UTL01-0031

PORTLAND CEMENT ASSOCIATION

5420 Old Orchard Road
Skokie, Illinois 60077-1083
Voice 847 966 6200 Fax 847 966 9781
INTERNET www.portcement.org

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OFFICE OF SECRETARY
RULEMAKINGS AND
ADJUDICATIONS STAFF

Committee on Alternatives for Controlling the
Release of Solid Materials from NRC-Licensed Facilities
Mr. Martin Offut
National Research Council
Board on Energy and Environmental Systems
2101 Constitution Avenue NW
Harris Building, Room 270
Washington D.C. 20418

Re: BEES-J-00-02-A Alternatives for Controlling the Release of Solid Materials from NRC-Licensed Facilities, Stakeholder Comments and Request for Stakeholder Participation

Dear Committee Members:

The Portland Cement Association (PCA) understands that the National Research Council of the National Academy of Science (NAS) has formed a committee to undertake a study and provide recommendations to the Nuclear Regulatory Commission (NRC) on possible alternatives for the release of solid materials from NRC-licensed facilities. Included in the tasks to be completed by the NAS committee (Committee) is a review of public comment and reactions received so far on current and former NRC proposals to develop alternative for control of solid materials (Task 2 of Statement of Work, copy of NAS webpage *Project Scope* enclosed).

The purpose of this letter is to (1) provide the Committee with PCA comments and reactions to the NRC proposals and (2) to request written, timely notification of future Committee meetings and other opportunities for stakeholder participation in the study.

Template = SECY-067

SECY-02

PCA's participation in the NRC's activities on this issue began in December 1999. At the invitation of the NRC, I represented PCA during a NRC-organized Workshop held in Chicago during December 7-8, 1999. PCA provided oral comments during the Workshop and subsequently submitted written comments to NRC as well. The staff at NRC wrote a summary of public oral and written comments received by NRC titled *Policy Issue, Notation Vote, Control of Solid Materials: Results of Public Meetings, Status of Technical Analyses and Recommendations of Proceeding*, dated March 23, 2000. This NRC document included summaries of oral and written comments provided by PCA on behalf of the cement and concrete industry. The NRC document included several substantial errors in summarizing PCA comments.

PCA is concerned that the Committee may be relying on the NRC staff's inaccurate summary of comments during the Committee's review of public comment and reactions. One purpose of today's letter is to provide the Committee with accurate versions of PCA's comments. Enclosed with this letter are (a) corrections to the March 23, 2000 NRC comment summary and (b) copies of the original written PCA comments to the NRC.

Another purpose of today's letter is to request written, timely notification of future Committee meetings and other opportunities for stakeholder participation in the study. PCA is deeply concerned about the lack of timely notification of stakeholder participation opportunities on this issue provided in this process thus far. Examples of these failures include (a) receipt of an invitation to participate in the Chicago Workshop only 3 business days before the date of the Workshop and (b) no notice of the January 3-5, 2001 Committee meeting until January 5th (provided by a third party). PCA has demonstrated significant interest on this issue of controlling the release of solid materials by participation in the Chicago Workshop and provision of oral and written comments to the NRC. PCA believes meaningful public participation in the Committee's study is necessary to accurately represent and clarify the facts and industry perspectives on the issue. With today's letter, PCA requests to be notified in a timely manner in writing of any additional Committee meetings and other opportunities for stakeholder participation. These written notifications should be addressed to:

Mr. Charles Wilk
Portland Cement Association
5420 Old Orchard Rd.
Skokie, IL 60077

If you have any questions concerning this letter or enclosures, please contact me by telephone at (847) 966-6200 or email at charles_wilk@portcement.org.

Sincerely,

Charles M.Wilk LEHP QEP
Program Manager, Waste Management

enclosures

CC w/encl.:
Annette Vietti-Cook, Secretary of the Commission, USNRC
John Sullivan, APCA
Andy O'Hare, APCA
Lionel Lemay, PCA
Wayne Adaska, PCA

CC:
Jay Gleason, PCA
Richard Creighton, APCA
George Barney, PCA

PORTLAND CEMENT ASSOCIATION

5420 Old Orchard Road
Skokie, Illinois 60077-1083
VOICE 847.966.6200 FAX 847.966.9781
INTERNET www.portcement.org

January 27, 2000

Certified Mail
Return Receipt Requested
Article Number: Z 092 043 052

Ms. Sarah Walen
Meridian Institute
P.O. Box 1829
105 Village Place
Dillon, CO 80435

Re: PCA Comments on Meeting Summary of NRC Workshop on Control of Solid Materials held December 7-8 1999, in Chicago

Dear Ms. Walen:

This letter is in response to your e-mail dated January 21, 2000, addressed to Mr. Charles Wilk of the Portland Cement Association (PCA) soliciting comment on a Meeting Summary. The Meeting Summary summarizes discussions heard during the Nuclear Regulatory Commission (NRC) Workshop on Control of Solid Materials held December 7-8 1999, in Chicago. Mr. Wilk represented the PCA at the Workshop.

