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Introduction:

Kansans for Sensible Energy, KASE, are intervenors in the operating license hearings for the Wolf Creek generating station. As a group we support conservation and consumerism in the electrical energy field, and oppose the granting of an operating license. In this response to the "Draft Environmental Statement" related to the operation of Wolf Creek Generating Station, docket STN 50-482, NUREG-0878, KASE offers some observations for the consideration of the NRC, and some material we think should become a part of the final draft statement. For the sake of brevity, we shall confine our comments to three general areas:

1. Need for the electricity provided by WCGS
2. Assessment of potential risk of accident
3. Radiological impact of fuel cycle on environment

1. NEED FOR THE ELECTRICITY PROVIDED BY WCGS.

In section 3 of the draft environmental statement the staff concludes that "...the only logical alternative to operation of the station is to deny its operation." We agree that if the app. two billion dollars of construction costs are disregarded, there is no less expensive way to produce an equivalent amount of electrical energy. However, this does not address the question of whether the 1150 MWe to be produced by WCGS is actually needed. On page 2-3, table 2.1 compares the operation costs of WCGS with the operation costs of replacement power. Since the possibility exists that no replacement power is needed, a third catagory should be added listing "Production costs if no replacement power required". Of course, the costs associated with this alternative will be zero for each year includedin the table. Another line should be added, "Savings with WCGS not in operation". The figures for this line would be the total nuclear production costs for each year included in the table.

With the inclusion of these lines to table 2.1, the primary question becomes: is the electrical power to be generated by WCGS needed? There are many reasons to expect that demand for electrical energy will level off or decline. Much of the growth in peak demand in the '70's is attributable to all-electric homes and electrical heating in residential use. Growth in these areas has virtually ceased due to lack of demand for all-electric homes. Part of this drop in demand is a result of a leveling of residential electrical rates, eliminating a rate structure designed to reward waste and offer owners of all-electric homes reduced rates. As prices go up and conservation continues to make a "surprising" difference between load forecasts and actual increase in demand, usage and peak demand will decline. If the utilities would, instead of encouraging consumption, foster conservation through the use of load management technology, demand would fall even more.

Which brings us to page 2-6, table 2.3. This ambitious table forecasts rate of demand growth for the next eight years. Since the applicants have overestimated this same rate each year for the past eight years, this table calls for a closer examination. KASE recommends that the following table, table 2.3.B, be added to the final draft report:

Table 2.3.B

Year	Peak Demand (mWe)	Annual Rate of Growth(%)	Capacity (mWe) Without WCGS	Capacity (mWe) With WCGS	Reserve margin (%) Without WCGS	Reserve margin (%) With WCGS
KGE						
1984	1785	-	2111	2652	18.2	48
1985	1812	1.5	2111	2652	16.5	46.4
1986	1839	1,5	2247	2788	22.2	51.6
1987	1867	1.5	2247	2788	20.4	49.4
1988	1895	1.5	2247	2788	18.6	47.2
1989	1922	1.5	2247	2788	16.9	45.0
1990	1951	1.5	2247	2788	15.1	42.8
KCPL						
1984	2485	-	2804	3265	12.8	31
1985	2535	2.0	2804	3265	10.6	28.8
1986	2585	2.0	2804	3265	8.5	26.3
1987	2637	2.0	2804	3265	6.3	23.8
1988	2690	2.0	2804	3265	4.2	21.4
1989	2744	2.0	2804	3265	2.2	19.0
1990	2799	2.0	2764	3225	-1.3	15.3

This alternate table gives the variables of table 2.3 with a new % rate of growth. KASE feels these rates of growth are very possibly too high, certainly current trends would indicate a long period of very small growth for the next decade. Note, according to the table, KGE will still have a 15% overgenerating capacity without WCGS in 1990. In the draft statement, staff recommends utilities keep "minimum reserve margins at 15%" (pg 2-5). When peak demand was increasing 5%-7% each year, such a reserve was necessary; but now with a leveling peak, a reserve of 10%-12% should be sufficient. It is interesting to note on the alternate table, that in 1988, although KCPL would be down to a 4.2% margin, KGE would still have a 18.6% margin without WCGS. Since KGE could sell some of its excess reserve to KCPL, if needed, both utilities would have an adequate reserve. If, indeed, we do see a leveling off trend in demand growth, NRC will be in a position to delay the operating license until 1988. This would allow the commision to see what demand growth will turn out to be for the next five years, and the applicants will still have adequate reserves. Since construction costs are not included in this study, the increased construction costs associated with delays in bringing the plant on-line cannot be considered. Delaying the applicant's license will be cost-free, will save O+M costs from 1984 to 1988, will leave the utilities adequate reserves, and will allow the commission to learn demand trends for an additional five years.

