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FEBRUARY 6, 1972

UNITED STATES OF AMERICA

ATOMIC ENERGY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

IN THE MATTER OF:)	
CONSUMERS POWER COMPANY)	DOCKET NO. 50-329
MIDLAND PLANT UNITS 1 AND 2)	50-330

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SAGINAW VALLEY ET AL. INTERVENORS'
STATEMENT OF ENVIRONMENTAL CONTENTIONS

INTRODUCTION

Pursuant to the Order of the Atomic Safety and Licensing Board ("Board"), Intervenor herewith submit their Statement of Environmental Contentions. Intervenor reserve the right to amend this Statement of Contentions, from time to time, as regarding environmental matters relating to the construction of the proposed Midland Units (hereafter referred to as the "proposed Plant" or "Plant").

Notwithstanding the Atomic Energy Commission's or this Board's rulings to the contrary, Intervenor assert that the Atomic Energy Act and the National Environmental Policy Act affirmatively require the Regulatory Staff of the Atomic Energy Commission and this Board, on their own motion, to consider all matters of environmental significance, whether or not such matters are brought to the attention of the board by the

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Intervenors. Accordingly, it is our position that the Board must make its own searching inquiry into the validity of the Environmental Statement prepared by the Regulatory Staff, the correctness and scope of Applicants' Environmental Submissions and any other environmental matter which would reasonably come to the attention of an objective and reasonable hearing board. It is for this reason, as well as for the reasons that the Intervenors have been denied access to reasonable discovery in aid of their Statement of Contentions and that all environmental submissions thus far by the Regulatory Staff and the Applicant have failed to discuss all sides of a particular environmental issue (thereby failing to provide to Intervenors sufficient information upon which to base their Contentions) that Intervenors believe that they are entitled to raise as Contentions hereafter any matter which could reasonably be placed before the Board at any time prior to the conclusion of the evidentiary hearing on environmental matters.

Attached hereto as Exhibit A is a preliminary request for certain discovery in connection with this Statement of Contentions. Intervenors, do not, as has been pointed out before, believe it is fair or judicially sound to require discovery to be finalized prior to rulings by the Board as to the scope of environmental inquiry. Moreover, as shall be set forth below, because the submissions of the Regulatory Staff and the Applicant are deficient, not only because they fail fully to discuss issues raised, but also because they fail to discuss

at all significant environmental issues, the requirement to finalize discovery at this time is contrary to traditional notions of fair play and justice. Accordingly, Intervenors reserve the right to make their further request for discovery at a point in time when the scope of environmental inquiry has been validly defined by the Board.

I

ENVIRONMENTAL CONTENTIONS RELATING
TO THE INADEQUACIES OF THERMAL DISSIPATION
DURING NORMAL OPERATION OF THE PLANT

1. Based upon objective engineering data, the cooling pond is of a size insufficient adequately to cool the water dissipated from the Plant during normal operations so as to prevent adverse thermal loading of the Tittabawassee River (hereafter "River"). Adverse thermal loading will impair any proposed plans to revitalize the River. Moreover, adverse thermal loading will lead to further degradation of the River and have at least the following undesirable environmental effects:
 - (a) Decreased dissolved oxygen content;
 - (b) Fish kills;
 - (c) Reduction in benthic organisms;
 - (d) Reduction in zooplankton;
 - (e) Increase in undesirable phytoplankton;

- (f) Reduction in assimilative capacity for waste water treatment plant effluents;
 - (g) Degradation of the quality of waters into which the River flows, including the Saginaw River and Lake Huron;
 - (h) Increased undesirable burdens on municipal water treatment plants situated downstream.
2. Because of the meteorological conditions occurring at various times of the year in the geographical vicinities of the Plant, it is improbable, and, therefore, there exists no reasonable assurance, that sufficient make-up water for the cooling pond will be available. These meteorological conditions include inadequate rainfall, insufficient ground water, low relative humidity, sustained, high wind velocities, and sustained lack of cloud cover leading to increased solar input. As a result of these conditions, and the lack of available make-up water from sources other than the River, cooling facilities will result in higher thermal loading than contemplated in (1) above, aggravating the adverse environmental effects set forth in (1) above.
3. If sufficient make-up water is unavailable from the River and, therefore, ^{as asserted} no discharges are made from the cooling pond to the River, the efficiency of the Plant will be reduced (and on certain conditions available

power from the Plant may be drastically reduced or limited) thereby adversely affecting users of electricity in the relevant franchise area who may, from time to time, rely upon the Plant for a dependable source of electricity. These conditions are further aggravated by the fact that as pond water drawdown occurs, the available surface water area for cooling decreases.

4. During periods of insufficient make-up water, undesirable amounts of blue-green algae will proliferate in the cooling pond because of the high thermal content. These undesirable blue-green algae will cause obnoxious odors and adversely affect the health and life of aquatic and terrestrial organisms which will rely upon the cooling pond as a source of food and water. Applicants have suggested that they will control undesirable increases of blue-green algae with the use of massive amounts of chlorine or other undesirable and dangerous chemicals; however, use of chlorine and other undesirable and dangerous chemicals will also have an adverse effect upon the health and life of aquatic and terrestrial organisms which will use the cooling pond as a source of food and water.
5. Operation of the cooling facilities will result in undesirable fogging during certain parts of the year. Fogging will occur during periods when there is a significant

difference between the ambient air temperature and the temperature of the cooling pond water. Fogging will be further increased during periods of such difference when there also exists average to high relative humidity. Under conditions conducive to fog, fog will be increased when there exists insufficient make-up water for the cooling pond. Fogging will cause at least the following undesirable environmental effects:

- (a) Decreased visibility on adjacent highways and roads, resulting in hazardous conditions;
- (b) Increase and directly cause icing on adjacent highways and roads during periods when the ambient air temperature is below 0° Centigrade, resulting in hazardous conditions;
- (c) Decreased visibility in the Midland Community, resulting in hazardous conditions;
- (d) Increase and directly cause icing in the Midland Community during periods when the ambient air temperature is below 0° Centigrade, resulting in hazardous conditions;
- (e) Decreased visibility in Dow Chemical and Dow Corning facilities, resulting in hazardous conditions;
- (f) Increase and directly cause icing in Dow Chemical and Dow Corning facilities during

periods when the ambient air temperature is below 0° Centigrade, resulting in hazardous conditions, production outages, and dangerous conditions considering the types of raw materials and products used and produced at such facilities;

- (g) Destruction of plant life due to icing;
 - (h) Destruction of wild birds due to icing;
 - (i) Impair the efficiency of or break elevated objects, such as poles, wires, towers, and transmission lines.
6. Regardless of the inadequacies of the size of the cooling pond, Applicant will be increasing, by operation of the Plant, the total dissolvable solids in the cooling pond and in the River. Although Applicant asserts that by the time of proposed operation of the Plant the level of total dissolvable solids existing in the River will be decreased, so as to permit an incremental increase as a result of the operation of the Plant, Applicant and the Regulatory Staff have failed to state how this will be accomplished. Increase in total dissolvable solids will cause turbidity on the River and cause various adverse effects, depending upon the nature of the total dissolvable solids, including but not limited to those set forth in (1) above.

7. Under certain conditions, Dow Chemical has contractually agreed to supply make-up water to the Plant. There is no discussion concerning where Dow Chemical will secure the make-up water, whether Dow Chemical will be able to supply the make-up water, whether such supply of make-up water by Dow Chemical will adversely affect the amount of water Dow Chemical itself may need for safe operations of the Dow Chemical and Dow Corning facilities, or whether such supply of make-up water will adversely affect the supply of water to the greater Tri-City area for drinking purposes, or affect the supply of water as a source of food and water to aquatic and terrestrial organisms within the affected geographic area.

II

DISCHARGE OF CHEMICAL WASTES

8. Applicant plans to discharge chemicals on a regular basis, during operation of the Plant, into the River and Bullock Creek.
9. Dow Chemical already discharges chemicals into the River and Applicant's discharges will have an additive and incremental adverse effect upon the life and quality of the River water, the organisms contained therein, the organisms which rely upon it as a source of food

and water, and the ability to revitalize the River. The adverse effects will vary in severity depending upon the character of the chemical.

10. Bullock Creek is an intermittent stream. During periods of the year when Bullock Creek is dry or nearly dry, Applicant's hot chemical discharge will be the only source of water in Bullock Creek. Since the discharges will be at least as high as temperatures from 80 to 125 degrees Fahrenheit, the severity of adverse effect during such dry periods will be increased.
11. Since Bullock Creek is a tributary to the River, any discharges into Bullock Creek are, in effect, discharges into the River, as well. There is, therefore, an insufficient analysis and discussion of the adverse effects of such discharges.
12. There is a failure to consider and analyze what adverse effects discharges into the Bullock Creek and the River will have upon other bodies of water into which the River runs, such as the Saginaw River and Lake Huron.
13. Since it is possible to remove chemicals by treatment prior to discharge into the Bullock Creek and the River, Applicant's proposed discharges represent an unwarranted cost to the environment. Applicants have not discussed methods of removal, such as the installation of a waste treatment system at the Plant itself or some method of using treatment facilities available at Dow Chemical and Dow Corning.

III

NON-RADIOACTIVE SOLID WASTES

14. There is no discussion of the quantity or character of non-radioactive solid wastes which will be regularly discharged during normal operation of the Plant. Depending upon the method of disposal, there may be adverse environmental effects from such wastes.
15. There is a failure to discuss what relationship, if any, will result between non-radioactive solid wastes created by the Plant and non-radioactive solid wastes normally disposed of by Dow Chemical and Dow Corning. For example, there is no discussion whether such wastes will be used as landfill, what the organic and inorganic composition of the wastes might be, and what effect, if any, such wastes and by-products may have upon the surrounding area, including ground water.

IV

SANITARY WASTES

16. Sanitary waste products created by operation of the Plant are planned to be shipped to Dow Chemical or Dow Corning facilities for treatment or disposal. There is no explanation, discussion, or description of the manner by which such sanitary wastes will be shipped to Dow or the manner by which Dow will dispose of

such wastes. Thus, a complete analysis of the effect of sanitary wastes of the Plant must include an analysis of Dow Chemical and Dow Corning sanitary waste systems. Without such a discussion, relative cost-benefit and risk-benefit analyses cannot be made.