PCA is an industry association of cement manufacturers. The cement industry's participation in our association is extremely high. Ninety-four percent of the portland cement produced in the U.S. comes from members of the PCA. Cement is the key ingredient in concrete. PCA enjoys close alliances with all aspects of the concrete industry.

Enclosed are PCA comments on the Meeting Summary that the PCA believes to be important amendments and corrections to the document. PCA understands that this letter and enclosure will be addressed in the Meeting Summary and also become part of the administrative record on any subsequent rulemaking.

The PCA has participated in the NRC's expanded public participation effort concerning the NRC-contemplated rulemaking on control of solid materials. PCA participation has included, Workshop participation, Workshop transcript review and comment and review and comment on the subject Meeting Summary. The PCA understands that the NRC staff has conducted the expanded public participation effort in order to provide the NRC Commissioners with information on effected groups and their perspectives, as well as NRC staff recommendations on how the Commissioners should proceed on rulemaking in March 2000.

The cement and concrete industry's perspectives, comments and suggestions concerning the control of solid materials have been provided to the NRC through the Workshop discussion, other correspondence and the enclosure to this letter. They can be summarized in the following points:

1. Any NRC rulemaking that increases the potential for release of any level of radioactive material into consumer goods poses additional health risks to the public.
2. Any real or perceived additional public health risks posed by radioactive consumer goods, regardless of how slight the endangerment may be, will not be tolerated by the public and consumers.
3. Consumers will not find the benefits of recycling and conservation of resources by release of solid materials from NRC licensees into commerce as persuasive reasons to accept the perceived additional exposure to radioactive materials.
4. Upon realization that certain consumer goods, including cement and concrete, have a higher potential to contain additional radiation sources, consumers will decide not to purchase these goods. This will translate into loss of market for the effected industries.
5. Increased potential for the release of radioactive material for reuse in the cement and concrete industry will cause the cement and concrete industry to incur significant additional expenses for surveillance for incoming radioactive material as well as management of any radioactive materials.
6. Acceptance of radioactive material has no benefit to the cement and concrete industry only possible endangerment to the Industry's workers and customers.
7. The Industry has provided sufficient information and examples to support our claims.

The cement and concrete industry has made significant efforts to participate in the dialog concerning the release of solid materials. In deference to this, the PCA expects that the Meridian Institute and the NRC staff will provide the NRC Commissioners with a complete and accurate summary of the cement and concrete industry perspective, comments and suggestions on the issues.

If you have any questions concerning this letter, please contact Mr. Charles Wilk at (847) 966-6200. At your request Ms. Walen, this correspondence has also been e-mailed to you.

Sincerely,

Charles M. Wilk

Charles M. Wilk LEHP, QEP
Program Manager, Waste Management
Public Works

Cc w/enclosure
Dr. Don Cool, NRC
Mr. Frank Cardie, NRC

PORTLAND CEMENT ASSOCIATION

5420 Old Orchard Road
Skokie, Illinois 60077-1083
VOICE 847.966.6200 FAX 847.966.9781
INTERNET www.portcement.org

December 21, 1999

Secretary
U.S. Nuclear Regulatory Commission
Rulemaking and Adjudications Staff
11555 Rockville Pike
Rockville, MD 20850

Re: Comments on Control of Release of Solid Materials at Licensed Facilities

Dear Secretary:

Enclosed is a corrected copy of the transcript taken during the public meeting held in Chicago during December 7-8, 1999, concerning the Control of Release of Solid Materials at Licensed Facilities. As a representative of the Portland Cement Association (PCA), I was a participant of the meeting. I have corrected recording errors of my statements and made comments in the margins of the transcript to improve the readability of my statements.

I understand from the statement of Mr. Don Cool of the Nuclear Regulatory Commission (NRC) during the meeting, that the transcript will; (a) become part of the administrative record and (b) have the same standing as written comments received during the public comment period.

The PCA requests that the enclosed corrected transcript be entered in the administrative record as written comments on any proposed rule concerning Control of Release of Solid Materials at Licensed Facilities. Further that the verbal comments memorialized in the transcript be addressed in any response to comments concerning this issue written by NRC and published in Federal Register notices.

PCA is requesting that the corrected transcript in its entirety be entered into the administrative record as written comments. However, to assist NRC in its review of this letter's enclosure, PCA corrections and comments were made on the following page numbers of the enclosed transcript: 100, 115, 329, 330, 331, 332, 333, 334, 335, 338, 345, 378, 379 and 415.

This letter was mailed to NRC via express courier. This letter should be arrive at the NRC before the comment deadline. If this letter does not arrive at the NRC before the deadline, the PCA requests that NRC consider the comments as if they had arrived in time. We request this deference since the PCA; (a) participated in the public meetings, incurring expenses, (b) made statements that were incorrectly recorded by NRC, and (c) is a substantial stakeholder in these NRC decisions.