2. ASSESSMENT OF POTENTIAL RISK OF ACCIDENT

Although many studies are cited to support the contention that electrical transmission towers only rarely impale hawks and eagles, only one study is cited to determine the probability and risk of a major muclear accident. In regards to the effect of a class nine accident we do have another study which can be cited in addition to RSS. This is the AEC (now NRC) Brookhaven report, Wash-740. The fact that many reports are used to study a relatively small problem, while available reports relating to the most serious possible problem are ignored is a major weakness in the draft statement. Wash-740 found a worst case accident could cause 45,000 deaths, injure 100,000, and cause $17 billion in property damage (1965 dollars). The first draft of RSS refuted these cosequences and found the result of a class 9 accident to be much less. After criticism of RSS by the American Physical Society, EPA, and others, RSS reevaluated the potential worst case effects at 3,300 early deaths, 45,000 early injuries, and $14 billion property damage (USNRC Wash-1400 (NUREG 75/014) pg 107). Although RSS is the only study cited, this important conclusion is not directly given in the draft statement and referred to only indirectly in the graphs of probability. This conclusion should be in the narrative of the final statement. RSS model reactor was twice the size of the Brookhaven study model reactor, yet RSS found less damage due to a worst case accident. If RSS is to be the ultimate authority on risk assessment, the final statement should address the disparity between Wash-1400 and Wash-740. RSS probability estimation techniques have received even more criticism than RSS consequence estimation. Every table and graph from pg 5-50 through pg 5-63 has a footnote directing the reader to section 5.9.4.5(7) for "discussions of uncertainties in risk estimates". However, when the reader referres to that section, he does not find a critical discussion of RSS estimation technique's shortcomings. Instead, a Lewis report finding is given: "The methodology, which was an important advance over earlier methodologies that had been applied to reactor risk, was sound." A more thorough discussion of RSS shortcomings can be found in the American Physical Society's Reviews of Modern Physics, vol 47, supplement #1, "Report to the APS by the Study Group on LWR Safety". KASE recommends that this report, in total, be included in the final statement. Reliability estimation techniques used by RSS were developed by NASA to compare the reliability of two or more different systems in relation to a problem. The "odds", or probability of occurrence, give a good measure of one system's advantages in relation to a different system. The odds do not give a good measure of an individual system's probability to fail over a period of time. The technique was never me^ + to give such information. In spite of this, we find on page 5-64: "The accident at Three Mile Island occurred in March 1979 at a time when the accumulated experience record was about 400 reactor-years. It is of interest to note that this was within the range of frequencies estimated by the RSS for an accident of this severity." In 1970, Commonwealth Edison's Dresden II plant in Morris, Illinois was out of control for two hours. A study by the Sierra Club and the Union of Concerned Scientists, "Preliminary Review of the AEC Reactor Safty Study", Nov. 1974, used RSS estimating techniques to find the probability of the Dresden accident occurring. The result was that the accident which had already happened had a probability prediction of one in a billion-billion. On page 5-42 staff states: "Accidents have also occurred at other nuclear reactor facilities in the United States and in other countries....melting of reactor fuel ocurred in at least seven of these accidents, including the one in 1966 at the Enrico Fermi Atomic Power Plant Unit 1." TMI is not the only severe accident in the nuclear industry's accumulated experiance record. In January, 1961, the SL-1 reactor in Idaho Falls went out of control killing three workers, impaling one on the ceiling with a control rod. In 1975 the Brown's Ferry plant near Decatur, Alabama suffered a serious fire. Although the fuel rods were not damaged, the fact that the fire lasted seven hours, and the repair bill was over $150 million certainly qualifies Brown's Ferry as a serious accident. Thousands of accidents occur each year, ranging in severity from relatively minor to the loss of thousands of gallons of radioactive water, as happened at the Monticello, Minn. plant in November, 1971. All these accidents belie staff's bland assertion that TMI is an isolated incident that neatly fits into RSS probability estimation. A second problem with staff's statement is that the 400 years of accumulated reactor experience includes an overabundance of early plant operation. Nuclear power plants, as with all other industrial operations, operate more efficiently when new than when old. The accumulated work experience from 500 years to 1000 years should provide a more accurate litmus test of reactor reliability. Another problem is related to this one. This is the problem of embrittlement, which is only now coming to the attention of the nuclear industry, and which is not addressed directly in the draft statement. Embrittlement is metal fatique caused by radiation exposure. Recently it has been reported that NRC has found 8 plants in 7 states with reactor shells suffering with various stages of embrittlement. It is also becoming more evident that this is a basic problem inherent to the fission process which will affect all nuclear power plants after a dozen or so years of operation. Obviously, embrittlement poses not only a serious risk of accident, but also a foreshortening of reactor plant life. These serious considerations are not addressed in the draft statement, and their omission is a serious shortcoming. Based on the preceding discussion, KASE concludes that the RSS consequence modeling and estimation techniques are unreliable and overly optimistic. The data summarized in table 5.9 is, therefore, based on unsupported assumptions, hence invalid. If staff adheres to the use of the RSS figures, KASE recommends another section be added to seriously discuss "uncertainties in risk estimates". KASE recommends this section be written by John Gofman and/or Arthur Tamplin at applicant's expense.

