequately reflects the facts that if water or carbon dioxide were to be used to fight a graphite fire, combustible gases (such as carbon monoxide or hydrogen) could cause an explosion, and that graphite fires are notoriously difficult to extinguish? Does the response plan identify which materials are to be used to suppress the fire without increasing the risk of an explosion?
- A10 d. "Wigner energy" is energy stored in nuclear reactor graphite during a reactor's operation as a result of neutron bombardment at relatively low temperatures. Wigner energy can be released suddenly as heat if the reactor temperature is raised above normal operating temperature. It was uncontrolled release of Wigner energy that led to the Windscale fire. (This information is from the Committee to Bridge the Gap's petition for an NRC rulemaking to reduce fire hazard from nuclear reactor graphite, submitted in July 1986.)
- (1) Has the University or the NRC tested the graphite in MURR to measure any potential Wigner energy, in calories per gram?
- (2) What analyses have been performed of potential rise in graphite temperature due to Wigner energy release, and the potential for graphite ignition and contribution to fuel melting, particularly in a loss-of-coolant accident?
- A11 3. Transportation risks: Assuming that a federal geologic repository were to be sited and an interim storage facility then were to be built for high-level radioactive wastes during MURR's requested five-year license extension period (and that space would be available for the MURR fuel), would Missouri taxpayers be liable if an accident were to occur during the transport of MURR wastes?

The risk of a transport accident is of particular concern to those Missourians who live in a corridor community, located along a rail or highway route.

- A12 4. Fuel Plates: Have MURR irradiated fuel plates ever been tested in a hot-cell laboratory to assess the integrity of the aluminum cladding — for example, to determine to what extent pin-hole leaks may exist through which particulate and gaseous fission products may escape? If such tests have been performed, when did the most recent one occur, at which laboratory, and with what results?

5. Monitors: According to the NRC's draft environmental assessment, dated June 25, neutrons that escape from the open reactor pool into the atmosphere of the reactor building convert the natural argon present in the building into detectable amounts of radioactive argon-41 (with a half-life of 1.82 hours).

- A13 a. Is the licensee claiming that argon-41 is the only radioactive gas present in significant quantities in the building's atmosphere — that is, that virtually no tritium or noble gases escape from the reactor vessel and the open pool into the building? Does the NRC find it surprising that only a tiny percent of the tritium (radioactive hydrogen) created as a tertiary fission product in the reactor fuel or generated in the coolant would have escaped from the reactor into the building, and on into the environment? For example, the licensee reported that only 11 curies or less of tritium, plus other non-argon gases, were released in airborne effluents annually during the years 1995 through 2000. The reported argon-41 annual releases in those years ranged from 728 to 1130 curies.

I am also surprised that the University has reported that only fractions of one curie of radioactive isotopes were released annually in the liquid effluent to the sanitary sewer — including, primarily, tritium. Since it is known that no financially feasible technology exists to filter tritium from a reactor's liquid or gaseous effluents, or to filter the dissolved and entrained noble gases, I find the reported annual liquid release of only about one-half curie, or much less, to be incredibly small.

I often tell people about my personal introduction to tritium. When I first learned in 1977 that tritium would be released to the air and to the Missouri River as a part of the routine operation of the Callaway nuclear plant, I phoned Oak Ridge National Laboratory to find out more about tritium. The health physicist there replied, "Oh, tritium is no big deal. All it can do is destroy a DNA molecule."

- A14 b. Is tritium created as a byproduct of MURR research on boron neutron capture therapy?
- A15 c. What, briefly, is the design of the equipment installed in 1995 that is used to detect and sample the continuous flow of gases in the gas channel of the exhaust stack, during the venting of the gases to the environment? Is the continuous flow of tritium and noble gases detected by this new equipment?
- A16 d. On the average, how frequently are gases vented to the environment and for what duration?

6. Personnel and Operating Problems:

- A17 a. To what extent will the NRC evaluate recent operating problems at the plant in determining whether to issue a 5-year extension of the operating license? For example, is it of concern to the NRC that two separate violations occurred in the critically important refueling area within just two months — one on April 12, and one on June 12, 2000? Is it of concern that allegations of discrimination and retaliation were filed by a reactor employee who had raised safety concerns; that other former employees

have raised concerns about the level of commercial activity and about related conflicts of interest at MURR; and that a defamation lawsuit, filed on June 25 by the immediate past director, is pending against two retired MURR scientists (Missouri Lawyers Weekly, 7/9/01)? (As you know, Dr. Deutsch then resigned on July 19.)

- A18      b. Are the University's personnel training and radiation protection programs adequate, including personnel oversight, the use of equipment and instrumentation, and the control of licensed materials?

While the University is understandably striving to become designated a Comprehensive Cancer Center by the National Cancer Institute (with potential increases in federal and private funding), is it not apparent that personnel problems persist at MURR?

- A19      The incident on June 12, 2000, cited above, seems to be a good example of personnel weaknesses. While the reactor was shut down for maintenance, the MURR staff removed one of the four control blades (in order to perform the blade's semi-annual inspection) without first removing two of the eight fuel elements as required. This could have resulted in an unplanned startup of the reactor (a criticality accident). The MURR staff had apparently been distracted by the need to repair a leak in the shaft seal of the primary pump. Since no shift supervisor was on duty, a Senior Reactor Operator served as the "Lead Senior Reactor Operator" for one shift with different SROs rotating as the LSRO for subsequent shifts. Quoting from the NRC Special Inspection Report # 2000-203: "The event brought into question the effectiveness of MURR's shift turnovers, management and staff communications, attention to detail, and general awareness of facility conditions." (Report Details, p.7)

- A20      An incident on April 12, 2000, also points to inadequate staffing. An unscheduled shutdown occurred that resulted in the need to find space to store a fuel element. Both the Operations Engineer and Reactor Manager positions were vacant. The Reactor Physicist (who was also acting as the interim Operations Engineer) made the decision that the reactor operators should use a Z-basket inside the spent fuel storage pool to store a fuel element instead of installing the fuel inspection rig. This occurred while welds in the reactor pool's aluminum radiation or liner were being inspected. In order to examine the welds, magnetite concrete blocks in the adjacent storage pool's surrounding shielding wall had been removed, thereby leaving no protection against the fuel element's intensely penetrating radiation. As described by the NRC Region III Public Affairs Officer, Jan Strasma: "One group of workers had removed part of the wall, the other moved the rods, and neither knew what the other one was doing." (Columbia Tribune, 8/23/00)

