UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION
BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of

CALVERT CLIFFS 3 NUCLEAR PROJECT, LLC,
AND UNISTAR NUCLEAR OPERATING SERVICES, LLC
(Calvert Cliffs Nuclear Power Plant, Unit 3)

Docket No. 52-016-COL

JOINT INTERVENORS REPLY TO NRC STAFF'S ANSWER TO PETITION TO INTERVENE AND APPLICANTS' ANSWER TO PETITION TO INTERVENE

Joint intervenors hereby reply to NRC staff's answer to petition to intervene and to Applicants' answer to petition to intervene, both filed on December 15, 2008.

THIS BRIEF CORRECTS NRC-IDENTIFIED SHORTCOMINGS WITH STANDING STATEMENTS IN JOINT INTERVENORS PETITION TO INTERVENE

We apologize for some errors in our initial petition filing and for our unfamiliarity with the NRC's new (new to us, anyway) electronic filing system and its procedures.

To clarify, Nuclear Information and Resource Service (NIRS), Beyond Nuclear, Public Citizen Energy Program and Southern Maryland Citizens' Alliance for Renewable Energy Solutions (SOMDCARES) petition to intervene in the Combined Construction and License Application (COLA) by Calvert Cliffs 3 Nuclear Project LLC and UniStar Nuclear Operating Services LLC for the proposed Calvert Cliffs-3 nuclear reactor. This is Docket Number 52-016. We petition to intervene on behalf of ourselves and our members and staffs in the area that could be affected by this nuclear reactor.

We regret that Maryland PIRG was inadvertently listed in one part of our original petition in place of SOMDCARES. That was a "cut-and-paste" typo, and we apologize for missing that.

Nuclear Information and Resource Service

The NRC has acknowledged that NIRS has standing to participate in this proceeding.

Other Petitioners

At the time of our initial filing, only NIRS (through designated pro se representative Michael Mariotte) had successfully sought and successfully installed a digital certificate for this proceeding. Thus, the joint petition was submitted through his digital certificate and was signed only by him. We apologize for not understanding this was insufficient to show standing for the other organizations. The representatives of the other petitioners have since sought, and are working on installing, their own digital certificates. However, Allison Fisher of Public Citizen has not yet been able to successfully install her digital certificate. Therefore, her Notice of Appearance and a declaration are being submitted through NIRS' digital certificate along with this brief. Other Notices of Appearance for each petitioner are being filed separately, in accordance with the ASLB order of December 12, 2008. All petitioners are being represented pro se by authorized members of their organizations.

Beyond Nuclear

NRC objects to Beyond Nuclear's on the ground that it did not properly join in the petition, based on the fact that only NIRS (through representative Michael Mariotte) "signed" the original petition. Otherwise, NRC says Beyond Nuclear would have received standing based on the declarations from its members Kevin Kamps, Cynthia B. Peil and William Louis Peil.

Beyond Nuclear, through its authorized representative Paul Gunter, is now signing this rely brief. In addition, Beyond Nuclear seeks organizational standing. Paul Gunter for Beyond Nuclear now has an electronic digital certificate. Its address is 6930 Carroll Avenue, Suite 400, Takoma Park, MD 20912. Because this is located in the same office building as NIRS, for which NRC has acknowledged organizational standing, we ask that Beyond Nuclear be granted organizational standing as well.

Public Citizen Energy Program

NRC objects to Public Citizen Energy Program's standing based on the description we provided of this organization and its interest in this proceeding. Admittedly, the description we submitted was brief and perhaps insufficiently descriptive. We amend that description with the following clarification of Public Citizen Energy Program's longstanding interest and involvement in nuclear power and nuclear safety issues:

Public Citizen Energy Program has worked on nuclear safety issues and has been an advocate for safety for 35 years. During that time, we have provided research and analysis on nuclear safety issues to our membership of over 100,000 citizens nationwide as well as the public interest and environmental communities, media and lawmakers.

