

5711 Summerset Dr.
Midland, MI 48640
May 25, 1994

Mr. Robert A. Fenech
Vice-President, Nuclear Operations
Consumers Power Co.
Palisades Plant
27780 Blue Star Memorial Highway
Covert, Michigan 49043

Dear Mr. Fenech:

At the meeting in Benton Harbor on May 23, I agreed to send you a copy of how the technical specifications for the tiles were arrived at that must keep the metal basket containing nuclear waste from contact with the metal liner of the cask at the bottom of the cask. This is one of the most critical functions of the cask--since the two must be kept separated to avoid corrosion problems which would make it impossible to remove the metal basket if the waste was leaking or if the cask malfunctioned,--or if a way of storing the waste elsewhere was found. You might compare it to the O-ring on the space shuttle Challenger--a small part, but leading to disaster if it does not function properly.

We find Massey's approach to this issue flippant, unprofessional, sexist and outrageous. It is hard to believe that he is the president of the company that is building these casks and has the the fate of the Great Lakes in his hands. We think the public deserves a better answer.

Another example of poor quality control and management is found in the fabrication controls for the metal basket. Copies of the inspection report are enclosed which demonstrate this. How can you speak so reassuringly of the design basis for leakage from the metal basket? This is only one example out of many which raises doubts about the construction of these casks and the adequacy of their design, and which we have had no opportunity to have resolved.

With all due respect to the efforts you have made to review the seismic data for that area, I think there is an important point you are missing about why this area is geologically unstable. Dorr and Eschman, whose book, The Geology of Michigan, is the bible of the geology department of the University of Michigan, make this point. They state, "Dunes are in an almost constant state of change. Moreover, they are affected by processes other than wind action, such as wave erosion, lake level, groundwater changes, and climatic conditions. Thus, their history is very complex." Since groundwater levels can change, what you are measuring today may not be there in the future and the types and blow counts of the soil can change also. This area does not meet NRC's siting objectives and

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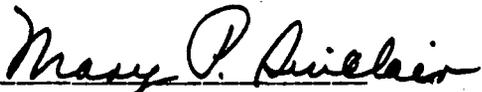
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Just
Per: C Jamerson

criteria. The study by the Army Corps of Engineers of all the shoreline of the Great Lakes has confirmed that this Palisades area is one of the most unstable. They have stated that erosion and bluff recession will continue regardless of efforts to control it. All of these data could have been examined if we had had a public hearing.

By taking all these actions without a hearing, you are also establishing a precedent for a similar tragedy of errors and lack of foresight around the Great Lakes and elsewhere in the country, with the public shut out of the process and helpless to stop great damage to the nation.

It is also noticeable in all the reporting on this site that data from the Palisades plant is constantly being linked to that of the cask as though they can be treated as being comparable. But they are two different entities. The plant is not likely to tip over and is built on bedrock. But a cask could, and its storage pad is on sand that shifts and whose composition changes. You are allowing surface storage of an immense amount of poison in an unstable environment near one of most valuable resources in the world.

I hope you will give these matters your attention.


Mary P. Sinclair, PhD.
Co-chair, Don't Waste Michigan

cc. Mr. John Zwolinski
Dr. Ross Landsman
Valdas Adamkus, Administrator EPA, Region 3

CRUSHING OF TILE

7.00 1000 5000

INPUT

- 1) FROM THE CERAMIC TILE INSTITUTE (HEATHER @ 213-660-1911)
TYPICAL CRUSH STRENGTH IS 2500 psi or greater.
This comes from a typical heel of a woman's high heels.

200 lb woman 2 high heel $\approx \frac{1}{4}$ " ϕ

$$A = 2\pi\left(\frac{1}{8}\right)^2 = 0.098 \text{ in}^2$$

$$200 / 0.098 = 2040.8 \text{ lb/in}^2 \Rightarrow \text{close enough.}$$

USE 2000 psi for conservatism.

From Ch Eng Handbook compressive strength of stoneware/porcelain = 40,000 to 60,000 lb/in^2

- 2) MSB weighs less than 64000 lb
- 3) and VCC has 29 tiles @ 1.75 in square

CALCULATION

$$64000 / (1.75)^2 * 29 = 720.6 \text{ lb/in}^2 \ll 2000 \text{ psi}$$

∴ TILES WILL NOT CRACK.