Quoting from the NRC Special Inspection Report # 2000-202: "Upon [hearing] the area radiation monitor alarm, the Health Physicist went down the stairs [from the reactor bridge], picked up an ion chamber, and measured 10-millirem per hour toward the bottom of the stairs." Then when she "went down the stairs [again] onto the beam port floor to more closely monitor the radiation field," she got a 200-rem / hr reading — 200,000 millirem per hour! (p. 14, emphases added) "The Health Physics Manager calculated the maximum dose rate during the event at about 400-rem / hour. . . . Although the Health Physicist was present, she was not monitoring radiation levels at the time of the liner examination in the Spent Fuel Element Irradiation Facility, because the licensee believed there was no radiation source or potential. In fact, no one was in the radiation field at the time of the event. However, if personnel were assumed in a radiation field of about 400 rem/hour, exposure for 45 seconds would exceed 10 CFR Part 20 occupational limits." (p. 9, emphases added)

Not only were significant senior positions unfilled at the time of the April 12 event, but apparently not enough of the personnel were sufficiently trained to qualify to serve on the Incident Response Team of senior licensee managers. "The [NRC] inspectors found that although the team included experienced operations and radiation safety personnel (i.e., the Associate Director responsible

for Operations, the Associate Director responsible for Reactor Income Generating Operations, and the Health Physics Manager), some members of this group had little nuclear safety experience." (p. 2, emphasis added)

7. Worker exposure:

- A21 a. How many reactor or contractual employees participate in a typical refueling?
- A22 b. What was the highest radiation dose to which an employee was exposed during the past year as the result of the refuelings?
- A23 c. To what extent does the NRC oversee the amount of radiation to which MURR employees are exposed during the weekly refueling operations?
- A24 d. What is the average duration during which MURR irradiated fuel is stored on site before it is shipped to a DOE storage facility, in South Carolina or Idaho? Are reactor personnel exposed to the stored fuel?
- A25 e. Because the reactor has been operating for 36 years, have radioactive corrosion products (which emit highly penetrating gamma radiation) accumulated in and on the piping and other components? If so, has this increased the radiation dose of the maintenance personnel? Are chelating agents used at MURR to dissolve the corrosion products?
- A26 8. Accidents: In the event of a radiological accident at MURR, does the University medical complex have isolated rooms dedicated to radioactively contaminated patients? If so, for how many patients?

9. Radioactive waste:

- A27 a. High-level radioactive waste: What assurances can the NRC provide to the State of Missouri that the University will be permitted to continue sending its irradiated fuel plates to a federally licensed storage facility? Or is it conceivable that these wastes would have to remain in Missouri for an indefinite period? (A July 31, 2001, New York Times article makes it quite apparent that Yucca Mountain, Nevada, as the promised deep geologic disposal site, has many flaws. "Yucca Mountain has turned out to be wetter and its geology more complex than proponents had first thought.")

A recent dispute between Missouri and the Federal Government gives cause for concern. Because of evidence submitted to the Department of Energy (DOE) by the State about the deteriorated, hazardous condition of Interstate 70 in the summer of 2000, the State was able to dissuade the DOE from using that route for the transport of research reactor fuel imported from England and destined for the DOE's Idaho National Engineering and Environmental Laboratory. In retaliation, the DOE closed its Savannah River storage facility in South Carolina to shipments of MURR irradiated fuel.

Because by June 30, 2001, the University would have reached its maximum licensed amount of uranium-235 in storage, the NRC would have forced the reactor to shut down. Physicians statewide protested to state officials about their need for a continuing source of MURR-generated radiopharmaceuticals. Faced with the choice of seeing MURR shut down or of permitting the I-70 passage of German reactor fuel earlier this summer — through our two major metropolitan areas!), the State withdrew its objections to the foreign shipments. The DOE then announced it would allow MURR to resume shipments of its spent fuel to Savannah River. During the next ten years, the DOE will be importing irradiated research reactor fuel into the US from 41 nations, for storage in South Carolina or Idaho. And for ultimate disposal, but no one knows where.

The amount of high-level radioactive waste (irradiated fuel) generated at MURR is significant. According to data provided by the DOE, an average shipment of MURR irradiated fuel, typically sent to DOE facilities at Savannah River or Idaho Falls, contains approximately 250,000 curies. To put that amount of radioactivity in perspective, more than 1,000 research laboratories at Washington University and the Barnes-Jewish Hospital complex share a total of two curies at any one time.

b. Low-level radioactive waste:

- A28 (1) Since no low-level waste burial facility has yet to be built or even sited for the disposal of "low-level" radioactive wastes generated in the Midwest Compact states, what fall-back position does the University have for the disposal of its low-level wastes when the Barnwell, South Carolina, facility no longer accepts wastes from states outside the Southeastern Compact?

As reported in the August 11, 2001, New York Times, South Carolina Governor Jim Hodges is threatening to bar shipments of plutonium from dismantled weapons into his state. "I'll stand squarely in front of the trucks, if that's what it takes to protect the health and safety of our people," he said. "In the meantime, we've got a range of options, including roadblocks." A similar rebellion occurred after the start of the Three Mile Island accident, in 1979, when governing officials of South Carolina, Nevada and Washington decided they no longer wanted to serve as the nation's dumping grounds for low-level waste. Although no new low-level waste facility has been created since then, the financial profits from Barnwell have apparently been sufficient to compensate the State for hosting wastes from facilities nationwide. Barnwell continues operating — at least for now.

It should be noted that exposure to some of a reactor's "low-level" wastes can cause a lethal dose, and that some isotopes present in low-level wastes have extremely long half-lives — technetium-99, for example, has a half-life of 213,000 years, and cesium-135 (a daughter-product of xenon-135) has a half-life of 2.3 million years. Their hazardous lives last for roughly ten times their half-lives.

- A29 (2) If the Barnwell facility were to be closed to MURR's irradiated and surface-contaminated low-level wastes, is it possible the NRC or other Federal agency would mandate that a storage or disposal site would have to be established in Missouri? These wastes typically include:

(a) a shielded cask that was shipped in 1993 from MURR, probably to Barnwell, that contained 59.5 curies of "low-specific" radioactive waste — according to an April 12, 2001, MURR response to the NRC's request for additional information regarding the license extension application (submitted by the immediate past Director Edward A. Deutsch);

(b) beryllium [perhaps from the reactor's reflector] and a heat exchanger for the spent fuel holding pool which were removed and replaced at MURR in April 2000 at the time an unplanned radiation field event occurred (NRC Special Inspection Report No. 2000-202, page 5);

(c) depending on whether or not the April 2000 inspection of the welds of the spent fuel holding pool's aluminum liner indicated the liner required repair or replacement, the defective liner would have been a candidate for disposal at a low-level waste site; and —

(d) if it is correct that one of the four control blades is replaced every six months, the highly radioactive, discarded control blades would require disposal at a LLW site.