Please contact me at (847) 966-6200, if you have any questions concerning this letter.

Sincerely,

Charles M. Wilk

Charles M. Wilk
Program Manager, Waste Management

Cc: George Barney, PCA
Wayne Adaska, PCA

Project Scope

More Project Information and to provide FEEDBACK on the Project

Project Title: Alternatives for Controlling the Release of Solid Materials from Nuclear Regulatory Commission-Licensed Facilities

Project Identification Number: BEES-J-00-02-A

Responsible Staff Officer: Martin Offutt

Major Unit: Division on Engineering and Physical Sciences

Sub Unit: Board on Energy and Environmental Systems

Project Scope:
Statement of Work

The National Research Council committee formed to undertake this study will address the following tasks:

(1) As part of its data gathering and understanding the technical basis for the Nuclear Regulatory Commission's (NuRC's) analyses of various alternatives for managing solid materials from NuRC-licensed facilities, the committee shall review the technical bases and policies and precedents derived therefrom set by the NuRC and other Federal agencies, by States, other nations and international agencies, and other standard setting bodies including a number of documents.

(2) The committee will review public comments and reactions received so far on current and former NuRC proposals to develop alternatives for control of solid materials. The committee will explicitly consider how to address public perception of risks associated with the direct reuse, recycle, or disposal of solid materials released from NuRC-licensed facilities. The committee should provide recommendations for NuRC consideration on how comments and concerns of stakeholders can be integrated into an acceptable approach for proceeding to address the release of solid materials.

(3) The committee shall determine whether there are sufficient technical bases to establish criteria for controlling the release of slightly contaminated solid materials. This should include an evaluation of methods to identify the critical groups, exposure pathway(s), assessment of individual and collective dose, exposure scenarios, and the validation and verification of exposure criteria for regulatory purposes (i.e., decision making and compliance). As part of this determination, it should judge whether there is adequate, affordable measurement technology for NuRC-licensees to verify and demonstrate compliance with a release criteria. What, if any, additional analyses or technical bases are needed before release criteria can be established?

(4) Based on its evaluation and its review, the committee shall recommend whether NuRC: (1) continue the current system of case by

recommend whether NuRC: (1) continue the current system of case-by-case decisions on control of material using existing, revised, or new (to address volumetrically contaminated materials) regulatory guidance, (2) establish a national standard by rulemaking, to establish generic criteria for controlling the release of solid materials, or (3) consider another alternative approach(es).
If the committee recommends continuation of the current system of case-by-case decisions, the committee shall provide recommendations on if and how the current system of authorizing the release of-solid materials should be revised.
If the committee recommends that NuRC promulgate a national standard for the release of solid material, the committee shall: (1) recommend an approach, (2) set the basis for release criteria (e.g., dose, activity, or detectability-based), and (3) suggest a basis for establishing a numerical limit(s) with regard to the release criteria or, if it deems appropriate, propose a numerical limit.

(5) The committee shall make recommendations on how the NuRC might consider international clearance (i.e., solid material release) standards in its implementation of the recommended technical approach.

Sponsor: U.S. Nuclear Regulatory Commission

Starting Date for Project: September 1, 2000

A Final Report will be issued approximately 16 months from the start of the project.

Project Duration: 18 months

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2101 Constitution Avenue, NW, Washington, DC 20418

Corrections to March 23, 2000 NRC Paper on Control of Solid Materials

This enclosure is to provide corrections to the NRC staff's descriptions of our comments on the issue of Control of Solid Waste. The Portland Cement Association (PCA) participated in the enhanced public participation effort conducted by the NRC on possible rulemaking. The NRC staff summarized PCA oral and written comments in attachments to a memorandum addressed to the Commissioners, from William D. Travers, entitled Policy Issue, Notation Vote, Control of Solid Materials: Results of Public Meetings, Status of Technical Analyses, and Recommendations for Proceeding, dated March 23, 2000.

The errors are few. However, some of the errors may substantially change the meaning of our industry's comments and conclusions drawn from them. The errors and suggested corrections are described as follows:

1. Definitions of "Cement" and "Concrete"

Most of the general public uses the terms "cement" and 'concrete" interchangeably. However they are different materials. "Concrete" is material used in construction that is a mixture of aggregate (gravel), sand, cement and water. "Cement" or more precisely portland cement, is a product manufactured from raw materials such as limestone, clay, shale, and iron ore. (Recycled concrete is never used as a raw material to manufacture cement.) The principal use of cement is to make concrete. Cement is the "glue" that bonds the aggregate and sand together to make the familiar construction material called concrete. About 12% of a typical concrete mixture is portland cement.

PCA was careful to explain these distinctions to NRC staffers in our oral and written comments. Regrettably, some of the NRC staffs' summaries of our comments used the terms cement or concrete incorrectly. PCA is concerned that the NRC continues to have apparent confusion over basic terms relating to our industry. The information needed to make decisions on the rulemaking is very technical in nature. The NRC should clearly understand the basics of our industry in order to make the important decisions facing the NRC concerning control of solid materials.