V
ENVIRONMENTAL EFFECTS
ABSOLUTELY AND INCREMENTALLY,
OF THE URANIUM FUEL CYCLE

17. Environmental submissions by Applicant and Regulatory Staff have failed completely to discuss or analyze the absolute and incremental effects upon the environment (including cost-benefit and risk-benefit considerations) of the entire uranium fuel cycle, including the production of uranium by means and methods not presently developed, such as, for example, the Liquid Fast Metal Breeder Reactor ("Breeder"). A great deal is presently unknown by the Atomic Energy Commission, and vendors and utilities in the nuclear industry concerning the effects of an increased surge in nuclear development and use of uranium upon the environment. Below in this section, we set forth considerations known to us at this point, which must be the subject of an environmental analysis, and without which, a full and complete analysis cannot be made.

18. The Plant will cause, absolutely and incrementally, environmental damage and adverse effects, known to man, from the mining of the uranium, which will be necessary in order to supply fuel for the Plant. It is contended that strip-mining of uranium necessary for fuel for the Plant will without adequate benefits, represent an unwarranted environmental cost to the environment. Additionally, uranium tailings will be produced as a by-product as a result of strip-mining or any other mining of uranium. The disposition of such tailings and its effect upon man and his environment have not been considered. Moreover, during the mining of uranium, many radionuclides are produced such as, for example, radon. These radio/^{nuclides}are lethal or sub-lethal; and, thus, contribute to the death of man and other organisms and will contribute to long-term contamination of particular geographic areas, making them essentially useless for any alternative purpose. Thus, we contend that this segment of the uranium fuel cycle must not only be discussed in depth, but must also be quantified in any cost-benefit consideration to determine whether the resultant costs and risks (which are incrementally and absolutely created as a result of the proposed Plant) are outweighed by any alleged or asserted benefits.

19. After uranium is mined, the ore must be shipped for milling and processing into yellow cake as the next step in the production of nuclear fuel. Once again, there is absolutely no discussion or consideration of this segment of the fuel cycle, what adverse environmental effects may occur, and whether the costs and risks are outweighed by alleged or asserted benefits. After uranium is fabricated into yellow cake, it must be further processed into a form of ceramic pellet, which pellets ultimately become a part of the nuclear fuel rod itself (Uranium 235 and Uranium 238). Thereafter, the fuel rods are distributed for use in nuclear power plants and for use in the proposed Plant. There is no discussion of the consequences or adverse effects associated with the reprocessing of yellow cake ultimately into fuel rods, nor is there any discussion or analysis of the costs and risks associated therewith, and whether they are outweighed by any asserted or alleged benefits.
20. Subsequent to the use of fuel rods at the proposed Plant, high and low level radioactive waste products will be generated. High level radioactive wastes from irradiated fuel will be transferred, presumably to a reprocessing center, for separation of plutonium and uranium. Uranium 235, uranium 238,

and plutonium presumably will be used once again to create nuclear fuel. However, the major portion of the high level radioactive wastes, which are not uranium or plutonium, then must be disposed of and stored for substantial periods of time. There is no discussion at all of where such high level radioactive wastes will be stored and what incremental burden will be placed upon storage facilities and their surrounding environment as a result of high level radioactive wastes from the proposed Plant. Indeed, the Atomic Energy Commission has, at present, no site selected for the disposition of such high level wastes; and, therefore, as a matter of law, there has not been any cost-benefit or risk-benefit analyses of the disposition of such high-level wastes with respect to asserted or alleged benefits. Intervenors contend that the disposal of such high level radioactive wastes create risks and costs to the environment and result in adverse environmental effects in terms of radiation exposure, which far outweigh any additional benefit, if any, to the electric consumer which may occur as a result of operation of the proposed Plant.

21. During the reprocessing aspect of the uranium fuel cycle, and in addition to radiation hazards connected therewith, there are additional and adverse environ-

mental effects. Current reprocessing plants are fueled by conventional means and in most cases, are fueled by high sulfur coal. The reprocessing plants themselves, in the production of uranium for use at the proposed Plant, adversely affect the environment by emitting particulate matter, sulfur dioxide, oxides of nitrogen, and miscellaneous other noxious substances. Thus, the very production of reprocessed fuel, for so-called clean nuclear power, creates conventional pollutants which are emitted to the atmosphere. There is no discussion, for example, as to whether such conventional pollutants emitted by reprocessing plants in the course of reprocessing fuel would create more costs and risks to the environment than similar conventional pollutants which might be emitted if the proposed Plant were a conventional power plant.

22. In addition to conventional pollutants, reprocessing plants release, in normal operations, radioactivity in gaseous and liquid forms. There is no discussion of the amounts, character, and effects of such radioactive emissions; and since the Atomic Energy Commission does not apply either Part 20 Standards or the as low as practicable formula to reprocessing plants, it is conceivable that the total amount of

radioactive emissions which will reach the environment as a result of the operation of the proposed Plant will exceed safe and tolerable limits. In addition, incremental radioactive releases from reprocessing plants created by virtue of the production of reprocessed fuel for the proposed Plant will be absolutely increased.

23. Environmental submissions by Applicant and the Regulatory Staff admit that low-level solid and liquid radioactive wastes will be generated by operation of the proposed Plant. There is an inadequate discussion of the character or environmental effects of such radioactive wastes; and (in the sense that each radionuclide is not listed either quantitatively or qualitatively), no discussion of the incremental burden on the environment which will be created by such wastes from operation of the proposed Plant. In addition, neither Applicant nor the Atomic Energy Commission has considered fully where such wastes will be transported and stored; accordingly, as a matter of law, there has been no consideration as to whether costs and risks created thereby will be outweighed by alleged or asserted benefits. Indeed, there is no discussion or assurance that adequate facilities for storage and disposal of low-level radioactive wastes incrementally created by the proposed Plant will be available,

considering the amount of low-level radioactive wastes generated and available for disposition and storage by nuclear power plants in operation and planned to be in operation during the life of the proposed Plant.

24. Uranium, as a source of fuel, is in low supply. Applicant and the Regulatory Staff have failed to discuss whether sufficient uranium ore will be available to provide nuclear fuel for the proposed Plant, considering the amount of uranium ore which will be necessary to provide nuclear fuel for other reactors which will be in operation during the life of the proposed Plant. The Atomic Energy Commission has recently announced intentions to construct and develop a Breeder in order to provide further assurance that nuclear fuel will be available for the proposed Plant and other power plants which may be in operation during the life of the proposed Plant. The Breeder presents significant and unresolved safety, scientific, and environmental problems. Neither the Atomic Energy Commission nor the nuclear industry fully understand the risks and costs involved in the construction and operation of Breeders. Since the proposed Plant may rely upon nuclear fuel created by a Breeder, the risks and costs of the development and operation of Breeders must be analyzed against any alleged or asserted benefits, if any, that may be gained by construction and operation of the proposed Plant.

25. If the proposed Plant is constructed, it will have a defined, useful life. At the completion of its defined, useful life, something will have to be done with the Plant and all its radioactive components. Neither the Atomic Energy Commission nor the Applicant have addressed themselves to the economic, environmental, and social costs connected with decommissioning of the proposed Plant. In addition to the failure to have discussed the issue of decommissioning of the proposed Plant, neither Applicant nor the Atomic Energy Commission have any idea as to how they will decommission the proposed Plant, what consequences will result therefrom, what economic costs will be incurred, and what effect decommissioning will have upon the development of the greater Tri-City area and the health and safety of the surrounding environment, including man and all other organisms. Unless the issue of decommissioning is adequately resolved, an appropriate analysis of risks and benefits associated with construction and operation of the proposed Plant cannot be made.
26. Throughout the Uranium Fuel Cycle, including in a more general sense the proposed development of the Breeder and the decommissioning of the proposed Plant, accidents may occur in the transporting and handling of radioactive material. Accidents may result from

negligence or intentional acts, such as sabotage. There exists no meaningful discussion by either Applicant or the Regulatory Staff as to the character of such accidents, ways in which they will be prevented, adverse or beneficial consequences from such accidents, and the economic and other environmental costs associated therewith. To the extent that such accidents increase the total amount of radioactivity emitted to the environment, they represent a consideration for additional costs and risks which must be judged against the alleged or asserted benefits from the proposed Plant.

27. Throughout the Uranium Fuel Cycle, including in a more general sense the proposed development of the Breeder and the decommissioning of the proposed Plant, various amounts of radioactivity in differing character will be released to the environment. Since such radioactivity, by definition, does not dissipate immediately, it tends to build up in the environment and various of its component parts, including man and other organisms and water. Since component parts of the environment tend to concentrate or biologically magnify radiation, the total amount of radiation which could affect man and other organisms is underestimated by Applicant and the Regulatory Staff. Accordingly, both short and long-term risks and costs

associated with such magnified radiation have not adequately been assessed in light of presumed or asserted benefits. Biological magnification or concentration occurs in various ways. Thus, for example, radioactive material which is deposited on plant life or soil will ultimately reach water and the organisms contained therein and the organisms depending on that water for their sustenance. Because of biological magnification and concentration, radioactivity originally deposited on the soil and plants will have a far greater adverse effect when man and other organisms are exposed to or ingest such radioactivity at the end of the aforesaid cycle. In addition, there is biological magnification or concentration of radioactivity in food chain cycles, which begin directly by the discharge of radioactivity to water.

28. Applicant and the Regulatory Staff have struck an erroneous balance between the benefits, if any, to be derived from the proposed Plant and the risks and costs involved in the consequences of a postulated loss of coolant accident resulting in an uncontrolled meltdown. Because of the inadequate experimental and other data which underlies the opinions and conclusions of Applicant and the Regulatory Staff regarding the effectiveness of the Emergency Core

Cooling System and the so-called Interim Criteria concerning such System and because alternative and safer methods of producing electricity are available, the proposed plant results in an intentional infliction of risks and costs upon the public and a violation of the Atomic Energy Act and the National Environmental Policy Act. Intervenor hereby incorporate by reference the substantive contentions in the Petition to Participate filed in Docket RM 50-1 on behalf of the National Coalition of Intervenors. That Petition to Participate sets forth specific contentions respecting the inadequate basis of the Interim Criteria and Applicant's Emergency Core Cooling System, and Intervenor here urge the same contentions in order to challenge the erroneousess of the resolution of the related cost-benefit analysis.