PREPARED BY

J. M. Murray

10-15-92

Checked By

[Signature]

10-15-92

2.4 Fabrication Controls

The inspection of fabrication controls focused on four primary subjects: the extent to which PSN implemented control measures regarding material procurement, fabrication processes, test and inspection, and tools and equipment. Richmond Enterprises, located in Salinas, CA, is the primary vendor for the fabrication of the metal components of the Model No. VSC-24, Ventilated Storage Cask System. The inspection team reviewed the implementation of the QA Program at the Richmond Enterprises facility. The NRC inspectors evaluated program effectiveness by interviewing staff members and examining fabrication records. The staff were interviewed for knowledge of applicable policy and procedures, and the documents were reviewed for completeness, adequacy, and appropriate approvals. The inspection team visited the three work stations at the facility where storage cask system related activity was conducted during the time of the inspection. Specifically, the inspection team reviewed completion of the QA hold points for Traveler RE017, Storage Sleeve Assembly for Unit No. MSB #3; Traveler RE018, Storage Sleeve Assembly for Unit No. MSB #4; and Traveler RE021, MSB Shell and Structural Plates [Assembly] for Unit No. MSB #3.

Nonconformances were identified regarding 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." This criterion requires that activities affecting quality be prescribed by documented instructions, procedures or drawings, and be accomplished in accordance with these instructions, procedures or drawings.

Instances were identified where PSN did not accomplish activities affecting quality in accordance with established procedures:

1. Paragraph 4.2.3 of fabrication specification CMSB-89-001 requires that fabrication travelers be submitted by the vendor to the purchaser (PSN) for approval prior to the start of work. Paragraph 2.2.1 of the same document states that submittal designated for approval by the purchaser (PSN) must be approved before fabrication is authorized. However, only 7 of the 27 fabrication travelers developed and in use by the vendor (Richmond Enterprises) were approved by PSN prior to the start of work.
2. Paragraph 4.2.4 of fabrication specification CMSB-89-001 requires that all critical dimensions, as indicated on the referenced drawings, shall be measured and recorded on the fabrication traveler. However, the "As-built" column on fabrication travelers RE005, RE006, and RE012 did not indicate the measured dimensions.

A nonconformance was identified regarding 10 CFR Part 50, Appendix B, Criterion XVII, "Quality Assurance Records." This criterion requires that the records be identifiable and retrievable.

The inspection team noted that the traveler system used in the fabrication of Unit Nos. CPC-1 and -2 does not distinguish the components used to fabricate one unit from those used to fabricate the other. For example, Traveler No. RE002 records the fabrication steps for Item No. 1, Top Plate Shield Lid; but does not indicate which unit the top plate shield was used for.

A nonconformance was identified with regard to 10 CFR Part 50, Appendix B, Criterion VII, "Control of Purchased Material, Equipment, and Services." This criterion requires that measures be established to assure that purchased services conform to the procurement documents.

Radiography services provided by a subcontractor, Metals Evaluation and Testing, Inc. (MET) were not performed in accordance with MET-QC-RT-100, MET's "Radiographic Examination Procedure." The inconsistencies identified by the inspection team are as follows:

1. The Level II Inspector's "Nondestructive Examination [NDE] Certification" documentation is based on the 1980 edition of American Society for Nondestructive Testing Recommended Practice No. SNT-TC-1A. However, MET-QC-RT-100, Paragraphs 4.0 and 5.0, requires NDE personnel certifications to be based on the 1984 edition of SNT-TC-1A.
2. MET-QC-RT-100, paragraph 6.3.D, states, "Each processed film shall be maintained in such a manner that there is no contact between the films, i.e., interleaving paper between the film." However, the radiographs at PSN were stacked, per weld number, within the envelope in direct contact with each other.
3. Paragraph 7.1 of MET-QC-RT-100 states, "Each radiographic film shall be identified through the use of lead numbers and letters and/or contact identification printer to show the following as part of the radiograph image: ... E. Date of Radiography." However, the date of radiography cannot be identified on a majority of the radiographs due to misalignment of the contact identification printer.
4. MSB-87-001, PSN "Fabrication Specification for the Multi-Assembly Sealed Basket," identifies the following documents for NDE work:
 - ASME Code Section V, 1986 Edition, through Summer 1988 Addenda; and
 - American Welding Society (AWS) D1.1-83, "Structural Welding Code - Steel."

So all the films already damaged?

However, MET-QC-RT-100 identifies a newer revision of the documents. Specifically,

- ASME Code Section V, 1989 Edition, Winter 1989 Addenda; and
- AWS D1.1, 1990 Edition.