To the general public the distinction between the terms appears to be insignificant. However, to the engineering and scientific public the distinction is important. NRC staff incorrectly characterized PCA comments at Attachment 2 to the memorandum, 3. Cement Industry, (d) Other. Here the Attachment includes a statement: "With regard to the use of fly ash in concrete products (fly ash is a technically enhanced naturally occurring material; the Issues Paper noted that the dose from use of recycled coal ash in concrete block as permitted by EPA can be about 3 percent of natural background (about 10 mrem/yr)), one reason why fly ash is used in concrete is that in 1983 the Environmental Protection Agency (EPA) issued guidelines requiring purchase of **cement** *(emphasis added)* containing fly ash in both government and private sectors."

What should have been stated here is that in 1983 the EPA issued guidelines requiring the purchase of cement and concrete containing fly ash in both ....

The reason that this is important can be illustrated by the following example: If a regulator uses the terms "cement" and "concrete" interchangeably, and specifies that all "cement" (meaning concrete) shall contain 10% fly ash, then the result would be 10% fly ash level in the concrete. In this hypothetical example, the regulator, or the public, suddenly discovers that the fly ash has radioactivity above background and requests a risk assessment. The risk assessment is conducted by a person that does know the difference between cement and concrete. The assessor mistakenly assumes that the regulator was using the terms correctly. This risk assessor knows the proportion of cement in concrete is only 12%. The assessor reads the regulator specification that the cement shall contain 10% fly ash. Therefore, the assessor calculates that the subject concrete contains only 1.2% radioactive fly ash since 10% X 12% = 1.2%. For the risk assessment, the calculated proportion of "radioactive" fly ash in the subject concrete is 1.2%. The actual amount of fly ash in the subject concrete is 10%. Ten percent is greater than 1.2%. In this hypothetical example, the risk assessment seriously underestimates the amount of "radioactive" fly ash in the subject concrete and therefore underestimates the risk posed to public from the subject concrete.

The same thing can happen if the NRC uses the terms "cement" and "concrete" interchangeably if it allows the recycling of radionuclide-contaminated concrete. If the NRC allows contaminated concrete to be reused in "cement", when it really meant to say that it can be reused in concrete, there is a possibility that a risk assessment using the correct terms would underestimate the risk posed to consumers by recycling the contaminated concrete. This underestimation is even greater than in the hypothetical case of fly ash above. This is because concrete is about 70% aggregate and sand, recycled concrete would be used to replace the aggregate and sand, and the proportion error would be even greater.

Another place where confusion of the terms "cement" and "concrete" could create significant problems is on page 7 of Attachment 2 at 3. Cement Industry (b) (2). Here the Attachment states that the PCA commented that "Cement companies do not have the instrumentation and personnel training necessary to do these screenings and the industry would incur significant expenses for purchase of radioactivity monitoring equipment and training for personnel. In addition, there would be facility modifications to segregate material, disposal costs for "orphan" radioactive material, liability insurance, and legal costs." PCA oral and written comments to the NRC actually stated that expenses would be incurred at both cement manufacturing and concrete producing (ready-mix) facilities. The distinction is important since there are about 120 cement manufacturing facilities in the U.S. There are over 6,000 concrete producing (ready-mix) facilities in the U.S.. An economic impact analysis on the proposed rulemaking that limits these costs to the cement manufacturing facilities and does not include costs to the concrete mixing (ready-mix) facilities would grossly underestimate these costs to our industry.

2. Uses for Recycled Concrete

There is an error in the description of the use of recycled concrete on Attachment 2., 3. Cement Industry, (b), 4. The Attachment reads "The economic value for used concrete used as a fill material for aggregate is very low compared to virgin materials." It should read correctly as: The economic value of used (recycled) concrete when used as a fill material, such as a base for roads, or as an aggregate for new concrete is very low compared to virgin materials.

3. Reliance on Public Trust

The statement attributed to PCA found at Attachment 2., 3. Cement Industry, (b), 5 should be explained in context. Here the Attachment states: "NRC should practice gaining the public's trust on issues where the potential adverse economic effects are limited to its licensees' businesses before attempting a rulemaking that could have adverse economic effects on businesses outside of the licensees." The Attachment should explain that the statement was made in the context that proponents of the release of slightly contaminated radioactive solid materials believe that the public will trust the NRC to safeguard their health and the environment. Therefore, no economic harm due to market forces will happen to the industries accepting the recycled solid materials. While the PCA believes that the NRC can generally be trusted in this matter, the U.S. Government's record with gaining the trust of the public on various health and environmental issues has had some set backs recently. An example currently in the news would be admissions of misconduct by the Department of Energy concerning worker safety and radioactive waste disposal during the Manhattan project and nuclear weapon production.