- A30 (3) Is it correct that MURR's liquid wastes are discharged only to the sanitary sewers — that none drains or is released into nearby Hinkson Creek?

10. Financial challenges: Because of concerns about the safety and operating costs of a research reactor, and the declining number of nuclear engineering students and qualified reactor operators, some

universities have quit operating their research reactors. An NRC fact sheet on non-power reactors includes the following such institutions: Georgia Institute of Technology, University of California-Los Angeles, Iowa State University-Ames, University of Illinois-Urbana, University of Washington-Seattle, University of Virginia-Charlottesville (two reactors), Cornell University, and State University of New York-Buffalo. In addition, media reports indicate that the University of Michigan-Ann Arbor (2 megawatts) and the Massachusetts Institute of Technology (5 MW) may also decommission their reactors.

The increasing number of US college campuses that are closing their reactors is described as follows in the University of Missouri's April 12, 2001, response to the NRC's request for information on the license renewal: "Currently there are only 28 operating research and training reactors, over a 50% decline since 1980." (p.5) [According to Nucleonics Week, 5/17/01, forty university research reactors were operating in 1988.] According to the Wall St. Journal: "A 1997 Department of Energy survey found only 570 students nationwide majoring in nuclear engineering, down nearly a thousand from five years earlier." ("Closing Campus Reactors May Nuke Energy Plans," 7/26/01)

- a. As a 10-megawatt-thermal reactor, MURR is reported to be the largest research reactor at any university in the world, and is the second largest non-power reactor in the US (next to the 20-megawatt-thermal reactor at the National Institute of Standards and Technology in Gaithersburg, Maryland).
- A31 While universities elsewhere in the nation have been reducing or eliminating their commitment to nuclear engineering training, is it correct that the University of Missouri-Columbia is communicating with the NRC about the possibility of tripling the size of MURR?
- A32 b. Has the University of Missouri-Columbia been required to submit to the NRC a financial analysis of its ability to operate and maintain the reactor safely during the proposed five-year license extension? If so, to what extent does it rely upon the State Legislature to appropriate funds?
- A33 c. Is the University, as a nonprofit educational institution, required to post a bond to cover the costs of decommissioning the reactor (as per 10 CFR 140)? If not, what federal or state agency would be held responsible for those costs? Has the University provided the NRC with a decommissioning plan?
- A34 d. If Congress fails to renew the Price-Anderson Act this year or reduces the amount of the federal insurance subsidy, will that affect the University? Does the University pay annually for insurance to cover the liability of an accident at MURR? What are the estimated costs of a major accident?

Sincerely,

*Kay Drey*  
Kay Drey

Dr. Tom Sager, 8 Laird Ave., Rolla, MO 65401, 573-368-5551, [TomSager@yahoo.com](mailto:TomSager@yahoo.com)

August 22, 2001

2001 AUG 24 PM 2:59

Mr. Michael T. Lesar, Chief (MS T6—D59)  
Rules and Directives Branch - Admin. Services  
US Nuclear Regulatory Commission  
Washington, DC 20555-0001

Rules and Directives  
Branch  
USNRC

66FR39803

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Dear Mr. Lesar:

My name is Tom Sager. I am associate professor emeritus of computer science at the University of Missouri-Rolla. Through my 18 years with the University of Missouri, I have come to know very well the way this university system operates, including its disdain for the health and safety of its employees and the communities in which it resides.

B3 B1 It has come to my attention that University of Missouri-Columbia (UMC) has applied to the Nuclear Regulatory Commission (NRC) to extend its license to operate the Missouri University Research Reactor (MURR) for an additional five years. I strongly OPPOSE this extension and the continued operation of MURR. I request that  
B2 MURR be shut down, or failing that, that a FULL Environmental Impact Statement (EIS) be required.

B6 B4 UMC has been negligent in its operation of MURR. In year 2000, UMC was responsible for two serious  
B5 preventable accidents that could have caused great harm to persons and the environment. This negligence, combined with the continued use of weapons grade uranium (93% U235) could be devastating to the entire state and makes MURR a prime target for terrorism. There is no indication that UMC has become more safety  
B7 conscious or less negligent. Indeed, MURR continues to be plagued with personnel problems, a high turnover rate, and low employee moral.

Other reasons for shutting down MURR and/or requiring a full EIS are:

- B9 B8 • Its location within a city of 75,000 inhabitants presents a clear and present danger. Should there be a serious accident, local hospitals and medical facilities are not equipt to handle a large number of irradiated patients.
- B11 B10 • MURR may very well be required to store both high and low level radioactive waste in situ for many years to come. After 14 years of study at an expense of \$4.5 billion, we still do not know whether Yucca Mountain is suitable for long term storage of high level radioactive waste. The Barnwell low level waste disposal site may be closed to UMC in the near future.
- B14 B12 • Graphite, which surrounds MURR's beryllium shield, is combustible. Graphite fires are notoriously difficult  
B13 to extinguish. In addition the routine operation of MURR releases radioactivity into the environment. The transportation of wastes also poses risks of the release of radioactivity. All this presents a clear danger to the UMC campus and the City of Columbia.

Thank you for the opportunity to comment on the request for an extension of permit to operate MURR, and your kind consideration of my testimony.

Sincerely,

*Tom Sager*

Tom Sager

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Angeline S. Howard

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August 23, 2001

Mr. Michael T. Lesar, Chief  
Rules and Directives Branch  
Division of Administrative Services  
MS T6-D59  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

RE: Docket No. 50-186  
University of Missouri-Columbia,  
University of Missouri-Columbia Research Reactor;  
Request for Public Comment (*Federal Register* August 1, 2001)

Dear Mr. Lesar:

C1 The Nuclear Energy Institute (NEI)<sup>1</sup> supports the University of Missouri-Columbia's license amendment request to recapture the reactor's construction period, which would change the expiration date of the University's Research Reactor (MURR) from November 21, 2001 to October 11, 2006.

C2 The Nuclear Regulatory Commission (NRC) has noted that there is no significant impact to the license extension. NEI believes there are significant benefits to the continued operation of the MURR for research and the production of radioisotopes. MURR has made significant contributions to the fight against cancer by producing radioisotopes that can target and destroy cancer cells without seriously damaging healthy cells. Researchers with the University and MURR have developed and commercialized three novel radiopharmaceuticals, Quadramet<sup>TM</sup>, Ceretec<sup>TM</sup> and Thereasphere<sup>TM</sup>. MURR is also a preeminent supplier of radioisotopes for research and clinical applications. MURR routinely ships radioisotopes to research, medical institutions and private companies around the world. Each year, over 200,000 cancer patients depend on MURR for the radiopharmaceuticals used to treat their

<sup>1</sup>The Nuclear Energy Institute (NEI) develops public policy for the U.S. nuclear industry. We represent 270 member companies with a broad spectrum of interests, including every U.S. utility that operates a nuclear power plant, their suppliers, fuel fabrication facilities, architectural and engineering firms, labor unions and law firms, radiopharmaceutical companies, research laboratories, universities and international nuclear organizations.