3. RADIOLOGICAL IMPACT OF FUEL CYCLE ON ENVIRONMENT

The radiolog'cal impact of the uranium fuel cycle is a large and difficult problem. Table 5.11 (S.3) shows the quantity of Rn-222 released to the environment as "Presently under reconsideration by the Commission". Radon gas exposure to miners, people who live near milling operations, and to people who misuse mill tailings in construction of homes is a serious question not sufficiently addressed by the draft statement. The expense and practicality of keeping animals out of contaminated areas after a serious accident or decommissioning is another question not resolved in the statement. KASE will confine our main criticism to the area of high-level and transuranic wastes. From the draft statement, appendix G, pg G-9: "The

Commission notes that high-level and transuranic wastes are to be buried at a Federal repository, and that no release to the environment is associated with such disposal." Obviously not all the material removed from the reactor in the form of spent fuel rods will be lowered into the as yet unknown Federal repository. The process of nuclear decay will mean that the material entering the Federal repository will be less than 100% of the material removed from the reactor. The real question is how much material unaccounted for (MUF) there will be. Of course there will be factors other than nuclear decay contributing to the MUF problem. Table 5.4 pg 5-26 gives the radiological effects of accidents in transportation as"small". How small will the risk of accident be when the Federal repository finally does come into being and the overcrowded temporary swimming pools begin emptying thousands of tons of spent fuel rods into the traffic patterns of America? Leaving aside the question of whether the Federal repository will successfully isolate high-level wastes for the thousands of years necessary, the more serious question is how much of these wastes will be lost on the way to the repository? To judge how effectively these wastes will be managed, we need to review how they have been managed in the past. Plutonium released during a fire at the Rocky Flats Nuclear Weapons facility in May 1969 was later found in soil samples taken in the metropolitan Denver area. After having been repeatedly cited for allowing workers to become excessively contaminated, the West Valley, N.Y. NFS reprocessing plant was closed in 1971. High-level wastes improperly buried on-site, and still there now, have contaminated nearby creeks, notably the Cattaraugus. The Maxey Flats area near Morehead, Kentucky has also contaminated nearby streams with high level wastes leached through the soil from "permanent" burial spots. It is estimated that the Hanford Storage Facility in Richland, Wash. has leaked 430,000 gallons of high-level wastes over a period of 20 years. The U.S. has been producing high-level wastes for nearly 40 years. With the exception of those wastes which have already been "lost", that is released into the environment,none of this high level waste is permanently disposed of. How much of this waste will never reach a permanent resting place? A 1000 MW nuclear plant can be expected to produce 30-35 tons of spent fuel each year, 400 to 500 pounds of this waste will be plutonium. If we assume the most conservative, WGCS would produce 30 tons of waste of which 400 pounds would be plutonium each year. Over the course of its predicted 30 year life span, it would produce 900 tons of high-level fission products, with 12,000 pounds of plutonium. If 99% of this material actually reached the Federal repository, 9 tons of waste, including 120 pounds of plutonium would be unaccounted for. If 99.9% were accounted for, there would still be nearly a ton of waste with 12 pounds of plutonium unaccouted for. It is the opinion of KASE that a .1% MUF will be dificult if not impossible for the nuclear industry to maintain. With 72 operating plants, a .1% MUF of high-level fission products would mean nearly 70 tons of missing material over a 30 year period. Finally, KASE recommends that a final environmental statement be delayed until after the Federal repository is in operation.

C. Charles Mills