The issues concerning the control of solid material have the potential to adversely effect businesses outside of the NRC's licensees. PCA's comment was made to point out that the NRC should not rely on the U.S. Government's abilities to gaining the public's trust concerning disposition of radioactive material to avoid adverse economic effects on businesses unrelated to NRC licensees.

4. Examples of Potential Adverse Market Effects

During the enhanced public participation process the NRC requested examples where there was actual economic harm due to radioactive waste in consumer goods. The PCA provided 3 relevant examples during oral and written comments. The PCA took the effort to research and provide these examples in our comments and is very concerned that the examples were omitted from the NRC comment summary Attachment 2.

Portland Cement Association
Comments on the Meeting Summary for the
NRC Workshop on Control of Solid Materials
Held December 7-8, 1999

General Comments

1. **Portland Cement Association's Standing in the Workshop and Representation for the Cement and Concrete Industries.** The Meeting Summary identifies various participants in the meeting. In some cases the participant making a comment is identified by name and/or company affiliation, in other cases names and/or company affiliations are not used. The NRC held the meetings to gather information on specific solid materials. Concrete was one of the specified materials. These materials were aluminum, copper, concrete, trash, items for reuse, and steel. The Portland Cement Association (PCA) participated in the meeting at the invitation of the NRC. The Meeting Summary identifies PCA's representative as an "individual from the cement industry." It should be noted by the NRC commissioners, and in the Meeting Summary, that the "individual from the cement industry" was a representative of PCA.

   PCA is an industry association for the manufacturers of portland cement. The cement industry level of membership to is close to 100%. PCA members manufacture 94% of the portland cement produced in the U.S. Portland cement is the key ingredient in concrete. PCA has close relationships and common interests with all of the cement and concrete related industries including concrete ready mix producers, aggregate producers, concrete precasters, and concrete pavers.

   The NRC staff and NRC commissioners should note that the comments and views expressed by the "individual from the cement industry" are those expressed by an industry association representing almost the entire cement industry with extremely close ties to the concrete industry.

2. **Coverletter**. PCA comments on the Meeting Summary were solicited by NRC by e-mail correspondence dated January 21, 2000, from Barbara Stinson, Mike Lesnick and Sarah Walen of Meridian, addressed to the Invitees and Attendees of the Chicago NRC Workshop on Control of Solid Materials. The e-mail states that amendments and corrections to the Meeting Summary will be included as attachments to document.

   PCA's comments were mailed to the NRC's contractor- Meridian as an enclosure to a coverletter. PCA's general position concerning the control of solid materials is summarized in today's coverletter. PCA's preference is for today's comments to be addressed within the text of the Meeting Summary in addition to including the coverletter and enclosure as attachments to the Meeting Summary.

3. **PCA December 21, 1999 Comments on the Meeting Transcript.** PCA participated in the NRC meeting held on December 7-8, 1999 in Chicago. NRC made a transcript of this meeting. The transcript was made available on the NRC website. PCA reviewed the transcript and mailed NRC a letter that identified recording errors, suggested corrections, and made clarifications of PCA statements. PCA's letter was addressed to the Secretary of the NRC dated December 21, 1999. The NRC has confirmed the receipt of this correspondence within the transcript comment deadline .

   According to the NRC's contractor, Meridian Institute, the Meeting Summary was written based on the original transcript without the benefit of PCA's December 21 corrections. Therefore, PCA's general position as stated in today's coverletter and some of the specific comments below are necessary repetitions of comments and clarifications made on the transcript.

Specific Comments

4. **NRC License, Closure Plan and Financial Assurance.** Meeting Summary page 14 describes that an individual from the cement industry asked for clarification on whether the license for a facility included a closure plan and financial assurance to cover disposal costs. The Meeting Summary should clarify this question and the subsequent response from Mr. Huffert in context of the discussion. The question concerning financial assurance was asked after a discussion, lead by the NRC licensees, that centered on the cost of disposal of waste from the routine operations and decommissioning of licensed facilities. The NRC licensees represented that the fees that are charged for power and other services from licensed facilities do not cover the expected costs involved in the disposal of wastes produced in these operations. The licensees were asking for rulemaking on the control of solid wastes to provide some economic relief from routine operation and decommissioning disposal costs. The PCA representative asked for clarification on the closure plans and financial assurance as it relates to similar industries. Other industries that treat, store or dispose of hazardous waste, those that are governed under the Resource Conservation and Recovery Act (RCRA) Subtitle C, are required to provide financial assurance for closure (decommissioning) costs. If a NRC license required financial assurance for licensees' operations, the disposal costs for decommissioning should already be addressed. It appears that NRC licensees are requesting rulemaking from the NRC that would effectively shift the disposal costs of the solid materials from the licensees to the industries that would be receiving these wastes as recyclable material. The receiving industries would suffer the economic burdens of the NRC action.