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Mr. Michael T. Lesar  
August 23, 2001  
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cancer and provide pain relief. Without MURR-produced radioisotopes, many patients will be denied treatment options.

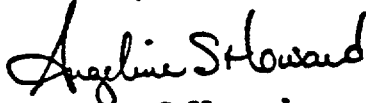
MURR's educational role is also important. Now more than ever, there is a demand for a solid nuclear engineering education and research infrastructure at U.S. colleges and universities. As the highest power university research reactor in this country, MURR provides a wide range of research and training opportunities for graduate and undergraduate students. Additionally, the MURR supports research in other fields including life sciences, chemistry, archaeology and veterinary medicine.

- C3 The proposed amendment will not result in a significant increase in environmental impacts or impacts to human health or the environment. No changes will be made to the facility design or operating conditions as part of this amendment process. Further, possible doses to an individual member of the public are well within regulatory limits.

Nearly all of the eligible commercial nuclear power plants have extended their licenses by recapturing the construction period. U.S. nuclear reactors are licensed to operate for 40 years. Congress in the Atomic Energy Act of 1954 selected a 40-year term for nuclear reactors because this was a typical amortization period for an electric power plant. The 40-year license period was not based on safety, technical or environmental factors. In fact, the NRC has already approved renewal applications for six commercial reactors extending their operating licenses for an additional 20 years.

- C4 In conclusion, there are no significant impacts on the environment, and there would be the loss of considerable benefits if the extension were not granted. Therefore, NEI fully supports the continued operation of MURR. If you have any questions or would like to discuss our comments, please contact me.

Sincerely,

  
Angelina S. Howard

c: Chancellor Richard Wallace, University of Missouri  
Dr. William H. Miller, University of Missouri  
Mr. Ralph A. Butler, University of Missouri

Becky Denney  
625 Angenette Ave  
Kirkwood, MO 63122-6220

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Rules and Directives  
Branch  
USNRC

August 23, 2001

RE: Environmental Assessment and Finding of No Significant Impact

Mr. Michael T. Lesar, Chief (MS-T6-D59)  
Rules and Directives Branch-Admin. Services  
US Nuclear Regulatory Commission  
Washington, DC 20555-0001

Dear Sir:

- D1 I request a full Environmental Impact Statement because I believe the public as well as any employees of  
D2 the plant need to know as much as possible about the operation and results of using nuclear reactors for  
D3 research. For instance, it is said that the graphite that surrounds the beryllium shield could burn and once  
burning may be very hard to extinguish. Is this true? Is this shield similar to the one at the Chernobyl plant?
- D4 Since the low-level waste disposal facility in South Carolina will be closed to MURR for disposing wastes,  
D5 we won't have a place for them. We don't want them stored in Missouri. Neither do we want nuclear wastes  
transported across our highways, on our railroads, or through our cities. The state of Nevada does not want  
nuclear waste stored there. There is an article from the NY Times on August 11, 2001 "Governor Threatens to  
Ban U.S. Plutonium Shipments." While this pertains to the waste from Savannah, this is typical of the  
attitude of state officials. And, in this case it appears state officials from both parties agree that South Carolina  
will not allow waste to come into the state and remain there.
- D6 We don't have a permanent disposal facility for radioactive waste. This lethal material will be actively  
deadly even past the 10,000-years that Congress is planning for. We, human beings, don't have a place to put it  
and can't ensure that any containers will hold it for that time. We also can't ensure, that if containers do hold  
it, any humans will know what is stored in the containers. We don't know if people will be able to read our signs  
or messages thousands of years from now. So they won't know what dangers our wastes hold for them. We are  
truly irresponsible.
- D7 I oppose a license extension for the MU Research Reactor in particular because it uses a highly enriched  
D8 uranium while other reactors use a lower percentage of enriched uranium. I believe this puts the plant at risk for  
D10 D9 greater dangers and especially for sabotage. This is an old reactor where accidents are likely to occur. Evidently  
the plant has trouble finding qualified employees and this increases the chances for an accident.
- D11 The citizens of Missouri must pay the bill for this reactor now and in case of accidents and widespread  
contamination. We can't afford this kind of tax burden.

Sincerely,

Becky Denney

Becky Denney  
625 Angenette Ave  
Kirkwood, MO 63122

Template - ADM-013

E-RIDS = ADM-03  
Adm = A. ADAMS (AXA)

# Missouri Coalition for the Environment

6267 Delmar Boulevard, 2-E, Saint Louis, Missouri 63130 (314) 727-0600 Fax: (314) 727-4666  
Email: [missouri@moenviro.org](mailto:missouri@moenviro.org) Webpage: <http://www.moenviro.org>

2001 AUG 27 PM 4: 20

August 22, 2001

Rules and Directives  
Branch  
USNRC

Michael T. Lesar  
Chief, Rules and Directives Branch (MS T6 - D59)  
Division of Administrative Services  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

66 FR 39103  
8/1/01  
(5)

Re: Comments on UMC Research Reactor  
NRC Docket No. 50-196

Dear Mr. Lesar:

The Missouri Coalition for the Environment ("Coalition") submits the following comments regarding the University of Missouri-Columbia ("UMC") Research Reactor Amended Facility License No. R-103 and the NRC's Environmental Assessment and Finding of No Significant Impact. The University applied to the NRC seeking to extend the expiration date of the existing license for five years until October 2006. The reactor is located less than a mile from the University of Missouri in Columbia.

## *Inadequate Compliance with NEPA*

E1 The Coalition requests that the NRC prepare an environmental impact statement  
E2 for the proposed extension of UMC's license. Any extension that allows the continued operation of the reactor and generation of additional nuclear waste is a major federal action that significantly affects the environment. An EIS is necessary to fully investigate the effects of allowing the continued operation of the reactor and generation of additional radioactive waste. The dangers of nuclear reactors and the seemingly intractable problem posed by radioactive waste are well documented and should not require expanded discussion herein. Some of the Coalition's specific concerns relating to the UMC reactor are given below.