5. MET document, CPC-50, "NDE Qualifications Manual," states in paragraph 1.1.3 under "General Nondestructive Examination Requirements" that NDE procedures reference the applicable codes and standards with which they comply. However, the codes and standards referenced in MET-QC-RT-100 do not meet this requirement. Conflicting requirements were identified in MET-QC-RT-100, paragraphs 4.0 ("Applicable Documents"), 8.6 ("Penetrameter Selection"), 9.0 ("Technique Requirements"), and 10.0 ("Acceptance Criteria").
6. There is no procedure which identifies specific radiographic parameters for the radiographic examination of the Multi-Assembly Sealed Baskets.

A nonconformance was identified regarding 10 CFR Part 50, Appendix B, Criterion VIII, "Identification and Control of Materials, Parts, and Components." This criterion requires that the licensee establish measures for the identification of components, and that the records are traceable to the item throughout fabrication, erection, installation, and use of the components.

* In the traveler system used by the vendor, Richmond Enterprises, no clear documented traceability exists between the materials used for fabrication and the certificate of compliance for the materials. Specifically, the traveler references the material heat number; but the certificate of compliance for the material is identified in the purchase order with no discernable link between the two documents. For example, Traveler RE008, "MSB Shell and Structural Plates," properly designates Heat No. 98B621 for the plate; however, no further direct traceability is referenced. The plate material can only be further identified by estimating the raw material dimensions (e.g., thickness) and attempting to locate a corresponding thickness in the purchase orders. During the inspection, Richmond Enterprises staff remembered that the material was purchased from Jorgensen Steel and Aluminum, Oakland, CA. Further research indicated that Purchase Order No. 1566 to Jorgensen Steel & Aluminum listed the heat number in question (i.e., Heat No. 98B621) as well as the corresponding material test results.

Numbered?

May 23, 1994 Meeting Follow-up Questions
NRC Draft Safety Assessment of Storage Pad
Lake Michigan Community College
Benton Harbor, MI

In this preface to my questions, I would like to point out that the information provided for the public with the NRC report for the May 23 meeting is extremely technical. Most people did not have a copy of the draft ahead of time in order to raise questions on it, and the public had no opportunity to secure an independent expert witness to review this kind of information as would have been possible if there were a public hearing. Consequently, this type of meeting has only limited value for the public.

Questions:

1. Why was it impossible to get specifications for something as basic as the construction of the storage pad prior to the licensing of the VSC-24 cask since in 10 CFR 72.210(2)(ii), states that the general licensee shall "Perform written evaluations, prior to use, that establish that cask storage pads and areas have been designed to adequately support the static load of the stored casks"? Why weren't these specifications placed in the public documents room?
2. In 1988, Michigan Low level Radioactive Waste Authority commissioned an independent study to be made of all reactor sites in the state, including that of Palisades in its efforts to co-locate a "low-level" radioactive waste facility for the Midwest Compact. It hired a consulting firm from Ann Arbor, Michigan. Their conclusion was that none of the four nuclear power plant sites in Michigan were suitable for co-location of a low-level radioactive waste storage facility. Furthermore, they pointed out that such a facility "would not meet the goals of the NRC's siting objectives and criteria and the overall goals of the NRC's performance objectives". If this site is not suitable for a low-level waste facility according to NRC's own criteria, how can you now ask us to believe it is suitable for a high level nuclear waste facility? Have you applied these criteria mentioned in this report to this cask storage facility? Where is the data? Why does it not appear in your report?
3. In the Final Rule, the storage pad is referred to as an "elastic pad". Can you explain what this means? What assurances do you have that it will support the load as you say it will given the immense amount of weight this relatively small pad will have to hold? What real world examples can you give of the successful operation of an "elastic pad" holding this much weight for a period of at least 20 years or longer in the severe climate conditions such as can be expected in the Midwest?

4. The storage pad is relatively small (195 ft. x 30 ft x 3 ft deep). It will have to bear 25 casks, each of which will weigh 130 tons. There do not appear to be any calculations that indicate that this concrete slab can hold that much weight without cracking. Has this been done? Where is the data? For how long can this size concrete storage pad support this weight without failure that might cause casks to tilt or tipover? Where are these data, and how have they been verified? In Michigan, we have a good deal of experience with concrete basements cracking over time just because of severe climatic conditions and bearing the weight of a home. We see this happening to our concrete highways all of the time because of severe climate conditions and bearing of weight. Why do you believe the concrete storage pad will not crack for the same reasons and cause damage to the casks?