Publications have included:

Nuclear Power Can't Stand the Heat

http://www.citizen.org/documents/HotNukesFactsheet.pdf

Tritium Leaks at Nuclear Power Plants Contaminate Groundwater

http://www.citizen.org/cmep/energy_enviro_nuclear/nuclear_power_plants/reactor_safety/article

s.cfm?ID=15089

Corrosive Culture: The Davis Besse lesson: You just can't trust the NRC

http://www.citizen.org/cmep/energy_enviro_nuclear/nuclear_power_plants/reactor_safety/articles.cfm?ID=7625

The Myth of Nuclear Safety

http://www.citizen.org/cmep/energy_enviro_nuclear/nuclear_power_plants/reactor_safety/articles.cfm?ID=4454

More Publications are available upon request.

We have attended Nuclear Regulatory Commission meetings and provided comments on several rules and issues before the NRC including:

Comments on Proposed Rule to Maintain Status Quo With Regards Protection Level of Nuclear Facilities Against Terrorism

http://www.citizen.org/documents/CBG-PublicCitizenComments.pdf

Comments on the Proposed Rule to Amend Regulations for the Protection of Safeguards Information (RIN 3150-AH57)

http://www.citizen.org/documents/sgicomments.pdf

COMMENTS ON FEDERAL REGISTER NOTICE DATED FEBRUARY 28, 2005 (VOLUME 70, NUMBER 38) PAGE 9682: "Station Blackout Risk Evaluation for Nuclear Power Plants (Draft)," January 2005

http://www.citizen.org/cmep/energy_enviro_nuclear/nuclear_power_plants/reactor_safety/articles.cfm?ID=13301

Comments regarding June 3, 2003 Federal Register notice, page 33209: "Notice of Intent to Prepare an Environmental Impact Statement for the License Renewal of Nuclear Power Plants and to Conduct Scoping Process

http://www.citizen.org/documents/licensingcomments.pdf

Public Citizen Energy Program's offices are located at 215 Pennsylvania Avenue, SE – Washington, DC 20003, approximately 50 miles from the Calvert Cliffs Nuclear Power Plant in Lusby, Maryland. Phone number is 202-546-4996.

Public Citizen's authorized representative is Allison Fisher. She has signed this reply brief.

SOMDCARES

NRC objects to SOMDCARES' standing based on an error in the declaration of Steven W. Warner, which misidentified his support as for NIRS in one place in the declaration, rather than SOMDCARES (although the declaration did correctly state SOMDCARES elsewhere in his statement). Again, this was a "cut-and-paste" typo, and we apologize. We have attached an amended declaration from Mr. Warner. The authorized representative for SOMDCARES is June Sevilla, a member of the organization. She has signed this reply brief. She resides at 3086 Calvert Blvd, Lusby MD and her mailing address is P.O. Box 354, Solomons, MD 20688. Her phone number is 410-326-7166 and her e-mail address is qmakeda@chespeake.net

We request that the ASLB advise us, should more than one petitioner be granted standing in this proceeding, how we should submit our briefs and any other materials. For clarity's sake, we

would seek to have only one of Joint Intervenors submit through the EIE system on behalf of all Joint Intervenors, although we will have each of the Joint Intervenors "sign" each brief. However, if the ASLB would prefer that we submit four separate copies of each brief, through each intervenors' digital certificate, we could do that.

UNISTAR'S PROPOSED STANDING CRITERIA MUST BE REJECTED

UniStar Nuclear Energy's (UniStar) proposed standing criteria, which would deny standing to all joint intervenors, must be rejected by the ASLB. If adopted, these criteria would effectively preclude any public intervention before any proposed nuclear reactor--which is demonstrably counter to the intent of 10 CFR 52, which clearly offers an opportunity for public adjudicatory hearings on a new reactor application.