## *Use of Weapons Grade Uranium*

E3 The UMC reactor uses highly-enriched uranium, which can also be used for the  
E4 manufacture of nuclear weapons. For this reason, the reactor is subject to terrorist attacks and other illegal efforts to secure material for the manufacture of weapons. Federal regulations prohibit the use of highly-enriched uranium at non-power reactors unless they demonstrate an entitlement to a "unique purpose" exemption. 10 C.F.R. § 50.64. Has the  
E5 UMC reactor met the criteria for the continued use of this dangerous material? What are  
E6 the alternatives to continued use of highly-enriched uranium at the reactor? Are adequate  
E7

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protections in place at UMC to safeguard against the threats posed by terrorists? These are all issues that need to be more thoroughly explored in an EIS.

#### *Problem of Waste Transport and Disposal*

E8 The federal government has been grappling with the problem of radioactive waste disposal for many years without ever finding a practical solution. Even the massive undertaking at Yucca Mountain, Nevada, has failed to find a safe place to store the country's radioactive waste. The problem of waste disposal is even more acute in Missouri because of a dispute between the state and federal government over waste shipments that nearly required the closure of the UMC reactor this summer. Allowing the research reactor to continue operation without a safe method of waste disposal is illogical and unethical. This issue must be addressed in a more comprehensive review of the application for a license extension.

E9 Current methods of radioactive waste disposal also pose a risk to persons traveling on either automobile or rail corridors and also to those living along these routes. The transport and disposal of waste from the UMC reactor may also present a liability risk to the citizens of our state. The NRC must thoroughly characterize the risks associated with the transport of additional waste during the proposed extension period.

E10

#### *Safety of Graphite Use in Reactor*

E11 The history of nuclear accidents throughout the world demonstrates that the use of graphite in reactors may pose significant safety risks. Graphite stores energy during normal reactor operation, which can be suddenly released as heat if the reactor temperature rises above normal levels. Evidence indicates that it was this phenomenon that caused a fire at the Windscale reactor in England in 1957. According to past news accounts, the UMC reactor uses graphite as part of the shield around its core. Assuming UMC continues to use graphite, the problems associated with its use have not been sufficiently investigated by the NRC. These questions must be answered before any extension is granted the University.

#### *History of Operating Problems*

E12 The Coalition encourages the NRC to thoroughly investigate the operations of the UMC reactor before granting an extension. A string of recent events at the reactor call into question the integrity of its operation: 1) in a two month time span in the year 2000  
E13 there were two separate violations in the refueling area; 2) there have been allegations of discrimination and retaliation filed by an employee who had raised safety concerns; 3)  
E14 other employees have raised concerns about the level of commercial activity and related  
E15 conflicts of interest; and 4) a defamation lawsuit was filed in June 2001 by the past director of the facility against two retired scientists who worked at the reactor.

These events should be cause for serious concern about the operation of the reactor. For example, one of the two violations mentioned above resulted in an NRC report that concluded: "The event brought into question the effectiveness of MURR's shift turnovers, management and staff communications, attention to detail, and general awareness of facility conditions." NRC Special Inspection Report # 2000-203. An NRC

E16 representative found that during the other incident there was a complete lack of communication between workers performing different tasks at the reactor. These serious violations, in conjunction with the multiple personnel issues at the reactor, require careful attention from the NRC.

Thank you for considering these comments.

Very truly yours,

  
Bea Covington  
Executive Director

  
Edward J. Heisel  
Senior Law & Policy Coordinator

46 FL39803 (6)  
8/1/01

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Rules and Directives  
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7425 Teasdale  
St. Louis, MO 63130

Mr. Michael T. Lesar, Chief /MS T6-D59  
Rules and Directives Branch—Admin. Services  
US Nuclear Regulatory Commission  
Washington, DC 20555-0001

Dear Sir:

F1 I am opposed to extending the operating license for the University of Missouri—  
F2 Columbia's research reactor. The aging research reactor not only poses a threat to the  
F3 students of UMC, but to the whole state as well. A full Environmental Impact Statement  
is needed before the state and the University of Missouri find themselves with a disaster  
on their hands, either in the form of nuclear waste they can't get rid of or, God forbid, in  
a nuclear accident.

F4 UMC's high-enriched uranium waste has no place to go. After 14 years, Yucca  
Mountain is looking less and less likely as a final repository for such waste. South  
Carolina is also looking pretty unlikely as a repository. The citizens of Missouri, when  
they discover UMC's waste will most likely wind up right here on our most populated  
university campus, will be outraged.

F6 F5 In addition, keeping bomb-grade uranium at UMC suggests other risks. Uranium in  
the hands of terrorists is of worldwide concern, and we should discontinue use of any  
F7 facility that could make terrorist destruction possible. Also, a very flammable substance,  
graphite, surrounds the beryllium shield of the UMC reactor core. Why provide fuel on a  
Missouri campus for the kind of dangerous fire the world experienced at Chernobyl?

F8 It is time to consider not an extension of the operating license of the UMC reactor,  
F9 but a denial of that license. It is simply too dangerous to continue operating an aging  
nuclear reactor with highly enriched, bomb-grade uranium in a college town without  
adequate emergency facilities or security. Thank you for your consideration of this  
important matter.

Sincerely,

*Sandra A. Lowes*

Sandra A. Lowes

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## Ozark Chapter / Sierra Club

Ken Midkiff, Director 1007 North College Ave., Suite 1 Columbia, MO 65203-3301

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August 27, 2001

66 FR 39803

8/1/01

(7)

Michael T. Lesar, Chief  
Rules and Directives Branch (MS T6-D59)  
Division of Administrative Services  
US Nuclear Regulatory Commission  
Washington, DC 20555-0001

Mr. Lesar,

Please accept these as the comments of the Ozark Chapter Sierra Club regarding the University of Missouri's Research Reactor, NRC Docket No. 50-196, Amended Facility License No. R-103, and regarding the NRC's Environmental Assessment and Finding of No Significant Impact (66 FR 39803, August 1, 2001).

Rather than applying for a renewal of the expiring license, the University instead submitted an application to extend the license for five years – from November 21, 2001 to October 11, 2006. However, it is anticipated that the University will submit an application for renewal of the license during this extension period (if an extension is granted).

### 1. PERSONNEL PROBLEMS MUST BE CONSIDERED.

It would seem that the decision to apply for an extension rather than a renewal is due to internal administrative disruptions as outlined below. Given that

- G1 1) the Director has been involved in considerable controversy of a highly-visible public nature,
- G2 2) the operations, from a public perspective, seem to be poorly supervised,
- G3 3) the Director has now resigned, while filing defamation lawsuits against former employees,
- G4 4) the facility itself is engaged in commercial operations of uncertain ethical standards and practices, and
- G5 5) there have been allegations of stifling of concerns of employees ("anti-whistleblower") which have warranted investigation by the NRC,

- it would appear that this is an operation in chaos.