VI

ALLEGED BENEFITS

29. There are no benefits to be derived from operation of the proposed Plant, and, alternatively, all risks and costs greatly outweigh any alleged or asserted benefits.

30. Intervenors contend that there is no valid benefit at all in connection with the proposed Plant. Applicant and Regulatory Staff analyses of the alleged benefits are found respectively at Pages 5.1-1 through 5.1-4 of Volume 1 of Applicant's Supplemental Environmental Report and the bottom half of Page 125 and the first paragraph of Page 126 of the Regulatory Staff's Draft Detailed Statement. Aside from the fact that these discussions are an insult to intelligence, they clearly demonstrate that there are no benefits to be derived from the operation of the proposed Plant.
31. The additional electricity available from the proposed Plant is not a benefit. Additional electric generation through nuclear power merely creates risks and costs to the environment. Moreover, at a time when our alleged energy demands are increasing, it is not beneficial to continue to add to the production of electricity without increasing our understanding how any demand for electricity is created. And, thus, to the extent that electricity demand is created by virtue of promotional activities or other such efforts of Applicant and the Atomic Energy Commission, any increase of electricity is not a benefit, but an unwarranted cost to the environment. Applicant, other utilities, the Atomic Energy Com-

mission, the Federal Power Commission and the nuclear industry have created an artificial demand for electricity, and no environmental analysis should reward such efforts.

32. Neither Applicant nor the Regulatory Staff has considered the possibility of changing the present/^{social}stimuli to society which could result in decreased demand for electricity, thereby not requiring the production of electricity from the proposed Plant. Elsewhere in this statement, we will set forth more specifically our contentions with respect to Applicant's projected load forecasts which we believe are invalid and in some instances untrue.
33. Applicant and Regulatory Staff assert that the proposed Plant would create a benefit resulting from shutting down Dow Chemical's fossil fired facilities. There is no serious analysis, however, as to whether Dow Chemical can purchase power from other of Applicant's generating facilities, or whether indeed, in the long run, it would be less costly to the environment to require Dow Chemical to retrofit or update its facilities to provide for fossil fuel generation of electricity without resultant pollutants. In the long run, it would make more sense to require Dow Chemical and others (by denying electricity from the proposed Plant) to investigate ways and means of generating

electricity through conventional means or other means not now known to man which could result in less risks and costs than the generation of electricity through nuclear power plants. The assertion that the generation of electricity from the proposed Plant is a benefit because it shuts down fossil fired plants is in reality trading one risk for another. Thus, before such a conclusion is sound, one must evaluate the effects of pollutants from conventional power sources against the effects of normal and abnormal releases of radiation. Since Dow Chemical has been polluting Midland for several decades with its fossil fired facilities, sufficient information should be available to determine what the effects have been and then one could compare them with known effects of radiation upon man and the environment.

34. Applicant and the Regulatory Staff assert that the proposed Plant will provide economic growth for the Midland Community and enable Dow Chemical to expand its facilities by virtue of having available to it low cost energy. There is no discussion, however, as to whether the Midland Community should encourage expanding industry or whether other uses should be found for the land and resources which will be required in such expansion. Moreover, since Dow Chemical presently has available to it in its

organization areas, admittedly low cost energy areas, within which it could expand, there must be an analysis of the environmental effects of the Dow Chemical expanding in Midland as opposed to elsewhere in order to justify the suggestion that Dow Chemical's expansion is a benefit. Finally, in any such analysis, if it is determined that the character and type of the Dow Chemical expansion will result in undesirable products, such as, for example, the creation of ^{chlorinated} hydrocarbons or 2-4-5-T, then the subsidization of Dow Chemical by virtue of the construction and operation of the proposed Plant results in additional costs to the environment without any concurrent benefits.

35. Most of the employment asserted to occur as a result of the construction of the proposed Plant is short-termed in duration. No analysis has been made as to whether it would be more sound to arrange permanent employment of the so-called peak labor force of 700 men which allegedly will be used during construction rather than spend millions of dollars in the construction of the Plant for a two or three year employment of 700 men. There will be no significant increase in employment of Dow Chemical as a result of any expansion of its facilities, which may occur as a result of the construction of the proposed Plant;

and, in fact, Intervenor's contend that the expansion of the Dow facilities will result in a decrease of employment in the Midland Community.

36. Applicant and Regulatory Staff assert that a benefit from the proposed Plant will be additional revenues and taxes. This is a specious argument and clearly is not a benefit entitled to consideration in a NEPA review, since revenues and taxes may flow from undesirable as well as desirable ventures vis-a-vis the environment. Additional taxes and revenues could be generated by proposing higher taxes on existing generating facilities which contribute to pollution and by imposing severe fines on Dow Chemical and Dow Corning for having polluted Midland and other areas of the United States for several decades.
37. Because available statistics demonstrate that nuclear power plants suffer as compared to fossil fired plants, more forced outages for reasons of maintenance, unreliability, and inadequate research, the construction of a nuclear power plant as a base load or peaking load generating facility actually results in inefficient generation of electricity and, accordingly, costs and risks to the environment and not benefits.

38. The proliferation of nuclear power plants and the construction of the proposed Plant will deter research and development into more sophisticated pollution controls for fossil fuel plants, into nuclear safety, in alternative methods of generating electricity, into an analysis of utilities' assertions as to rising demands for electricity and will deter exploration for gas, coal and other fossil fuels. Finally, construction of the proposed plan will further encourage a commitment to nuclear power and the Breeder at a time when there are substantial unresolved areas of scientific and environmental concern.
- 38A. Applicant has asserted, as stated above, that one of the benefits emanating from the proposed Plant will be the elimination of fossilfired generating capacity both in Applicant's system and in other generating facilities such as Dow Chemical. Assuming the validity of this statement, in order adequately assess the full nature of any alleged benefit, it is important to consider whether the proposed Plant will assist in reducing fossilfired generating facilities of other than Applicant and Dow. Thus, for example, there are generating municipalities and municipal power pools (consumer rather than investor owned) which have demanded purchase from or access to electricity to

be generated from the proposed plant. Assuming the validity of Applicant's and the Regulatory Staff's contention in this area, it is necessary to analyze whether the Plant is suitably sited and sized in order to spread any alleged benefit throughout the relevant franchise area. The municipalities and consumer owned electrical cooperatives whose needs should be considered in such an analysis include Coldwater, Michigan, Holland, Michigan, Traverse City, Michigan, Grand Haven, Michigan, Zeeland, Michigan, the Northern Michigan Electric Cooperative, and the Wolverine Electric Cooperation. These municipalities and cooperatives have a justifiable interest in purchasing from or access to electricity from the proposed Plant, assuming the validity of Applicant's contention with respect to alleged benefits.

- 38E. One or more of the above municipalities and cooperatives are so situated so that interconnections could take place between each or all of them and Applicant granting them access to electricity from the proposed Plant, to electricity from Applicant's existing generating facilities and to transmission lines existing or to be built in connection with Applicant's generating of electricity. An adequate environmental analysis of costs and benefits must include the environmental impact which may occur as a

result of Applicant's failure to or agreement to provide access to such municipalities and cooperatives to electricity from the proposed Plant and from Applicant's existing generating facilities (including its inter-connection partners in the Michigan Power Pool and the ECAR Region) as well as access to transmission lines existing or to be built by Applicant. Thus, the validity of any alleged benefit is a function of that benefit's availability to all coordinating utilities in the relevant area. Intervenors contend that Applicant's illegal policies regarding the sale of electricity, the sharing of generating facilities, and the nonavailability of its transmission lines has or could result in adverse environmental impact as a result of other coordinating utilities not having an available input into Applicant's huge and monopolistic position in the greater Michigan area.

VII

ALTERNATIVES TO THE PRODUCTION OF ELECTRICITY BY NUCLEAR POWER AND TO THE PRODUCTION OF ELECTRICITY FROM THE PROPOSED PLANT

39. Beginning from the time of initial development of civilian uses of nuclear power to the present, the Atomic Energy Commission, utilities, and the nuclear industry have underestimated, misreported, and misrepresented the safety, environmental impact, and reliability of nuclear power plants for the generation of electricity. Nuclear power plants were constructed and built without respect to the environment
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until the Atomic Energy Commission amended its illegal policy regarding environmental protection. During this period of time, the Atomic Energy Commission, utilities, and the nuclear industry were actively engaged in the promotion of nuclear power, without respect to criteria and standards necessary for the health and safety of the public and their environmental protection. Significant safety programs such as the Loss of Fluid Test ("LOFT"), although admittedly necessary to analyze the safety of emergency systems, have not been completed. Thus, despite the fact that the Atomic Energy Commission has admitted that its prior conservative assumptions with respect to safety have not provided reasonable assurance of margins of safety, the Atomic Energy Commission, utilities, and the nuclear industry continue to press for nuclear power plants, content to await necessary safety and environmental research after substantial commitments of resources have been made. The aforesaid and illegal promotional program is intended to subject the general public and persons living within the Tri-City area to the risks of nuclear power plants without sufficient analysis of available alternatives. The program is intended to create a fait accompli prior to any meaningful analysis.

40. All of the risks associated with nuclear power, including scientific, safety, and environmental risks with respect to the proposed Plant, have not been explained or released or made available to the public so as to provide a foundation for a cost or risk-benefit analysis. Since the consequences of a loss of coolant or a more severe accident are far greater than the consequences of an accident from a conventional power plant, such risks must be evaluated in light of the relevant benefits, if any, resulting from the construction of a nuclear or fossil-fired generating facility.
41. As of January 1, 1972, there were a total of 23 nuclear generating units in operation. These reactors are primarily of an older generation and ^{have a} /Mw size smaller than the size of the reactors presently planned to be constructed generally as well as the proposed Plant. There has not only been a lack of experience with respect to reactors the size of the proposed Plant, there has also been no experimental data or significant experience with reactors the size of the proposed Plant or larger. The Atomic Energy Commission's safety program with respect to light water-cooled reactors has been insufficient and devoid of regulatory responsibility. The so-called safety program has been geared to promotion and aggrandizement of power by an administrative agency without regard to the public health and safety.