5. **Economy and Cost** Page 11 of the Meeting Summary describes a discussion concerning the economic impact of the negative emotion or public perceptions on recycling of radioactive and potentially radioactive waste from licensed facilities. The Meeting Summary understates the concerns expressed the PCA representative about the adverse effect of release of radioactive or potentially radioactive material on the cement and concrete industry, and public trust of the NRC.

a. The Meeting Summary does not sufficiently discuss statements made by Mr. Gnugnoli of the NRC concerning NRC's efforts to quantify possible economic harm caused by the publics' perception of radioactive and possibly radioactive consumer goods. On the original meeting transcript page 109, beginning on line 6, Mr. Gnugnoli states that NRC does not have the capability to quantitatively evaluate the adverse impact to private industry that would result from the release of radioactive materials into consumer goods. Also, that the NRC cannot conduct rulemaking based on perceptions. On page 115 line 18, Mr. Wilk (PCA's representative) discusses that measuring perceptions and quantifying the effect of those perceptions on the market is commonly done by private industry, including cement and concrete. Industry decisions are made based on these perceptions. These measurements are done because it has been demonstrated that public perceptions do indeed translate into real economic consequences for the effected industries. PCA's point is that the NRC should not so easily dismiss measuring the effect of the public's perception on endangerment posed by potentially radioactive consumer goods on the effected industries markets. The NRC must in good conscience, make a better effort in measuring the potential effects of NRC rulemaking before promulgating regulations that cause very real economic damage to the industries that would be receiving the licensee's wastes.

b. The Meeting Summary understates PCA's concerns concerning the publics trust and the economic effect of this on the cement and concrete market. Page 11 describes a statement made by PCA's representative during a discussion of NRC's responsibility to gain the publics' trust as: "For this reason , he (the PCA representative) stated that it would be a challenge for the NRC to gain public trust on the safety of the standard they might establish through rulemaking." The actual discussion is found on pages 100 and 101 of the transcript. What was discussed is that PCA believes that the federal government will not be very successful in gaining the trust of the public on radioactive waste issues within a reasonable time. This was clearly demonstrated during the meeting by the statements made by numerous citizen groups. Certainly, the government will not gain the public's trust before significant economic harm is done to the industries receiving the radioactive solid materials. PCA suggests that the NRC practice gaining the public's trust on issues where the potential adverse economic effects are limited to its licensees business. This should be done before attempting rulemaking that could have adverse economic effects on businesses outside of licensees. Only after the NRC and its licensees successfully demonstrate the ability to gain the public's trust should the NRC attempt rulemaking that relies on public trust of the NRC to avoid economic hardship on other industries.

6. **Cost of Radioactivity Screening at Ready Mix Facilities** The Meeting Summary understates the cement and concrete industry's concerns of the cost of radioactive screening and their economic effects. Pages 29 and 30 of the Meeting Summary, Current Methods of Control and Cost Impacts (respectively), discuss the cement and concrete industry concerns about the costs to the industry that result from the potential release of radioactive materials.

During the meeting, PCA's summarized the various elements of the industry. Portland cement is produced by cement manufacturers. Most cement is sold to ready mix companies that combine portland cement, sand, aggregate and water to produce concrete. Concrete is sold to construction firms that place the concrete to form various structures and pavements. Demolition concrete from NRC licensed facilities would most likely be used either as base for pavements or fill beneath pavements or as a replacement to virgin aggregate in concrete. The PCA representative described that currently, ready mix companies do not screen materials for radioactivity. Ready mix companies do not have the instrumentation and personnel training necessary to do these screenings. During the meeting, a Ph.D. in support of the NRC efforts to release radioactive material for recycling, described the screening of radioactive material as "not rocket science" (original transcript page 312, line 20). PCA agrees with that statement. Screening for radioactive material does not involve rocket science, it involves nuclear physics (original transcript page 331, line 23). PCA anticipates that the industry would incur very significant expenses for purchase of radioactivity monitoring equipment, training for personnel possessing varying levels of education, and labor hours to conduct the screenings and quality control. In addition to these costs there would be facility modifications needed to segregate material, disposal costs for "orphan" radioactive material, liability insurance and legal costs. These costs would be added to the costs of loss-of-market due to the public's stated unwillingness to purchase potentially radioactive concrete.

The Meeting Summary, Cost Impacts, page 30, misrepresents PCA's discussion concerning the impact of release of radioactive material to the cement and concrete industry. During the meeting the PCA representative noted that NRC rulemaking would create a higher potential for radioactive materials to be incorporated into the industry's products. Actual endangerment and the public's perception of endangerment posed by radioactive fill and concrete to the general public would cause the ready mix industry to screen all incoming loads of demolition concrete. This screening would cost the ready mix industry significant expenses for monitoring equipment and personnel training.