The nature of a Nuclear Research Reactor is such that careful controls, supervision and oversight must be constantly maintained. Yet, the historic record of this facility is one in which the opposite is documented, and in which paranoia, management by whim, favoritism and nepotism are the orders of the day.

- G6 It is understood that the Nuclear Regulatory Commission would prefer to keep personnel matters and
- G7 license extension applications separate. Yet, the fact is that reactors are only as safe as those in operating them...and the personnel record of this facility is dismal. Employees of MURR (Missouri University Research Reactor) have spoken publicly of a "chilling effect" of administrative actions taken against those

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who have reported problems at the Reactor. It is clear that the University Administration would prefer to punish those reporting such problems, rather than deal with the problems reported.

- G8 This is not an issue on which the NRC can take the same stance as the University and claim that such problems are hyperbolic subjectivity by disgruntled employees...and that such issues are not central to safety matters. The facts are that the issues reported by the employees were directly related to releases – potential or real – of radioactive emissions to the environment.
- G9 In questions regarding re-licensing or extensions of existing licenses to operate, the NRC must take into account the past record of operations of this facility. Those operations are, in turn, directly related to the professionalism and competency of MURR administrators and personnel. Both of those matters have been subjected to public scrutiny and found wanting.
- G10 In order to maintain public support and to ensure the public that someone is providing oversight on nuclear safety, we would request that any decision on this extension and/or renewal be deferred until such time as there is administrative stability at MURR.

## **2. COMMERCIAL NATURE OF MURR**

- G11 While the MURR license and indeed the name itself refers to a “research reactor”, the fact is that this facility stays open due to its commercial ventures. The University of Missouri – Columbia could not afford to provide the necessary financial support to maintain this operation.
- G12 Consequently, the commercial nature of MURR cannot be ignored, especially when it is considered that it is the commercial operations that are the basis of problems at the facility. There is an internal contradiction – perhaps an inevitable conflict – between research and commerce. Commercial ventures need to have distinct timetables when projects are expected to completed. Whether this is production of isotopes for cancer therapy or irradiated gems, the normal variables for “research” do not apply. While research often has goals and those goals may contain timetables,, it is understood by all concerned that things may go awry in research projects, or there may be unintended or unexpected consequences that must be investigated, and consequently the deadlines for research projects are not rigid.
- G13
- G14 a. The NRC must determine whether MURR is “private” or “public” reactor, and whether its mission as a “research reactor” is compromised by commercial contracts.
- G15 b. The NRC must determine if the commercial ventures of MURR are appropriate for a research facility, in light of the difficulties caused by the commercial ventures.

## **3. PROXIMITY TO RESIDENCES AND URBAN AREAS.**

- G16 The MURR facility is located in a urban/residential setting, and its location is further compromised by
- G17 proximity to a Red Cross blood bank and University of Missouri athletic facilities. On “football

weekends" there are as many as 60,000 additional persons within 1/2 mile of MURR. Any accidental release of radioactive materials would have dire consequences.

Since however, it is assumed that a nuclear accident of a Three Mile Island or Chernobyl status is highly unlikely, the cumulative impact of a succession of smaller incidents is of more concern. Therefore, while there is no absolutely safe place on earth to site a nuclear facility, some places are inherently more unsafe than others. Certainly the presence of a nuclear reactor in a city of 85,000 and within 1/2 mile of university dormitories and 1/4 mile from urban residences, contains greater threats to public safety than a reactor located in Dugway, Utah.

The writer of these comments lives within 1/2 mile of the MURR, and this writer and his neighbors are continually aware of its presence. Every morning and every afternoon, thousands of commuters pass by the MURR to and from their way to work and school. The clouds of steam on cold days provides a constant reminder that this facility is there and doing secret things with radioactive elements.

Comfort is not derived from the constant string of problems at this facility. It appears to be constantly teetering on the brink of administrative meltdown.

Given the public insecurities about this facility, and its presence in an urban setting, it is difficult for the public to have any degree confidence in its operations... and such inconfidence is not enhanced by "findings of no significant impact" on the part of NRC. To state that MURR is incapable of significant impact is akin to stating that water is not wet. NRC only degrades itself with such dubious findings.

#### 4. THERE IS NO SAFE PLACE TO STORE RADIOACTIVE WASTES.

G18 The recent flap over the transport of radioactive wastes is educational. On one hand, Missouri officials were claiming that it is unsafe to use I-70 as a route to transport spent fuel rods from electric-generating nuclear power plants, on the other hand they claimed that it was safe to transport radioactive wastes from the MURR. While the difference between high-level and low-level wastes had something to do with this, the facts are that transport of ANY radioactive wastes is hazardous...and made doubly so by the high volume of traffic and increasing number of vehicle accidents on I-70.

G19 All of squabbling about transportation avoids the central issue, one that NRC and other associated with the nuclear industry have attempted to ignore: There is no safe place on earth to store radioactive wastes for the extremely long periods of time in which the material remains hazardous to human health.

In the meantime, reactors continue to spew this stuff out as if hiding it in Barnwell or at Yucca Mountain is a solution. There are not solutions. The first ounce of radioactive waste produced is still setting somewhere emitting hazardous rays. There is no method of neutralizing, there is no way of disposal, and there is no safe place to store it.

It is disingenuous to proclaim a "finding of no significant impact" and ignore the realities of waste transport and storage.

**The NRC must stop hiding its head in the sand, and acknowledge the very real impacts and threats from creating the most dangerous substance on earth, while there are no safe methods of transport or storage.**

#### **5. MANUFACTURE OF BOMB-GRADE URANIUM.**

**If we consider it disingenuous for NRC to proclaim that production of radioactive waste has "no significant impact", when that statement is applied to the creation of bomb-grade uranium, this goes from the sublime to the ridiculous. The enrichment of uranium to a fissionable isotope - U-235 - creates an immediate and present threat because this material can be used for the manufacture of nuclear weapons. Such is eagerly sought after by terrorists and maverick nations.**

- G20 It is inexcusable for an alleged "research reactor" to produce bomb-grade uranium. There is no educational or scientific justification for this.**

**NRC should immediately prohibit MURR from enriching uranium to bomb-grade isotopes, regardless of any issues of licensing.**

#### **6. THE USE OF GRAPHITE.**

- G21 It is our understanding that graphite is used as a neutron reflector and in the thermal column. Specifically, according to an article in the Columbia Daily TRIBUNE (Nov. 12, 1986) there are 400 pounds of graphite surrounding the beryllium shield in the reactor's fuel core. Graphite is highly flammable, and releases combustible gases when exposed to water and heat.**

- G22 We are not aware that MURR has any fire response and evacuation plan on file with NRC specifically regarding the hazards associated with the use of graphite.**

**The use of graphite in the neutron reflector and in the thermal column must be considered carefully by NRC in any "finding of no significant impact".**

#### **7. AVAILABILITY OF TRAINED PERSONNEL.**

**We have previously discussed the administrative and personnel difficulties at this facility - and it is assumed that NRC is aware of these (although continuing to assert that in some mysterious fashion that it is possible to separate a facility from its operators). There is a dearth of trained reactor personnel in this country. Likely the reason for this is that it is assumed by those inclined to enter this field that it is a "dead end", in that literally all currently licensed nuclear power-generating plants will be closed in the near future, and no new ones are being considered.**

- G23 Given the feud between and among the administrators and staff at the MURR, and the subsequent departure of the key players, the availability of competent staff becomes an important issue.**

- G24 NRC must determine if MURR has capable staff on hand to operate this facility, and if not, ascertain what the plans are to acquire such personnel.