42. The result of substantial commitments of resources prior to analysis of safety and environmental problems has been to encourage the Atomic Energy Commission and others to ignore and avoid a complete analysis of alternative methods for the generating of electricity. This is because the Atomic Energy Commission is a single purpose agency uninterested in sponsoring for any reason the construction of other than nuclear power plants. Accordingly, all analyses by the Regulatory Staff have been biased and nonobjective; for example, to date, the Regulatory Staff has not, with respect to any license application, recommended the construction of other than a nuclear power plant. It is inconceivable that an unbiased and objective analysis would not produce at least one instance where other than a nuclear power plant was suggested for construction.
43. As a further evidence of their promotional efforts, the Regulatory Staff and Applicant have failed with respect to the proposed Plant to make a sincere analysis of alternative methods for generating electricity; the Regulatory Staff has not performed any independent inquiry but rather has adopted, uncritically, the position tendered by the Applicant. Thus, inquiries into alternatives have been short-sighted, misrepresented, and, in instances, intentionally colored.

44. A threshold inquiry into the alternatives to the generation of electricity from the proposed Plant is whether additional electrical generation from Applicant is necessary from the proposed Plant in light of all of the relevant circumstances. To the extent that this contention also reflects a need for analysis of the alleged need for power, we incorporate here by reference that section of these Contentions dealing with the need for power. Additionally, and notwithstanding assertions of need for power, a full and complete analysis of alternatives must include a consideration of all other power available to Applicant from its own system, from utilities from which it is currently purchasing power, and from utilities from which it could purchase power by virtue of contractual or interconnecting commitments.
45. Intervenors contend that there is no need for electricity from the proposed Plant in light of the short and long-term plans of Applicant to build additional facilities. Thus, electricity from the proposed Plant is unnecessary and results in an unwarranted cost to the environment.
46. Applicant, without construction of the proposed Plant, will be able to meet its valid demands for the generation of electricity by virtue of purchasing power from one or more of the following sources:

- (a) Power Pools and Regional Associations of which Applicant is a member;
- (b) Power Pools and Regional Associations of which Applicant is not a member but which it could join;
- (c) Making contractual arrangements for firm commitments for power resulting in a guaranteed source of supply, rather than making no commitments and relying upon future availability;
- (d) From other than investor owned utilities, having different peak periods than Applicant, with whom Applicant could interconnect on a national or international basis; and
- (e) From investor owned utilities having different peak periods than Applicant with whom Applicant could interconnect on a national or international basis.

In any analysis of the various alternatives available to Applicant (instead of electricity alleged necessary from the proposed Plant), Intervenor contend that all of the long-term construction plans of every available source of power must be considered. In other words, in order to ascertain what sources of power or alternatives are available to Applicant, one must analyze and consider the short and long-term construction program of every available source of power in the United States and Canada.

Intervenors contend that an analysis of available sources of power, even assuming a need for power, will demonstrate that the proposed Plant results in an unwarranted cost to the environment.

47. Intervenors contend that Applicant and the Regulatory Staff have been engaged in promotional efforts to create a false demand for electricity; and all of the electricity to be generated from the proposed Plant is, therefore, not necessary for Applicant's franchised area. Accordingly, the construction and operation of the proposed Plant will not provide any benefit to electrical users and the proposed Plant represents an unwarranted cost to the environment. Intervenors further contend that Applicant, by virtue of advertising campaigns directed toward further use of electricity during peak periods, as well as advertising campaigns deficient in explaining to users in its franchised area methods of decreasing peak period use of electricity, have contributed in whole or in part to the demand for electricity from the proposed Plant; and accordingly, for this additional reason, the proposed Plant represents an unwarranted cost to the environment.
48. Intervenors contend that the sole or primary motivating reason for the proposed Plant is an effort toward public

subsidization of a private industry, to wit: Dow Chemical Company. Dow Chemical has available to it methods of purchasing or creating electricity and process steam, which would result in less cost to the environment than the purchase of electricity and process steam from the proposed Plant. Thus, Dow Chemical may retrofit and clean up its own facilities, it may purchase from other than Applicant, it may purchase from other of Applicant's generating facilities, and/or it may expand or move its facilities to other areas of the United States where low cost energy is already available. To the extent that the proposed Plant is to be constructed and operated in substantial part for the benefit of Dow Chemical Company, it represents an unwarranted cost to the environment.

49. Applicant and the Michigan Public Service Commission have illegally created an incentive for continual construction of generating facilities when they are unnecessary. The rate structure imposed upon Applicant by the Michigan Public Service Commission encourages Applicant to create unwarranted costs upon the environment. Because Applicant's ability to receive a fair return on its invested capital is directly related to outstanding amounts of unamortized construction and other capital costs, Applicant has

an incentive to continue to construct power facilities, whether necessary or not, in order to maintain an artificially high rate structure. Specifically, Intervenor's contend that Applicant is failing to use existing generating facilities to the extent of their useful lives and it is taking such facilities out of base load or peaking service after such facilities have been amortized and removed from consideration of Applicant's rate structure. Thus, the proposed Plant represents an attempt to construct a facility in order to maintain an artificially high rate structure and, as such, it represents an unwarranted cost to the environment.

50. Applicant and the Regulatory Staff have erroneously concluded that natural resources are unavailable in sufficient quantities to supply ^{fuel for} fossil fired power plants. To the contrary, uranium of all fuels is in the shortest supply and considering a rational exploitation of resources, Applicant - if it needs power - should be building other than a nuclear power plant. Intervenor's contend that there are sufficient resources of gas, oil, and coal, individually or collectively, to provide fuel for a fossil fired plant. Moreover, Intervenor's contend that it is within the state of the art or would be within the state of the art at the time

of completion of construction of a fossil fired power plant, to abate all or substantially all adverse and environmental effects which might occur as a result of a fossil fired plant. Thus, considering availability of resources, pollution abatement, and nuclear safety, the choice of the proposed Plant over other alternatives represents an unwarranted cost to the environment.

51. Intervenors contend that not only are there sufficient supplies of coal, oil, and gas (and insufficient supplies of uranium), but also that supplies of coal, oil, and gas, are or would be at the time of completion of construction of a fossil fired plant, readily available to Applicant. Assumptions by the Applicant and the Regulatory Staff that coal, gas, and oil, although in existence is not practically available, are a direct result of the massive promotion of nuclear power. Thus, if Applicant finds it is in short supply of gas, oil, and coal, it is not because such resources are unavailable, but rather because Applicant, other utilities, and the Atomic Energy Commission have discouraged exploration and development of coal, gas, and oil reserves. Based upon the availability of coal, oil, and gas and the unavailability of uranium, the proposed Plant represents an unwarranted cost to the environment. To the extent that the Breeder is intended to provide

fuel for the proposed Plant during any part of its defined useful life, the environmental, scientific, and safety problems in connection with the Breeder must be analyzed. In this vein, Intervenors contend that the Breeder is subject to such a myriad of unresolved problems that it will never be developed. Moreover, the Breeder will be the subject of intensive litigation and, accordingly, any reliance upon the Breeder for fuel in the near or short-term, is an unwarranted assumption.

52. Even considering the generation of any needed electricity by a fossil fired plant without additional pollution abatement facilities, harmful and adverse effects and dangers from radiation greatly outweigh any harmful and adverse effects from pollution which may be emitted from a fossil fired plant. This is because radiation effects are long-term in contrast to effects of conventional pollutants, because radiation effects cover a broader geographical area than do ^{effects of} pollutants from a given fossil fired plant, because available safety measures are more sophisticated and more reliable in fossil fired plants, and because a fossil fired plant is more reliable in terms of maintenance and forced outages. Accordingly, the selection of the proposed Plant imposes an unwarranted cost upon the environment.

53. Proliferation of nuclear power plants and the building of the proposed Plant deter persons, firms, corporations, and government from research and development into alternatives to nuclear power. Since, because of a short supply of uranium and the present inability to resolve problems concerning the Breeder, nuclear technology is a "stop gap" and short-term technology, construction and operation of the proposed Plant will continue to deter research and development into alternative methods for the generation of electricity, such as fusion, solar energy, magnetohydrodynamics, geothermal and other methods for the production of electricity. As a result, the construction of the proposed Plant represents a serious and unwarranted long-term cost and risk to the environment and to the development of future and alternative methods for the generation of electricity which may be needed in the future.
54. Since announcement of the proposed Plant, Applicant has increased almost 100 percent its estimate for the total cost of the project. Costs have escalated because of public re-examination of nuclear power, because additional safety research has required amendment of the project in terms of hardware, and because of delays in connection with the licensing of nuclear power plants. Moreover, as Applicant admits, further delays

are imminent because of an ongoing antitrust review not only delaying the proposed Plant but also resulting in the probability that Applicant may not be able to use in its system all of the electricity which could be generated from the proposed Plant. None of these delays or costs are evident in the construction of a fossil fired plant. Accordingly, the proposed Plant represents the selection of the most expensive and insufficient method of supplying any alleged demand for electricity and results in an unwarranted cost to the environment.

55. Assuming the validity of Applicant's assertion that it is necessary to build the proposed Plant for the production of electricity, Applicant has selected the wrong site for the Plant considering costs of generating electricity from other sites and considering the closeness to the proposed site to a large population center. Additionally, Applicant has not selected the most efficient method of dissipating waste heat inasmuch as cooling towers, and specifically dry cooling towers, represent a better alternative than does the inadequate cooling facilities presently planned by Applicant.