As the NRC Staff itself recognizes, the NRC has a long-standing "proximity presumption" of standing in reactor licensing proceedings for persons "who reside in or frequent the area within a 50-mile radius" of a proposed plant. NRC Staff's Answer to Petition to Intervene in Docket No. 52-016, Calvert Cliffs-3 Nuclear Power Plant Combined Construction and License Application ("Staff's Answer) at 7. (quoting *Fla. Power & Light Co.* (Turkey Point Nuclear Generating Plant, Units 3 and 4), LBP-01-06, 53 NRC 138, 148 (2001)). *See also, Florida Power & Light Co.* (St. Lucie Nuclear Plant, Units 1 and 2), LBP-08-14, 2008 NRC LEXIS 90 at *18 (Aug. 15, 2008) (the ASLB has "used a proximity presumption when resolving issues of standing for cases involving reactor licensing"); *Dominion Nuclear Connecticut, Inc.* (Millstone Power Station, Unit No. 3), LBP-08-09, 2008 NRC LEXIS 76 at *7 (June 4, 2008) ("a petitioner's proximity to

the facility in question provides for a so-called presumption that a petitioner has standing to intervene without the need to specifically plead injury, causation, and redressability if the petitioner lives within, or otherwise has frequent contacts with, the zone of possible harm from the nuclear reactor or other source of radioactivity") (internal quotations omitted); *Crow Butte Resources, Inc.* (License Amendment for the North Trend Expansion Project), LBP-08-06, 67 NRC 241, 272 (2008) ("In nuclear power reactor construction permit and operating license proceedings, showing proximity within 50 miles of a plant is often enough on its own to demonstrate standing"); *Carolina Power & Light Co.* (Shearon Harris Nuclear Power Plant, Unit 1), LBP-07-11, 66 NRC 42, 52 (2007) ("Commission case law has established a "proximity presumption," whereby an individual may satisfy these standing requirements by demonstrating that his or her residence or activities are within the geographical area that might be affected by an accidental release of fission products, and in proceedings involving nuclear power plants this area has been defined as being within a 50-mile radius of such a plant"); *Virginia Electric and Power Co.*, (North Anna Nuclear Power Station, Units 1 and 2), ALAB-522, 9 NRC 54, 56 (1979) ("close proximity [to a facility] had always been deemed to be enough, standing alone, to establish the requisite interest" to confer standing).

This presumption has been consistently recognized with approval by the Commission. *See, e.g., Georgia Power Co.* (Vogtle Electric Generating Plant), CLI-93-16, 38 NRC 25, 34 (1993) ("[T]he Commission generally has recognized a presumption in favor of standing for those petitioners who have sufficient contacts within the geographic area that could be affected by a release of fission products. . . . Especially given the possible health consequences of accidental releases, the siting of a plant in a petitioner's environment maybe deemed a direct and present injury") (citing *Duke Power Co. v. Carolina Environmental Study Group, Inc.*, 438 U.S.

59, 74 (1978)); *Florida Power & Light Co.* (St. Lucie Nuclear Power Plant, Units 1 and 2), CLI-89-21, 30 NRC 325, 329 (1989) ("We have held that living within a specific distance from the plant is enough to confer standing on an individual or group in proceedings for construction permits, operating licenses, or significant amendment thereto[.] . . . [T]hose cases involved the construction or operation of the reactor itself, with clear implications for the offsite environment[.]")

These cases make clear the Commission's policy of granting standing in reactor licensing proceedings to all persons who live within 50 miles of the proposed plant. The Commission recognizes that the "possible health consequences of accidental releases" clearly constitute such a "direct and present injury" to nearby residents that it is unnecessary to require every intervenor to establish the elements of injury causation, injury and redressability. For a number of reasons, as discussed below, the Commission should not reconsider this policy .

The standard proposed by Unistar would effectively eliminate public hearings, contrary to the Commission's intent. UniStar's argument, when boiled down to its essence, states that the NRC's long-standing policy (which NRC staff's brief properly continues to support based on its support of standing to NIRS) of granting standing based on proximity to the proposed reactor should be overturned in favor of a new standard devised by UniStar that would declare that the core damage frequency from the EPR reactor UniStar proposes to build is so low "that the risk of the alleged harm is simply too speculative to support a concrete injury for standing purposes." page 19. Obviously, if this standard were upheld, no intervention--and thus no meaningful public involvement in the NRC's reactor licensing process--would be possible for any reactor design that could claim similar low risks. For this reason alone, the proposed criteria must be rejected,

because it is clearly the intent of the NRC and 10 CFR 52 to offer the public an opportunity for an adjudicatory hearing if admissible contentions are raised.