**SUMMARY.**

We do not believe that the statement of "no significant impact" is documented by the facts nor supported by the historical records of this facility. Rather, we believe that significant impacts are not only possible, but likely given the lack of professionalism, the rampant commercialization, and the defensive attitude of university officials. When off-site factors (transport and storage) are added, along with the production of bomb-grade materials, there are likely to be significant short- and long-term impacts as a result of the operations of this research reactor.

- G25 We recommend that any decisions regarding licensing extension or renewal be deferred pending a total and complete re-examination of the fundamental findings of the "Environment Assessment and Finding of No Significant Impact".

Sincerely,

  
Ken Midkiff

CC: US Rep Kenny Hulshof  
Governor Bob Holden  
MODNR Director Steve Mahfood  
UMC President Manuel Pacheco

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8/18/01

Mr. Michael R. Lesar, Chief  
Rules and Directives Branch-Administrative Services  
US Nuclear Regulatory Commission  
Washington, DC 20555-0001

Dear Mr. Lesar:

H2 H1 I think there should be an annual assessment for the need of research nuclear  
H3 reactor facilities as well as review of operation procedures, staffing as well as full  
environmental impact statements. And in this evaluative perspective, perhaps a  
stakeholder advisory panel should also be formed. I hope you will factor my comments  
into your future plans.

Sincerely,

*Leonard A. Sonnenschein*  
Leonard A. Sonnenschein  
President



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X-REFS = ADM-03  
Call = (ADAMS) (AXA)

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Aug. 28, 2001

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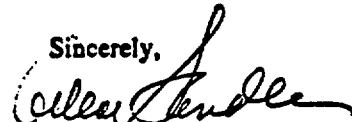
Rules and Directives  
Mr. Michael Lesar, Chief Branch  
Rules and Directives Branch  
Division of Administrative Services  
U.S. Nuclear Regulatory Commission  
Washington, D.C. 20555-0001

Dear Mr. Lesar:

I'd like to submit some brief comments on the application for the re-licensing of the University of Missouri-Columbia's Research Reactor (MURR).

- 11 What is unusual about MURR is the fact that it uses highly enriched uranium - over 93%.  
13 12 The uranium could be used to make nuclear weapons. The research facility as well as  
transport routes could be targeted by terrorists for this reason. Theodore Taylor, a former  
designer of nuclear weapons was quoted in an article in *The Columbia Tribune*, Dec. 2,  
1986, p.71: "I think there's no defensible reason to have any amount of uranium in a  
highly enriched form at a university."  
14 MURR is located less than a mile from the University of Missouri in one of the state's  
15 larger metropolitan areas. The facility failed several security inspections during the  
1970's and had some significant personnel problems last year. The continuing use of  
weapons-grade uranium here represents a serious, unnecessary risk for Missourians.

Sincerely,

  
Arlene Sandler.

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E-RIDS=ADM-03  
Call = A. ADAMS (AXA)

66 FR 39803  
8/1/01

August 27, 2001

10

Mr. Michael T. Lesar, Chief  
Rules and Directives Branch (MS T6 - D59)  
Division of Administrative Services  
US Nuclear Regulatory Commission  
Washington, DC 20555-001

Dear Mr. Lesar:

Thank you for the opportunity to comment on the application for the 5-year extension of the University of Missouri-Columbia's Research Reactor (MURR), NRC Docket No. 50-196. I understand that there is also the expectation of applying for an additional 20-year license after that.

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Rules and Directives Branch  
NRC

- J1 I am a graduate of UMC and a former employee of the UMC School of Medicine which is near the MURR. I am also a frequent visitor to the Columbia area as I have relatives who live there. I use to drive past the reactor to visit my sisters who use to live in a neighborhood south of the campus near 163 and Niphong Blvd. It is amazing how Columbia has grown in every direction. And it is a matter of great concern that it has grown around the MURR facility and that there are three hospital facilities not to mention the UMC campus and dormitories in such close proximity.
- J2 Clearly continued operations of the reactor would have an environmental impact on the surrounding community and should require an environmental impact statement (EIS) both at the time of the five year renewal request and if MURR requests an additional 20-year extension.
- J3 The MURR uses highly enriched uranium (HEU) (about 93%) as compared to a commercial reactor which uses only 4.3% enriched uranium. Since HEU can be used to manufacture nuclear weapons it requires special security regulations to protect against sabotage and terrorism at the reactor and in transporting "spent fuel" out of town. This creates an increased risk for the facility and for the community around it. Theodore Taylor, a nuclear physicist, testified in 1984 at an NRC hearing that there was "no excuse" for HEU to be used on the UCLA campus and said that ordinary burglar alarm
- J4 would not be effective in protecting such a payload. I also have concerns about the routine venting and purging of the noble gasses and tritium for the exhaust stack and releases in liquid effluent. Hinkson Creek flows right by the facility and south and west on its way out of town. I remember the creek was always an attraction for students and children. What are the consequences of contamination from regular operation or of accidental releases to the air and water.
- J5
- J6
- J7 The problem of storing high level radioactive waste continues to be controversial. There is no consensus that the repository at Yucca Mountain can isolate the irradiated fuel from the environment for as long as it will remain lethal. MURR has had problems in the last two years because of a dispute between the state and federal government over the
- J8

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Call = A. ADAMS (A x A)

transport of foreign research reactor fuel across Missouri's highways. As a result the Department of Energy refused to accept MURR fuel rods at Savannah River which almost caused a shutdown of the MURR because it had no more storage space for its "spent fuel." South Carolina is now concerned about becoming a permanent dumping ground for high level waste and the governor had threatened to bar other high level waste from the state. What are the consequences to MURR and Columbia if in the future South Carolina refuses to accept MURR's waste.