5. Even a tilting of the cask could result in the metal basket hitting the metal lining of the concrete storage cask. This could result in corrosion that would make it impossible to remove the nuclear waste in the event of the malfunction of the cask. How do you propose to take care of this potential problem?

6. On p. 7, it is stated that there are some low blow counts of soil below the ground water table under the storage pad. It states that such sands can be susceptible to liquefaction, but it is not clear how this matter was resolved. Can this be explained? It is also stated that the soils beneath the storage pad are of variable densities? Isn't this the type of condition that would cause the storage pad to crack once it was bearing a huge weight?

7. The evaluation of the effect of natural hazards, wind and wave action does not coincide with the U.S. Army Corps of Engineers latest study of that area which states "Erosion and bluff recession will continue, regardless of lake level controls or structural shore protection." You state you have consulted local dune erosion experts. Have you asked the Army Corps of Engineers for their data on this site? This is a comprehensive study paid for by the public and performed by experts who were competent to use very sophisticated equipment. What effort have you made to get these data and include them in your own report? Is there any reason these data was not included in this report? 72.92 (c) states that "Appropriate methods must be adopted for evaluating the design basis external events based on the characteristics of the region and the current state of knowledge about such events." The Corps of Engineers report would appear to be the best current state of knowledge of these events. Why wasn't it used even though the NRC was made aware of this study?

8. You state that aerial surveys and topographic maps of the site area show little change to the dunes area from 1965 to 1992. But we have photographs of the area in the aftermath of a 1985 storm that took out a whole dune, to a depth of 32 to 34 ft. lost during this one storm. These photos were provided by a resident of the Palisades Park area. What is the source of your data?

9. The NRC report discusses many natural hazards that might affect the dunes, and concludes that there will be little effect from them. This is in contradiction to the most comprehensive geological report made of Michigan's geology carried in the book, The Geology of Michigan, by Dorr and Eschman. These experts state, "Dunes are in an almost constant state of change. Moreover, they are affected by processes other than wind action, such as wave erosion, lake level, groundwater changes, and climatic conditions. Thus, their history may be very complex." How do your conclusions coincide with those of Dorr and Eschman?

5/26/94

MARY P. SINCLAIR
5711 SUMMERSET DRIVE
MIDLAND, MICHIGAN 48640

Dear Mr. Zwolinski —

A accident near Palisades
Park sent these photos to
me of the impact of just one
heavy storm on Lake Michigan.
It took out a whole dune.

I hope Dr. Landsman's father
and daughter are better by
now. It would be very nice
to see him again. I have a
lot of respect for him.

Mary Sinclair

Palisades Park Beachfront
 The Day After The Dec 1, 1985
 Storm. 30'-34' of Dune Height
 Was Lost To The Tide.



The sand dune in front of
 these cottages disappeared →

These steps to a deck were
 on a sand dune the day
 before the storm. The cottage
 they belong to is at the left
 out of the picture. →