VIII

SURVEILLANCE AND MONITORING PROGRAMS ARE
NOT COMPLETE AND ARE
INADEQUATE IN ORDER TO ASSESS FULLY THE
ENVIRONMENTAL IMPACT
OF THE PROPOSED PLANT

56. Assuming that Applicant will construct the proposed Plant, during the period of construction and thereafter, inadequate monitoring and surveillance programs and measures have been taken by Applicant or suggested by the Regulatory Staff. As a consequence, Applicant will not, unless different monitoring and surveillance programs are adopted, be able to assess adequately the environmental impact of the proposed Plant to be in a position to take remedial and prophylactic measures. Intervenors contend that pre and post operational surveillance programs in connection with radiation, thermal, chemical, and noise emissions from the proposed Plant are deficient in at least the following respects.
57. The radiation surveillance program planned by Applicant is not sufficient adequately to monitor the effects of the proposed Plant:
- (a) Applicant's proposed radiation monitoring program will not provide, in the areas for which it is intended, a sufficient understanding of background radiation and additive radiation created

by the proposed Plant because there are too few monitoring sites selected and because the frequency of monitoring at such insufficient sites is too irregular.

(b) There are, Intervenor's contend, several other areas of radiation effects which Applicant does not plan to monitor at all. It is Intervenor's contention that a substantial monitoring of such areas must be made pre and post operational in order adequately to assess the environmental impact of radiation emissions from the proposed Plant. These areas are:

1. Phytoplankton;
2. Aquatic plants other than phytoplankton;
3. Terrestrial plants, including agricultural crops;
4. Zooplankton;
5. Benthic organisms;
6. Agnathans;
7. Osteichthyes;
8. Amphibians;
9. Reptiles;
10. Aves;
11. Mammals;
12. All sources of food grown or produced within a 50-mile radius of the proposed Plant, which food may be consumed within or without the 50-mile radius of the proposed Plant.

The radiation monitoring and surveillance program with respect to the above areas should be of a sufficient scope so that the monitoring will detect effects of direct radiation, such as directly on to soil and plants, and indirect radiation such as when a terrestrial animal consumes a plant that has been irradiated or when a man eats a terrestrial animal which has consumed a plant which has been irradiated. Moreover, the program should include methods to determine concentration and biological magnification of radiation in the entire food chain. Intervenors contend that without such monitoring programs, an adequate environmental assessment of radiation risks and costs will not be made; and also without proper surveillance and monitoring, Applicant and the Regulatory Staff will be unable to take remedial and prophylactic measures regarding radiation effects.

58. Surveillance and monitoring of thermal effects from the proposed Plant are inadequate in that sufficient sites are not provided for and at such insufficient sites, the frequency of monitoring is inadequate. Moreover, the description of the Thermal Monitoring Program is so vague so as not to provide a meaningful point of departure for a substantive discussion. Additional sites should be provided on the River,

Bullock Creek, Saginaw River, Pine River, Chippewa River, Cass River, and Lake Huron. The scope of the Thermal Monitoring Program should be sufficient so as to assess the thermal effect upon all organisms which inhabit each of the bodies of waters or rely upon each of the bodies of waters as a source of food and water.

59. Applicant does not propose and the Regulatory Staff has not suggested monitoring the indirect effects of thermal discharges from the proposed Plant. Thus, the health and development of terrestrial plants and animals may be adversely affected by changes in ambient air temperature due to thermal discharges.
60. Despite the fact that chemicals will be discharged into various bodies of water both by Applicant and Dow as a result of the operation of the proposed Plant, neither Applicant nor Dow has been required to develop monitoring programs of sufficient frequency and scope with respect to such chemical discharges. Intervenors contend that the absence of any monitoring of chemical discharges represents a failure in an adequate environmental analysis.
61. Applicant has neither discussed nor proposed to monitor noise pollution which will be created by the construction and operation of the proposed Plant. Applicant should establish a monitoring program of sufficient frequency

and scope so as to be able to monitor noise pollution and its effects upon man and other animals.

62. In addition to monitoring and surveillance by Applicant, since Applicant, Dow Chemical, and the Regulatory Staff have ^{supported} the construction of the proposed Plant at least in part so as to provide a benefit to Dow Chemical Company, in return for the benefit it will be receiving, Dow ^{must} have environmentally clean hands. Accordingly, Dow Chemical Company should be required to monitor its discharges in the areas of thermal, chemical, and noise from its own facilities so as to determine whether it should be rewarded with low-cost energy for purposes of expansion of its facilities. Dow Chemical's monitoring and surveillance should include frequency and scope at least as comprehensive as Intervenor's have contended should be required of Applicant.
63. Intervenor's contend that the cost of a monitoring and surveillance program discussed in this section should be borne by Applicant and Dow Chemical Company and not passed on to the public by requiring the Michigan Water Resources Commission to do the work.

IX

PROCEDURAL INADEQUACIES WITH RESPECT TO THE
REGULATORY STAFF DRAFT DETAILED ENVIRONMENTAL STATEMENT

64. The National Environmental Policy Act requires the Atomic Energy Commission to make an independent detailed environmental analysis concerning the licensing of the construction of the proposed Plant. Situated throughout this Statement of Contentions are areas of environmental impact which the Regulatory Staff has failed to consider. Accordingly, the Statement is insufficient as a matter of law for not considering such areas.
65. The Regulatory Staff has illegally contracted its obligation to prepare the Draft Statement to Argonne National Laboratory. The arrangements between the Regulatory Staff and Argonne are unknown to Intervenors and, accordingly, they cannot make further contentions with respect to the procedural inadequacies of the relationship. For example, we do not know whether Argonne was requested to do independent analysis or whether, as appears from the Draft Statement, Argonne and the Regulatory Staff have only accepted, uncritically, submissions by the Applicant.
66. Based upon information and belief, Intervenors contend that the Regulatory Staff and its contractees have failed to provide an independent, substantive review

required by the National Environmental Policy Act.

67. The Draft Detailed Statement fails to incorporate all of the information upon which it is based and fails to include a complete discussion of all sides of a particular issue. As such, the Draft Detailed Statement is an incomplete environmental analysis and is insufficient as a matter of law.
68. The Regulatory Staff has failed to secure comments on a realistic schedule from all of the Federal, State, and Local agencies which have an interest in commenting. Moreover, because the Regulatory Staff has only provided for a less than 30-day comment period (considering mailing time), there is insufficient time for various of the agencies adequately to comment upon the Draft Detailed Statement. Accordingly, this procedural inadequacy built into the Regulatory Staff's preparation has resulted in an inadequate analysis.
69. The Regulatory Staff has failed to quantify and qualify in monetary terms all the costs, risks, and alleged benefits with the result that a sound, economic environmental analysis cannot be made. Moreover, the Regulatory Staff has as yet to prepare, for the guidance of Applicant, guides for preparation of environmental reports by those who are seeking construction permits. As such, the Regulatory Staff has failed

to implement its obligations pursuant to the National Environmental Policy Act.

70. The Regulatory Staff has not required sufficient detailed preparation by Applicant of all areas of environmental concern and, therefore, in its implementation of its responsibilities under the National Environmental Policy Act, the Regulatory Staff has failed to acquire adequate investigation and reports by Applicant and its consultants.
71. The Regulatory Staff has failed to describe all risks inherent in the generation of electricity by nuclear power; and, accordingly, the Draft Detailed Statement is incomplete. For example, the aspects, both in terms of destruction of life and property, of a postulated loss of coolant accident resulting in an uncontrolled meltdown are not factored into the Regulatory Staff's Draft Statement.
72. The Regulatory Staff has failed to consider the actual cost of generating electricity through nuclear power. The actual cost includes such direct/and indirect costs as increased cancer and leukemia, medical costs relating to those and other diseases from radiation exposure, and costs of decommissioning the proposed Plant when its defined useful life is over. The failure of the Regulatory Staff to have considered these costs, as well as the

cost of disposal of high and low level radioactive wastes results in the Draft Detailed Statement being insufficient as a matter of law.

X

ENVIRONMENTAL CONTENTIONS
WITH RESPECT TO THE ALLEGED NEED
FOR POWER GENERALLY AS WELL AS
FROM THE PROPOSED PLANT

73. The issue of demand for power or need for power is not a function of a simple application of projected figures to rated generating capacity. In the last two decades, we have seen a demand for electricity multiply, at least as interpreted by the utilities, the power industry, the Atomic Energy Commission, and other administrative agencies. A simple arithmetic extension of the present demand curve, as so asserted, makes it clear that in a very short period of time our economy will not be able to meet such a demand. There has been a failure to do any analysis as to means to create a decrease in demand for electricity or an elimination or curtailment of industrial and other uses of electricity which could be decreased or eliminated so the economy does not suffer in terms of goods and services. From a long range environmental standpoint,

the social and scientific stimuli currently being injected into our economy encouraging peak uses of electricity must be eliminated. It is in this sense, as well as in the more practical sense of an analysis of actual figures produced by Applicant and the Regulatory Staff, against which any need or demand for power must be analyzed.

74. Intervenors contend that under the National Environmental Policy Act the proposed Plant may not be licensed unless it is demonstrated that the electricity allegedly needed from the proposed Plant, is unavailable to Applicant and/or the users in Applicant's area from any other source and, unless it is demonstrated that such demand for electricity represents useful social stimuli considering the long range rationalization of our national energy policy.
75. Intervenors contend that any demand for electricity generated by advertising or promotional efforts or by competition among public utilities to encourage the use of electricity cannot validly be rewarded pursuant to the National Environmental Policy Act.
76. Intervenors contend that in making an analysis of the promotional or advertising aspects of any demand for power, one must analyze actual advertising figures the results of advertising campaigns, and a comparison of those results with statistics in areas, if any,

where promotional advertising as a function of demand has not taken place. Moreover, any environmental analysis must consider whether a demand is created by encouraging the public to use unnecessary or non-utilitarian products which use large amounts of energy in the course of fabrication and production. Thus, if any portion of Applicant's demand is directly related to the production of such goods, an analysis has to be made as to whether the production of such goods should be encouraged or whether by a denial of electricity, one encourages the production of alternative goods which have similar end uses, but which require substantially lesser amounts of electrical energy to produce.