J10 The whole scenario of transporting high level was by rail and highway through populated areas all across the United States will present more and more risks as waste continues to be generated, especially if reactors, including MURR, are granted extensions of their licenses.

J12 J11 MURR continues to have significant management problems. In 2000 there were two violations related to refueling, and there have been allegations of discrimination and retaliation by an employee who raised concerns about the safe operation of the facility.

The NRC, commenting on one of the refueling violations, concluded that "The event brought into question the effectiveness of MURR's shift turnovers, management and staff communications, attention to detail, and general awareness of facility conditions." (NRC Inspection Report #2000-203). During the other incident, the NRC reported that there was a lack of communication between the workers. During an unscheduled shutdown one group of workers removed part of the shielding wall adjacent to the storage pool leaving no protection to the fuel element's intensely penetrating radiation while another group of workers was moving fuel rods. Neither group knew what the other one was doing.

J13 Currently MURR has become a commercial facility raising questions of conflict of  
J14 interest. In a related instance the former director is suing two retired scientists for defamation of character.

J15 Such management problems certainly increase the chance of a serious accident at the reactor and increase the danger to the surrounding community. These problems and the possibility of similar future problems and human error will put residents of Columbia at risk.

J16 MURR is reportedly the largest university research reactor in the world. Over half the universities in the United States have closed their research reactors. Yet I understand that MURR wants to triple the size of its reactor. What will this mean for the city of Columbia which surrounds this facility. The risks are enormous to this growing community and to the students and faculty at the University.



These issues require the utmost attention of the NRC. I request that the NRC prepare an environmental impact statement for the proposed extension of the MURR's license.

Thank you for your attention to these concerns.

Sincerely,

  
Rebecca M. Wright  
2011 Rutger St.  
St. Louis MO 63104

Example = ADM-013  
F-IDS = ADM-03  
Call = A. Adams (R.A.)

11

8/1/01

LCR 39803

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Branch  
USMC

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the operation of the  
 Museum University  
 Council Center (HURE)  
 On Government  
 Impact Statement  
 could help with the  
 awareness of the  
 HURE  
 standards and spacing  
 standards and  
 infrastructure are  
 expensive up front,  
 but in the long  
 run will save the  
 government,  
 health care, lots of  
 money and other  
 things.

(2)

K2

Aug. 26, 2001  
 44 FE 59803  
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 (11)  
 Dear Cheryl Jean,  
 California can  
 come out even cancer  
 the much needed  
 can kill a person. The  
 might during can  
 cure. Cancer is a  
 most deal disease.  
 Government should  
 the least and may  
 own experienced the  
 me there is a live  
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K1

K3

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waste produced the  
better for all. This  
can only be achieved  
through standards.  
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be a free for all  
and greed will  
do us all in.

(3) sincerely,

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46 FE 39803

August 30, 2001

5/11/01 (62)

To: Mr. Michael T. Deane, Chief (NSTC-RS4)  
Rules and Regulations Branch - Admin Services  
U.S. Nuclear Regulatory Commission  
Washington D.C. 20555-0001

Dear Mr. Deane:

Re: NRC's "Environmental Assessment and Finding of No Significant Impact  
relative to the University of Missouri University Research Reactor (MURR)  
at Columbia Missouri.

2001 SEP - 5  
REC'D  
Branch and Division  
NRC

L1 I am opposed to the license extension for above referenced Missouri  
L2 University Research Reactor and request a full Environmental Impact  
L3 statement to include assessment of the following: ① the use of "high-en-  
L4 riched uranium" fuel ② waste removal, replacement and storage; ③  
L5 safety and cost concerns (which are prompting changes of several  
L6 reactors at other Universities); reduced number of available  
qualified operators and concerns of and about personnel problems  
near the space at MURR; ⑤ the age of this facility ⑥ graphite  
surrounding the beryllium shield which encompasses the reactor  
fuel core; ⑦ serious safety concerns about transporting the waste, and  
L9 ⑧ concerns about up to date evacuation plans including proper training  
L10 of all personnel and adequate hospital space availability.

L7 I apologize for writing this instead of typing, however, due to a  
L8 "glitch" in my computer system today I am using this method. This  
L11 does lead me to my number of questions about the reliability  
of the computer technology at MURR again relative to cooperation  
in the 1960's I attended Niagara in Columbia, graduating in 1967  
L12 that when I first became aware that a Nuclear Reactor  
was situated in close proximity to the campus and likewise  
the general community. I wondered then and continue to  
wonder why this Reactor is kept in operation so close  
to a thriving growing urban area. Generally I believe  
L14 that given the development in and around Columbia, and  
the MURR, it is very past the time to retire this Reactor,  
and in its retirement use the available funds which  
L13 result to build safe alternatives such as solar powered  
installations. Please take a safety first approach in  
your deliberations for community, lands, waterways  
and wildlife in the area. Please reserve tax dollars  
for this purpose. And please include my comments in public  
record for the Reactor and well-being of all. Sincerely,  
myself - ADN-013 Ciel = A. ADAY5 (HXA)

ADN-013 Ciel = A. ADAY5 (HXA)  
1005, 1006, 1007, 1008, 1009, 1010, 1011, 1012, 1013, 1014, 1015, 1016, 1017, 1018, 1019, 1020, 1021, 1022, 1023, 1024, 1025, 1026, 1027, 1028, 1029, 1030, 1031, 1032, 1033, 1034, 1035, 1036, 1037, 1038, 1039, 1040, 1041, 1042, 1043, 1044, 1045, 1046, 1047, 1048, 1049, 1050, 1051, 1052, 1053, 1054, 1055, 1056, 1057, 1058, 1059, 1060, 1061, 1062, 1063, 1064, 1065, 1066, 1067, 1068, 1069, 1070, 1071, 1072, 1073, 1074, 1075, 1076, 1077, 1078, 1079, 1080, 1081, 1082, 1083, 1084, 1085, 1086, 1087, 1088, 1089, 1090, 1091, 1092, 1093, 1094, 1095, 1096, 1097, 1098, 1099, 1100, 1101, 1102, 1103, 1104, 1105, 1106, 1107, 1108, 1109, 1110, 1111, 1112, 1113, 1114, 1115, 1116, 1117, 1118, 1119, 1120, 1121, 1122, 1123, 1124, 1125, 1126, 1127, 1128, 1129, 1130, 1131, 1132, 1133, 1134, 1135, 1136, 1137, 1138, 1139, 1140, 1141, 1142, 1143, 1144, 1145, 1146, 1147, 1148, 1149, 1150, 1151, 1152, 1153, 1154, 1155, 1156, 1157, 1158, 1159, 1160, 1161, 1162, 1163, 1164, 1165, 1166, 1167, 1168, 1169, 1170, 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