The value of the demolition concrete is extremely low compared to virgin materials. The dollar value of used concrete as a fill material or aggregate would be much less than the roughly $8/ton of virgin aggregate. The radiation screening and management costs to the cement and concrete industry are predicted to be very high. See page 331 of the original transcript. The economic effect of NRC's action to increase the release of potentially radioactive and radioactive concrete would <u>not</u> be commendable recycling and economic gains to the public. Rather, the effect will be a

shifting of the disposal costs for radioactive concrete from the NRC licensees to other unrelated industries. This appears particularly egregious considering that the NRC licensees; (a) profited from the producing of these wastes, and (b) had opportunities to cover the costs for proper disposal of these wastes by including these costs in the price of their services and products.

7. **Health and Environmental Impacts** The Meeting Summary makes an incomplete summary of the PCA representative's statements concerning everyday exposure of the public to concrete. PCA's statements can be found on page 329 of the original transcript. PCA stated that compared to the other solid materials under discussion, the public exposure to concrete is the greatest. Concrete lined reservoirs and concrete tanks and pipes are used for public drinking water supply. There is an increasing use of concrete in residential construction including foundations and above grade walls in single and multiple family homes. Children play on concrete driveways and sidewalks and attend school in concrete buildings. Adults commute to work on concrete pavement. They await trains in concrete stations. The public works and transacts business in public and private concrete buildings. Exposures to concrete are even greater for concrete masons and others in the concrete industry. PCA suggested that NRC estimates concerning potential radiation exposure to the public as a result of increasing potential radioactive material ending up in concrete should assume a scenario that the public would be constantly exposed to radioactive concrete their entire lives. Exposures posed from the other solid materials would add to potential radioactive doses to the public.

   NRC's *Regulatory Guide 8.29 Instruction Concerning Risks From Occupational Radiation Exposure*, February 1996 states:

   > "In the absence of scientific certainty regarding the relationship between low doses and health effects, and as a conservative assumption for radiation protection purposes, the scientific community generally assumes that any exposure to ionizing radiation can cause biological effects that may be harmful to the exposed person and that the magnitude or probability of these effects is directly proportional to the dose."

   Preventing additional radiation exposure to the public from man-made sources in consumer goods is in the best interest of the public. This should be NRC's primary activity to fulfill NRC's stated congressional mandate and responsibility to protect the public health and safety and the environment. See page 3 of the Meeting Summary.

8. **Radioactive Fly Ash** The Meeting Summary, pages 30 and 31, describes a discussion on the use of fly ash in concrete. The Meeting Summary misrepresents the discussion. During the meeting one participant from an Agreement State brought to the attention of others that fly ash is added to concrete and that the fly ash typically had radioactivity above background. The participant from an Agreement State stated that knowing this it would appear that the cement and concrete industry should be willing to include additional radioactive material in their products. The participant asked if the cement and concrete industry would be willing to include more radioactive material in their products. See page 334 of the original transcript.

The PCA representative replied with a rhetorical question. PCA asked if the participant was proposing that the cement and concrete industry would be willing to include even more radiation in their product.

The Meeting Summary should describe this discussion in the context of the meeting. The participant from the Agreement State (a) provided information on radioactivity in fly ash, and its use in concrete and (b) asked leading questions that were inconsistent with the spirit of the meeting. This participant's apparent intent was to lead the PCA representative to affirm that the industry was already using radioactive materials without harm and that any additional radioactive material would cause no further harm. PCA rhetorical response was intended to drive home two points:
(a) that based on earlier discussions and presentations from citizen groups, the public was very unwilling to buy radioactive consumer goods, especially for their homes, and (b) that there has been a notable lack of NRC effort to quantify the possible loss of market and economic injury to the industries receiving the licensee's wastes. The cement and concrete industry is therefore very unwilling to accept potentially radioactive materials into its products.

PCA further stated that one reason why radioactive fly ash is found in concrete is that the U.S. government requires it. On January 28, 1983, the EPA issued guidelines for purchasing cement containing fly ash to increase the use of cement and concrete containing fly ash from coal combustion within both government and private sectors. The Guidelines require all federal agencies and all state and local government agencies and contractors that use federal funds to purchase cement and concrete to implement a preference program favoring the purchase of cement and concrete containing fly ash. See *EPA Guideline for Purchasing Cement and Concrete Containing Fly Ash*, EPA/530-SW-91-086, January 1992. One reason for this action in 1983 by EPA was a directive from the U.S. Congress to provide some relief to the principal generators (electric power generators) of fly ash from the disposal cost this waste. Fly ash is considered a high volume, low hazard waste. Without a recycling market for fly ash, generators of fly ash would have to pay for its disposal. Fly ash displaces some volume of portland cement in concrete mixtures.

It is interesting that members of the same industry- electric power generators, to be again asking the federal government, this time through the NRC, for relief from disposal costs of yet another waste product (demolition concrete) at the expense of the cement and concrete industry. This is especially egregious when supporters of the NRC action use an argument that radioactive fly ash has set a precedent.