- 76A. Intervenors contend that notwithstanding promotional or advertising efforts and notwithstanding the lack of analysis of the end uses of energy, Applicant and the Regulatory Staff have failed to set forth adequately a responsible record upon which to substantiate claims for demand or need for electricity from the proposed Plant.
77. Applicant recently announced (January 1972) that it was cancelling construction of a Combined Cycle Plant

because its statistics underlying the demand and the need for such a plant had been re-evaluated and were not correct. The same demand figures, which Applicant has admitted are no longer up to date, are being used to support the claim for demand for electricity from the proposed Plant.

78. Applicant's survey and analysis leading to its projected load forecasts is unsound in that it overstates the future industrial needs of Michigan, the future population growth of Michigan, and fails to recognize that demand for electricity will decrease on an absolute and percentage basis. Moreover, Intervenor's contend that Applicant has not considered all generating facilities which would be available, given certain interconnections, to consumers in its franchise area and, accordingly, Applicant has used a statistically erroneous geographic area in which to analyze a demand for electricity. Thus, Applicant's statement of electric reserves is misleading in that it does not cover all available reserves.
79. Applicant and the Regulatory Staff's analyses assume that the need for power is constant and firm and will remain so during at least the ten year period between 1970 and 1980. There is no basis for making this assumption or relying upon statistics during the period 1960 to 1970 because the factors governing each such period

are not identical. For example, the rate of population increase during the ten year period, 1960 to 1970, was significantly greater than is or will be the rate of population increase during the period 1970 to 1980. Applicant's analysis has not taken into account this difference.

80. Applicant's analysis with regard to projected power needs is based, in substantial part, on past statistics. Applicant does not take into account that much of the power generated in earlier base periods was of a horizontal character in the sense that areas which never before had access to electricity were provided a source of electricity. Applicant and the Regulatory Staff have not taken into consideration in their projected land forecasts that such needs for electricity have already been met by virtue of existing generating capacity.
81. Applicant's projection assumes a continued growth and development of industry in the State of Michigan. Applicant has not adequately assessed the fact that there is a national and statewide conservation movement which may severely inhibit increases in industry. Applicant also has not considered the possibility that industry in Michigan will seek to expand elsewhere and, thus, not be available to support an alleged increase in demand.

82. Applicant and the Regulatory Staff assert that the electricity from the proposed Plant is needed in order to maintain a rate structure which is competitive with the cost of energy in other States. Applicant fails to recognize that the National Environmental Policy Act requires a long range analysis and, as such, does not permit Applicant to assume that somehow the State of Michigan and Applicant are to be favored over some other area. It may be inconsistent with the National Environmental Policy Act and a rational resolution of our National Energy Policy to encourage further electricity uses in the State of Michigan. Finally, in its so-called competitive analysis, Applicant has failed to take into account what effect, if any, the increased purchase of power (by virtue of a national interconnection of grids) would have upon the alleged need for power.
83. Applicant has failed to analyze its need for power in light of any environmentally sound program to share electricity with coordinating utilities within and without the State of Michigan and, particularly, municipalities and consumer owned cooperatives.
84. Applicant and the Regulatory Staff have in part asserted a need for power from the proposed Plant in order to retire older, less efficient, fossil fired plants. However, Applicant

has failed adequately to compare the reliability of fossil fired plants with the reliability of nuclear power plants and the proposed Plant.

85. Applicant asserts that the proposed Plant is necessary to provide "a plentiful and inexpensive supply of electricity . . . to maintain and enhance the living standards. . . ." Applicant has failed to analyze, however, either the need to conserve energy resources, a need which appears to be environmentally more sound than a need to make energy resources more plentiful. Applicant does not state whose living standards are going to be increased by the proposed Plant, and it does not analyze whether any substantial segment of the population's living standards may be decreased as a result of the proposed Plant in terms of a degraded environment which would adversely affect health, life, and property.
86. Applicant's projected demand erroneously assumes that all future needs for electricity will be increased or new demand and will not reflect merely replacement demand. For example, it is true that there may be increased residential construction; however, Applicant ignores that a person who builds a new home may be, at the same time, vacating an old home - which new home would not, therefore, represent an increase in demand for electricity.

87. There is no basis for Applicant's assumption that room air conditioners will increase from 160,000 to 360,000 in four years and that they all will be used at peak periods, particularly if the citizens are educated to conserve energy.
88. Applicant has misanalyzed the projected growth of its major users of electricity such as General Motors and Dow Chemical. The projected increases in production and uses of electricity by such major users are inordinately high in light of the rate of population for the applicable base period and the national movement to conserve electricity. Concomitantly, Applicant has failed to factor into its projection the possibility that rate structures will be revised so as to make large use of electricity on a per unit basis more expensive thereby discouraging the increased use of electricity.
89. Applicant has erroneously assumed that the Gross National Product will continue to spiral. The relationship which the Applicant asserts exists between the automobile industry and the Gross National Product does not take into consideration that many metropolitan areas, including those in the State of Michigan, are encouraging the development of mass transit which would result in a relative decrease in the production of automobiles.

90. Applicant has incorrectly stated the current demand for electricity in light of reports by the Edison Electric Institute and the Association of Electrical Illuminating Companies. The Annual Report published in late 1971 by the Edison Electric Institute disagrees with Applicant's assertions as to the character and scope of a so-called "power crisis."
91. Applicant's projections with respect to electrical needs for street and highway lighting are unsound. Applicant's own figures show a decrease in street and highway lighting for the years 1971 and 1972. These figures do not support Applicant's projections for the years 1973 and beyond, particularly since highway and super-highway construction has and will become more limited.
92. Applicant has not provided any support and, accordingly, its analysis is unsound, with respect to its claim for the need for electricity will provide jobs for an increased number of adults. Once again, Applicant's projections have failed to take into account the environmental movement and the demands of society for industrial progress and national growth consistent with environmental protection.
93. Applicant's need for electricity insofar as it relates to its claim to further an improvement in air and water quality is specious, since Applicant fails to take into

- account the effects upon the environment, (absolutely and relatively by virtue of a cost-benefit analysis) of the production of electricity which assertedly will be used to replace alternative forms of ^{the production of} electricity.
94. The Regulatory Staff in connection with the need or demand for power has failed in its obligations to make an independent analysis, but rather has accepted, uncritically, statements of the Applicant.

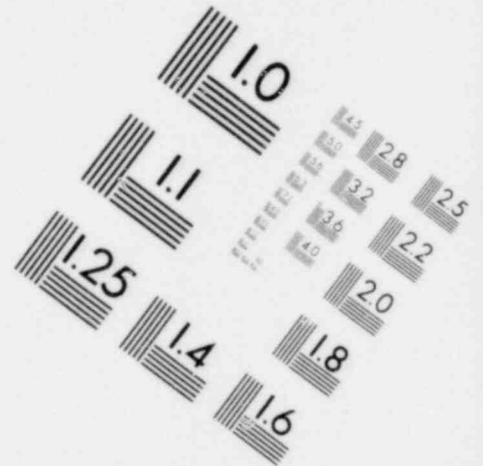
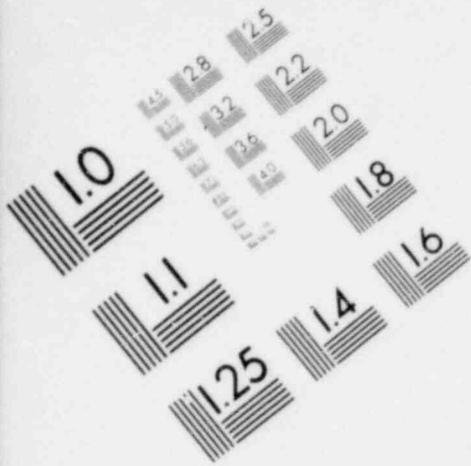
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CERTIFICATION OF
MICHIGAN WATER RESOURCES COMMISSION

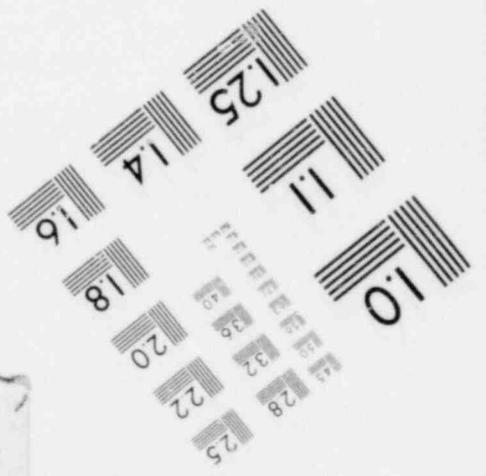
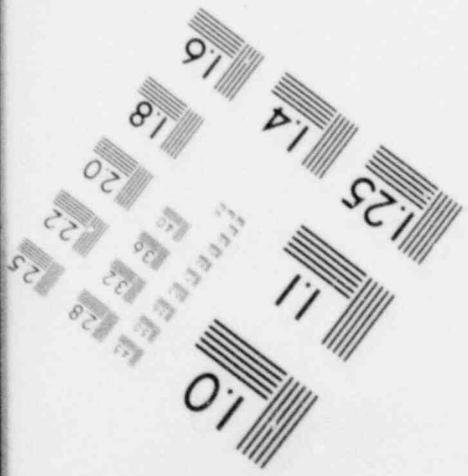
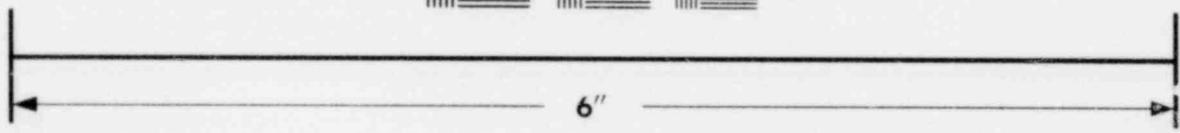
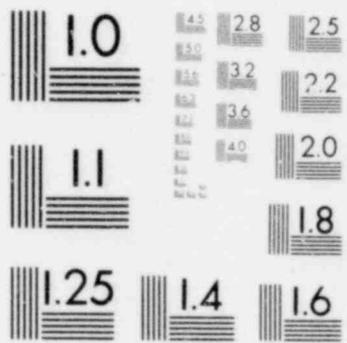
95. Consistent with the Calvert Cliffs' decision, the Atomic Energy Commission has an obligation to evaluate and analyze state water quality standards and revise such standards in the event that they provide insufficient protection for the environment. Intervenor contend that the Water Resources Commission standards and its Water Quality Certification for the proposed Plant are based upon inadequate water quality standards. Accordingly, the National Environmental Policy Act requires the Atomic Energy Commission to review and upgrade such water quality standards.
96. The local laws of the State of Michigan (Section 6(a) of the Public Act 245 of the Act of 1929) makes it