5/26/97

MARY P. SINCLAIR
5711 SUMMERSET DRIVE
MIDLAND, MICHIGAN 48640

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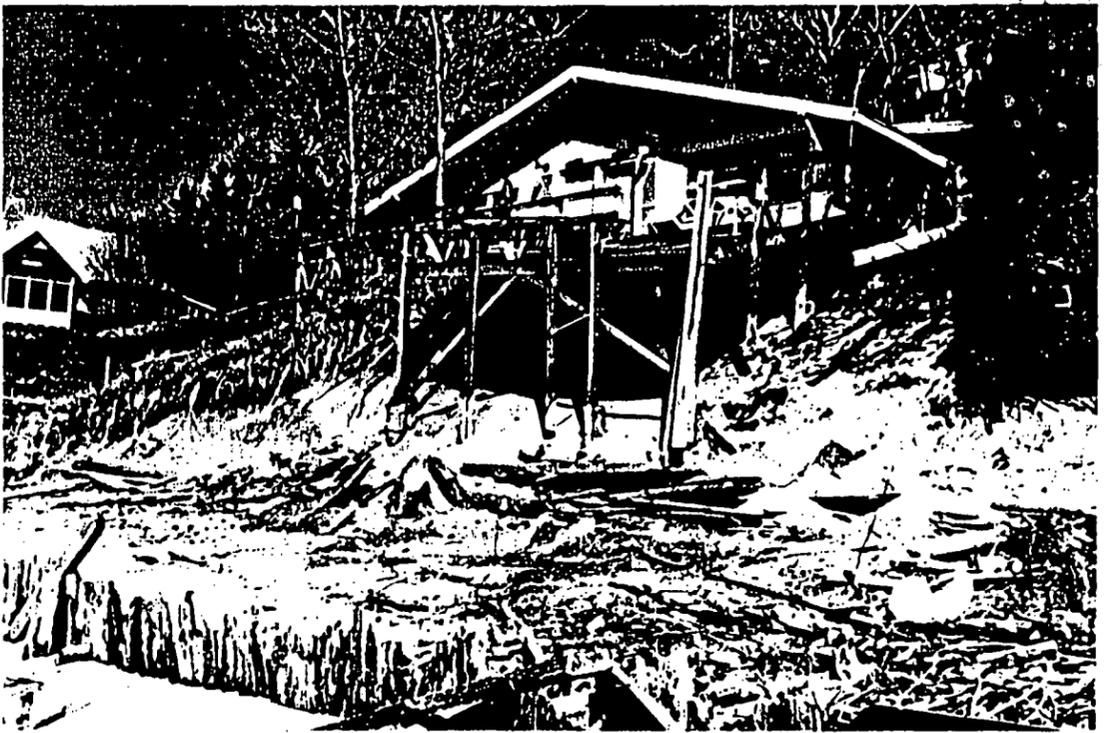
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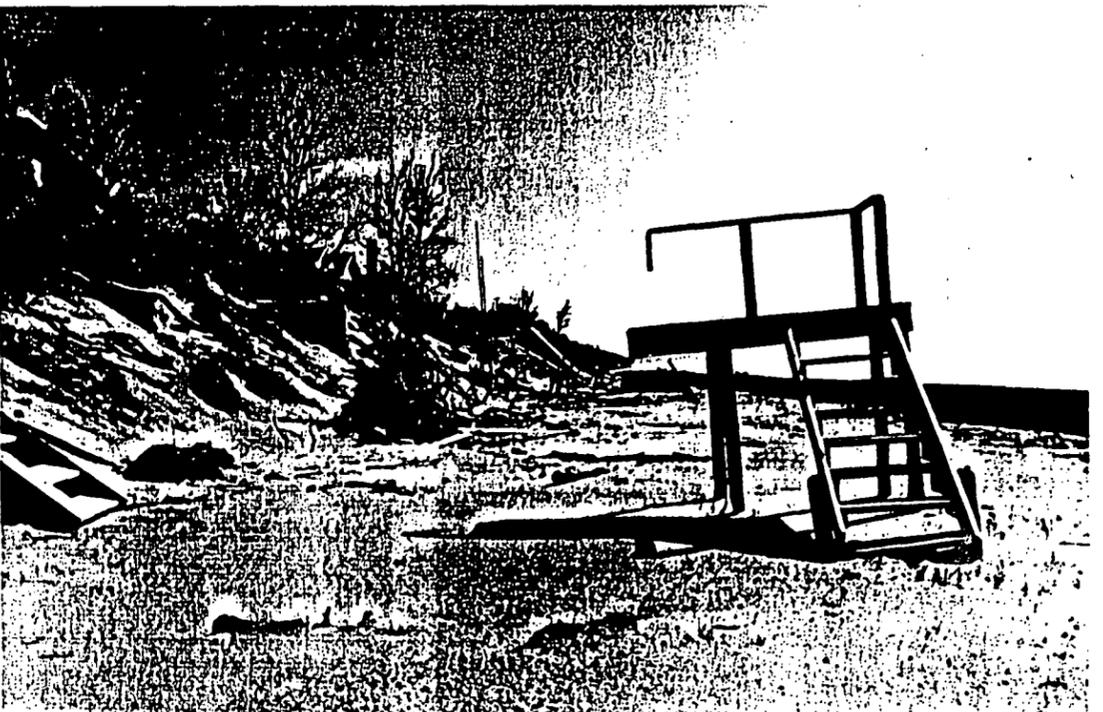
Mary Sinclair

APR 8 5 1985

PALISADES PARK BEACH FRONT
THE DAY AFTER THE DEC. 1, 1985
STORM. 33'-34' OF DUNE PROTECTION
WAS LOST TO THE LAKE.



THE SAND DUNE IN FRONT OF
THESE COTTAGES DISAPPEARED →



THESE STEPS TO A DECK WERE
ON A SAND DUNE THE DAY
BEFORE THE STORM. THE COTTAGE
THEY BELONG TO IS AT THE LEFT
OUT OF THE PICTURE. →