During the meeting PCA also questioned if there would be a preference for cement/fly ash concrete in federal purchasing, if at the time of the development of this preference, the public had been made better aware of radioactive potential from fly ash. Many in the public would undoubtedly conclude that the federal procurement preference results in unnecessary additional radiation exposure from man-made sources in their immediate environment (residential foundations, above grade residential walls and work places). One could argue that if the government had made

a greater effort on public participation for this issue originally, the federal procurement preference might not exist today due to the public's sensitivity to unnecessary radiation exposures.

9. **Examples of Economic Harm** The Meeting Summary describes a discussion concerning examples of demonstrated negative economic impact to the cement and concrete industry as the result of radioactive materials in concrete. Page 31 describes a question posed to the PCA concerning the use of radioactive fly ash, whether there had been a public outcry, and/or a loss of jobs as a result of using this material. Page 31 indicates that PCA did not have any statistics on this issue. What should be included in this part of the Meeting Summary are the three examples given by PCA later in the meeting. PCA's examples are responsive to this question and provide an insight on the likely effect of the contemplated NRC regulations. These examples are briefly summarized on page 36 and 39 of the Meeting Summary. These examples are as follows:

Failure of EPA efforts to utilize slag from the Midvale Superfund Site near Salt Lake as fill material on Interstate 15. The U.S. EPA is currently developing plans and conducting remediation of the Midvale Slag Superfund site in Midvale Utah. Some of the wastes of concern at this site are slags. The U.S. EPA believes that these wastes could be safely reused as fill material. This is a similar to the belief of supporters of the contemplated NRC rules on solid materials, for reuse of demolition concrete from NRC-licensed facilities. The major highway through the Salt Lake City metropolitan area is Interstate 15. This interstate is currently under massive rehabilitation. The EPA has tried unsuccessfully for several years to have the slag from the Superfund site used as a fill material in the interstate project. The Department of Transportation recognizes that the engineering properties of the slag make it a useable fill material. However, the DOT refuses to use the material since it originates from a federal Superfund site, has legal liabilities attached, and the public is not interested in living near a "linear landfill of toxic waste."

This is a relevant example to the issue of NRC licensed solid materials for the following reasons:

1) Although there is no engineering reason why the slag can not be reused as fill, the EPA has been unable to interest even another government agency (which it likely has some influence with) to recycle the slag.
2) The subject material is a hazardous waste. Although the public perception of endangerment posed by hazardous wastes is great, the public's perception of endangerment from radioactive waste is much greater.
3) The stated benefits that reuse of the slag; (a) is recycling and (b) could save taxpayer money on the remediation and the interstate construction project, have not been persuasive enough to cause recycling of the slag. These are the very similar to the benefits touted by supporters of the NRC contemplated rules on release of solid materials.

4) If one government entity can not successfully influence another government entity to recycle hazardous wastes. It would appear very unlikely that a government entity could interest the public in purchasing potentially radioactive waste for reuse in consumer goods.

Loss of Market for cement produced by recycling of hazardous waste. During the meeting the PCA described an adverse market event involving cement produced by burning of hazardous waste. Some cement companies manufacture cement by burning hazardous wastes as fuels to recover the energy from these wastes. The cement produced from these plants is indistinguishable in chemical analysis from cements manufactured using virgin fuels. However, due to the public concern over "hazardous waste cement" a large home improvement chain established purchasing policies that prohibited the purchase of these cements. The loss of the home improvement chain account obviously caused economic damage to the cement company that recycled the hazardous waste.

Effect of Public Perception on EPA Remediation at the Shattuck Chemical Superfund Site in Denver, CO. The U.S. EPA remedied radioactive contaminated soils at the Shattuck Chemical Superfund site in Denver, CO. In 1991 the EPA selected a remedy that included solidification/stabilization treatment of radioactive soils. The remedy involved mixing the soils with portland cement and entombing them as slabs below grade at the site. During EPA's deliberations on remedy selection the public vehemently disagreed with the Agency's preferred alternative and called for excavation of the soil with off-site disposal. EPA's Region 8 Regional Administrator determined that on-site treatment and on-site entombment of the radioactive waste would be protective of human health and the environment and signed a Record of Decision requiring that alternative. This remedy was designed, implemented, and completed. The remedy cost $26 million. Public pressure continued after the completion of the remedy. In January 2000, bowing to immense public pressure, the EPA has decided to excavate the treated and entombed radioactive material and dispose of it off-site. EPA has estimated that the cost of this response to be another $21.5 million. Clearly public perception of the endangerment posed by radioactive material can be very powerful. The public's perception has caused the EPA to require the expenditure of $21.5 million to fix a remedy that had already been completed and determined by the Agency to be protective of human health and the environment. Fortunately, the federal government has the money to spend to correct misjudgments of the will of the public concerning radioactive wastes. Regrettably, the cement and concrete industry does not have the same level of resources to withstand economic hardship should the NRC and its licensees misjudge the public's willingness to purchase potentially radioactive cement and concrete products. The cement and concrete industry's resources would also be hard pressed if the industry is held liable for the endangerment of human health and the environment resulting from the recycling of this solid material from NRC licensees.