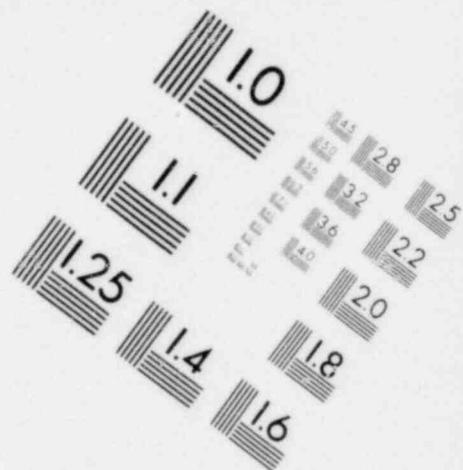
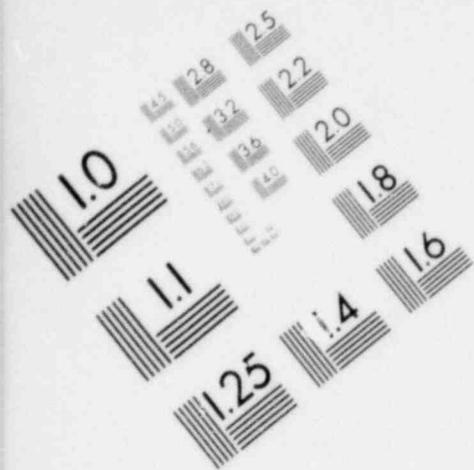
unlawful to discharge any substance into the state waters which is or may become injurious to the public health, safety and welfare. The state law does not provide an exception to permit discharges into state waters which may result in a concomitant benefit in an unrelated area. Accordingly, the Water Resources Commission has no authority to permit Applicant to make any discharges into state waters from the proposed Plant, and the Atomic Energy Commission may not, therefore, rely upon such an invalid water quality certification in the licensing of the proposed Plant.

97. The Water Resources Certification permits Applicant too long a period of time to report excesses of standards established by the Water Resources Commission. More frequent reporting is necessary to prevent negligent or intentional violations of the established water quality standards.
98. The Water Resources Certification is based upon a classification of differing standards for differing bodies of water throughout the State of Michigan. The Water Resources Commission has no such authority in light of the laws of Michigan, and the National Environmental Policy Act does not permit such a classification which, by its operation, subjects some bodies of rivers to

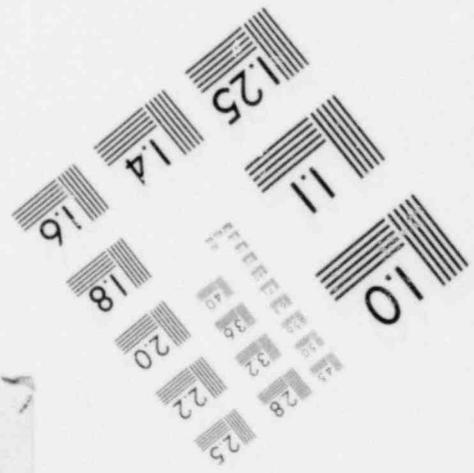
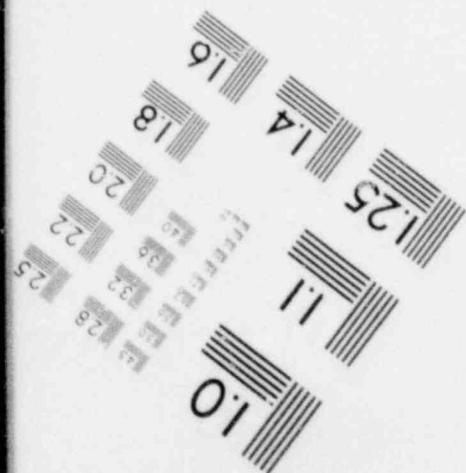
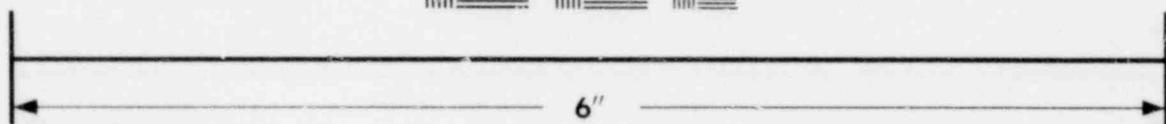
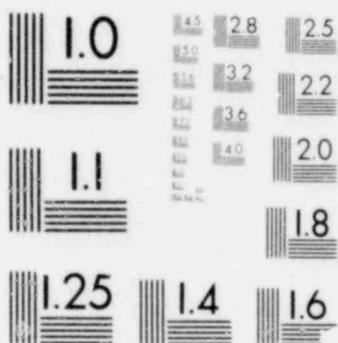


**IMAGE EVALUATION
TEST TARGET (MT-3)**





**IMAGE EVALUATION
TEST TARGET (MT-3)**



environmental degradation. Accordingly, the Water Resources Certification is based upon an illegal standard.

99. Assuming the validity of a classification of standards for bodies of rivers, the Water Resources Commission classification is insufficient in that based upon the existing quality of the River and Bullock Creek, the operation of the proposed Plant will violate all standards set forth by the Water Resources Commission in its Certification for the River and Bullock Creek, and more specifically described in (110) below. As such, the Water Resources Certification is insufficient.
100. The Water Resources Commission states that it is changing the designation of the River essentially from a standard of "tolerant fish" to a better standard of "intolerant fish." This change, due to become effective January 1, 1974, will not be able to be achieved if Applicant is permitted to operate the proposed Plant at the proposed site and as currently designed. This is particularly true in light of the fact that other industries, including, but not limited to, Dow Chemical Company and Dow Corning Company, continue to pollute the River and its confluences. Accordingly, permission to Applicant, in light of the circumstances, represents an unwarranted cost to the environment.

101. The Water Resources Commission Certification has failed to take into account the standard or criteria for discharges proposed by Applicant into Bullock Creek, and, thus, the Water Resources Certification is incomplete.
102. The Water Resources Certification has erroneously concluded that the operation of Applicant's proposed Plant will not violate the standards set for total dissolvable solids in the River. This is because the analysis of Applicant's contribution to total dissolvable solids does not consider Dow Chemical's contribution and Dow Chemical's increased contribution as a result of planned expansion due to, assertedly, low cost energy and process steam from the proposed Plant. Moreover, the discharges of total dissolvable solids by Dow Chemical are downstream from those proposed by Applicant, and, accordingly, the geographic point in the River used as a basis for Applicant's analysis is unrealistic and does not result in a true analysis of the actual amount of total dissolvable solids which are or will be contained in the River.
103. The standard set by the Water Resources Commission with respect to the amount of total dissolvable solids permitted to be discharged in or accumulated in the River is qualitatively unsound in that it does not

consider the highly injurious and toxic effect of certain classifications of total dissolvable solids such as the solids resulting from the massive daily discharges by Dow Chemical of chlorinated hydrocarbons. Thus, the standard set for the total dissolvable solids, a standard which permits certain additions to the total dissolvable solids by Applicant as a result of the proposed Plant, is insufficient to protect or upgrade the water quality of the River.

104. The Water Resources Commission has established maximum temperature levels for the River. Intervenors contend that as a result of operation of the proposed Plant and, particularly during a drought year, such as was experienced in 1944-1945, the maximum allowable temperature levels will be exceeded at points in the River below the Dow Chemical Waste Water Treatment Plant.

105. The Water Resources Commission has used the base year 1975 in its Certification. The use of the year 1975 as a base year has resulted in an ⁱⁿadequate analysis underlying the Certification. This is because subsequent to the year 1975, when Applicant's proposed Plant will be operating, tables of electric power use and projected growth of Dow Chemical indicate that Dow Chemical Company will be discharging substantially more pollutants into the River and, thus, the additive effect of Applicant's

discharges will be far greater than has been assumed by the Water Resources Commission. As such, the Water Quality Certification is inadequate.

106. The Water Resources Commission has set a standard for the average content of dissolved oxygen in the River to be not less than five milligrams per liter and in any specific instance, not to be less than four milligrams per liter. Intervenors contend that this standard is insufficient. Moreover, assuming the validity of this standard, it is obvious from an examination of the statistics thus far provided that, currently, the standard is being violated and the additional discharges from the proposed Plant and the resultant expansion of Dow Chemical will inhibit and prevent any ability to meet or maintain the average and specific standard for the River with respect to ^{the} dissolved oxygen content.
107. The Water Resources Certification notes major accidents which resulted in adverse effects upon the River, including fish kills on at least two occasions, to wit: on September 14, 1969 and July 27, 1971. The Water Quality Standards set for the River and the resultant Certification have failed to take into account adverse effects upon the River as a result of accidents of the frequency and severity as those exemplified and described in the Certification. As a result, the

Certification and the setting of Water Quality Standards is based upon the unrealistic assumption that the River will only be subjected to the discharges as a result of normal operations. The failure of the Water Resources Commission and its Certification to factor a margin of error for its predictions of discharges into the River including, but not limited to, abnormal discharges, results in the Water Quality Standard being insufficient to protect the River in accordance with law.

108. The Water Resources Commission has established that the coliform count in the River may not exceed 5,000 organisms per milliliter on an average count. There are included within the Water Resources Certification instances of coliform counts which exceed the established standard. Intervenors contend that the total coliform density in the River already exceeds the Water Resources Standards for intolerant warm-water fish and agricultural use during substantial portions of the year and that the operation of Applicant's proposed Plant and any expansion of Dow Chemical will compound these problems by virtue of additional discharges of sanitary wastes which increases the total coliform density.
109. The Water Resources Certification sets forth an established standard governing the River with respect to

temperature limits for mixing zones and the edge of mixing zones. However, this Water Quality Standard is inadequate in that the standard does not define the mixing zone absolutely or specifically with respect to thermal discharges by Applicant or Dow Chemical. As such, the Water Resources Commission Certification represents inadequate protection of the River.

110. The Water Resources Commission has set forth in its Certification Water Quality Standards applicable to the River and other bodies of water for suspended colloids, residues, toxic and deleterious substances, nutrients, phosphates, ammonia, nitrates, sugars, taste and odor and pH. Intervenors contend that discharges from the proposed Plant and from the expansion of Dow Chemical resulting from operation of the proposed Plant will separately and/or in combination cause an increase in total amounts with respect to each of the above areas which will lead to absolute and relative values exceeding the Water Quality Standards and thereby contribute to the degradation of water quality of the River and its confluences.
111. The Regulatory Staff has made no independent review of the Water Resources Certification so as to form an independent judgment upon the Certification or the Water Quality Standards upon which it is based. Accord-

ingly, the Regulatory Staff has failed to meet its obligations pursuant to the National Environmental Policy Act as interpreted by the Calvert Cliffs' decision.

XII

ADVERSE EFFECTS ON WATER USED

FOR DOMESTIC PURPOSES

AND/OR AGRICULTURAL IRRIGATION

112. Applicant and the Regulatory Staff assert there will be no adverse effect on the domestic water supplies in the greater Tri-City area as a result of the operation of the proposed Plant. However, neither Applicant nor the Regulatory Staff has presented and analyzed any data indicating survey of seeps or springs coming into the River. Furthermore, there is no data relating to a recharge of ground reservoirs by the River. The failure of Applicant to have analyzed seeps or springs or recharge of ground reservoirs indicate that Applicant and the Regulatory Staff's assertions with respect to effects, if any, on domestic water supplies are insupportable. Moreover, Intervenor's contend affirmatively that based on available statistics that there will be an evaporative loss from the cooling pond to the River in the range of 20 to 35 cfs which will influence the total recharge

of ground water reservoirs which will adversely affect the amount of water available to wells in the Tri-City Region, particularly, downstream from the proposed Plant. Thus, not only have Applicant and the Regulatory Staff failed adequately to analyze these crucial criteria, but the available statistics indicate that operation of the proposed Plant will have an adverse effect upon domestic water supplies.

11. Applicant has admitted that in its franchise area, including the area to be serviced by the proposed Plant, there exists agricultural land which is, from time to time, subject to irrigation. Applicant has not analyzed the effect which the generation of electricity and transmission of electricity from the proposed Plant will have upon the inability of owners of agricultural land to irrigate their crops. Grids and transmission lines will prevent the agricultural land situated near such grids and transmission lines from being irrigated by conventional sprinkler systems. The failure to have considered as a cost to the environment the amount of agricultural land which will be affected has not been considered in the cost-benefit analysis.

XIII
INADEQUATE ANALYSIS FROM
EFFECTS OF
MAJOR AND SEVERE FLOODS

114. Applicant and the Regulatory Staff have presented data on a probable maximum flood and assert that the design of the proposed Plant adequately safeguards the Plant from such a probable maximum flood. Intervenors contend, however, that an adequate environmental analysis is not possible unless it includes the probability and effects of a 10-year, 100-year, 500-year, 1,000-year or 10,000-year flood and that the 634 foot site elevation established for the proposed Plant will be insufficient to protect the proposed Plant in most of the above floods. In addition, Applicant's failure to discuss the range of possible floods has resulted in its failure to consider or take into account such a range of floods in connection with the design of the under-structure of the proposed Plant or the emergency measures which would be necessary to be taken into account in the event of such a flood or floods. In any such analysis, Applicant must set forth statistics upon which one can conclude what the degree of probability is with respect to each such flood and must also set forth what the consequences would be from each such flood. Without such information, an adequate cost-benefit analysis cannot be made.

XIV

AREAS IN WHICH THERE IS NO DISCUSSION
RESULTING IN AN INCOMPLETE
ENVIRONMENTAL ANALYSIS

115. Applicant and the Regulatory Staff have failed to consider in their environmental submissions any information or substantial information in each of the following areas. The failure to have analyzed and considered issues in such areas results in an insufficient environmental analysis of the construction and operation of the proposed Plant:
- (a) Social and philosophical effects of the displacement of people as a result of the construction and operation of the proposed Plant;
 - (b) Wildlife aesthetics;
 - (c) Population projections;
 - (d) Chemical explosions at Dow Chemical and Dow Corning Companies;
 - (e) Effects of synergism between radiation and chemicals;
 - (f) Effects on fish and other organisms as a result of the operation of intake structures;
 - (g) Decrease in property values as a result of each cost considered or failed to be considered;

- (h) Effects of the construction and operation of transmission lines, including but not limited to, effects in the following areas:
 - (i) visual aesthetics;
 - (ii) displacement of land; and
 - (iii) effects on bird migration.

XV

INADEQUATE COST-BENEFIT ANALYSIS

116. The National Environmental Policy Act requires sufficient information in order to make a cost-benefit analysis both qualitatively and quantitatively. The Regulatory Staff and Applicant have not presented sufficient information and have expressly declined to make qualitative and quantitative analyses of the various costs and benefits discussed in each of their submissions as well as those raised in this Statement of Contentions. Rather, Applicant and the Regulatory Staff have put forward certain value judgments and conclusions without assessing their economic cost or benefit and without relating such value judgments to the standards of the National Environmental Policy Act.
117. In certain instances, Applicant and the Regulatory Staff have provided dollar values but, once again, these dollar values are based upon vague or non-existent factual support.

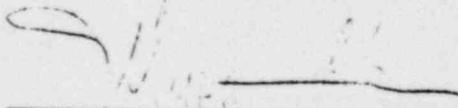
118. Intervenor's contend that because the procedural failures listed in Contentions 116 and 117, there is a failure to comply with the provisions of the National Environmental Policy Act as well as a failure to provide a sufficient factual basis for this Board adequately to analyze the totality of the environmental impact of the direct and indirect effects of the proposed Plant.

XVI

MISCELLANEOUS

119. Intervenor's also incorporate by reference each of the contentions set forth in Appendix B to our Motions filed on September 30, 1971 and set forth in comments of the Environmental Defense Fund dated June 4, 1971.

SAGINAW VALLEY INTERVENORS, ET AL.



Their Attorney

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Intervenors, herewith, move the Atomic Safety and Licensing Board for the entry of an Order permitting them to file detailed requests for discovery within fourteen (14) days after the Board has ruled upon the scope of environmental inquiry.

The grounds for this Motion are as follows:

A. We believe that it will be some time before the Board has established the scope of environmental inquiry. The resolution of the scope may necessitate certifications to the Commission;

B. No party will be adversely affected by permitting Intervenors to await the filing of discovery requests. In fact, the Board and all parties will gain a benefit because no one will have to argue on discovery requests in connection with a particular scope of inquiry which may later be eliminated;

C. If Applicant, the Regulatory Staff, and Dow Chemical have done their homework with respect to environmental submissions on the basis of this Statement of Contentions, they could begin to categorize and collate information for later availability to Intervenors. In fact, such information could be turned over to Intervenors voluntarily during the period of time during which the Board and the Commission will be finalizing the scope of environmental inquiry;

D. Intervenors agree to sit down with counsel for each of the parties and attempt to work out an informal exchange of information so as to save the Board the additional burden of formal requests and argument thereon;

EXHIBIT A
TO SAGINAW VALLEY ET AL. INTERVENORS'
STATEMENT OF ENVIRONMENTAL CONTENTIONS

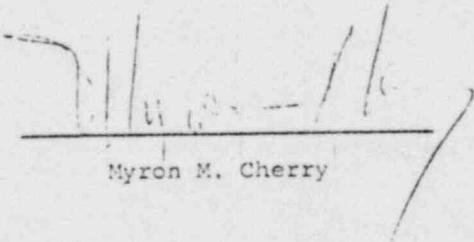
Intervenors have labored diligently and in good faith to prove this Statement of Environmental Contentions based upon submissions made by Applicant and the Regulatory Staff. Intervenors do not believe it makes sense to file detailed interrogatories with respect to these Contentions, until such time as the Board has ruled upon the scope of environmental inquiry.

Earlier in these proceedings, Intervenors filed a demand for documents which necessarily was broad in scope because of the absence of the refinement of the environmental scope of inquiry in this proceeding. Since the filing of that request for documents, which is still outstanding, although the parties and the Board have moved forward toward an environmental hearing, the scope has not been defined.

Intervenors do not feel it would serve any useful purpose toward moving this proceeding along to file a request for documents and interrogatories now which necessarily would be broad in scope and obviously would be objected to by all of the parties. Intervenors believe that they have demonstrated their good faith efforts in the development of Environmental Contentions, all in accordance with the Board's earlier rulings. Because the Intervenors have demonstrated good faith, they should not be penalized by having to file detailed discovery requests before the scope of inquiry is set forth by the Board.

CERTIFICATION OF SERVICE

I certify that a copy of this Statement of Contentions was mailed, properly addressed and postage prepaid, to Members of the Atomic Safety and Licensing Board, the Secretary of the Atomic Energy Commission, and All Counsel of Record.


Myron M. Cherry

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E. Finally, Intervenors assert that the granting of this Motion will result in a judicially sound resolution of resources of the parties and their counsel in this proceeding.

F. Intervenors at this time and in addition to outstanding requests, ask Dow Chemical, the Regulatory Staff, and Applicant the following interrogatory:

Please list by category or other characterization all documents and other information (as those terms were defined in earlier interrogatories addressed to the parties) which deal with, relate to, or discuss each of the Contentions which each of you reasonably agree is within the scope of environmental inquiry.

If each of the parties is required to answer this interrogatory, the process of discovery will begin without the added burdens of argument upon matters of inquiry not yet the subject of a Board decision.