However, there are additional reasons why UniStar's proposed standing criteria must be rejected, and the NRC's longstanding and precedent-supported criteria be adopted in this and all reactor licensing cases.

Unistar misrepresents the case law on the degree of injury required for standing. As discussed in the attached declaration of Dr. Edwin S. Lyman, in characterizing the risk level that is sufficient to establish standing to participate in a legal case, Unistar's Answer makes a significant mathematical error by failing to use a common denominator in estimating the risk of injury as represented in the judicial decisions cited by Unistar. As a result of its mistake, at page 17, Unistar incorrectly claims that "under contemporaneous standing jurisprudence," the increased risk of harm needed to establish injury-in-fact falls somewhere between 1 in 200,000 and 1 in 21 million.

In *Natural Resources Defense Council, Inc. v. U.S. Environmental Protection Agency*, 440 F.3d 746, 484 (D.C. Cir. 2006) ("NRDC I"), the U.S. Court of Appeals for the D.C. Circuit found that a 1 in 21 million *annual* risk was insufficient to establish standing. That opinion was withdrawn in 2006 U.S. App. LEXIS 22512 (D.C. Cir. 2006), and the Court revisited the risk issued in *Natural Resources Defense Council, Inc. v. U.S. Environmental Protection Agency*, 464 F.3d 1, 7 (D.C. Cir. 2006), *reh'g en banc denied*, 2007 U.S. App. LEXIS 3963 (D.C. Cir. Feb. 21, 2007) ("NRDC II"). In NRDC II, the Court found that a 1 in 200,000 *lifetime* risk was sufficient to establish standing.

A 1 in 200,000 lifetime risk corresponds to a 1 in 14 million annual risk for an average lifetime of 70 years. There is almost no statistical difference between a 1 in 14 million annual risk and a 1 in 21 million annual risk, because the two values are within a factor of two of each other, *i.e.,* are within the same order of magnitude. (Any difference that is equal to or less than a factor of three is considered to be within an order of magnitude.)

Thus, if the court in NRDC believed that a 1 in 14 million annual risk was sufficient to confer standing, it is reasonable to infer that a 1 in 21 million risk would be sufficient to confer standing.

The magnitude of an annual risk of a non-fatal skin cancer found by the court to be sufficient for standing in NRDC II was 1 in 14 million per year, or 7.14 x 10-8. In its Answer, Unistar gives an estimate for large release frequency for internal, at-power events of 2.6x10-8 per year. These risk estimates are on the same order of magnitude, and therefore Petitioners should be given standing if the same quantitative standard is used as the standard used in NRDC II.

Core damage frequency is not the only possible means of radiation release; applicants have not quantified other risk elements

"Core damage frequency" refers to the likelihood of a severe reactor accident that causes damage to the reactor core and subsequent release of radioactive materials to the environment.

The applicants have not attempted to quantify the risks of other types of events and accidents that could cause a large release of radioactive materials to the environment. These include acts of terrorism and sabotage. Given Calvert Cliffs-3's proximity to the seat of the federal government in Washington, DC, a strong argument could be made that this proposed reactor--which would be at the time of its completion the largest single nuclear reactor in the United States--could also become the most tempting terrorist target in the United States. While applicants certainly will take steps--indeed, are required to take steps--to attempt to minimize these risks, the fact remains that a risk of terror attack and/or sabotage exist, and that such acts could cause a release of radioactivity. Applicants have not quantified these risks, if indeed they are even quantifiable. Joint Intervenors submit that these risks should be seen as orders of magnitude larger than the risk of a more "normal" catastrophic accident.

The Calvert Cliffs-3 reactor would produce large quantities of lethal high-level radioactive waste. This waste would initially be placed in a cooling pool at the reactor site. Accidents at cooling pools resulting in large radiation release can occur, as can acts of terror or sabotage. Applicants have not quantified the risks of an accident or outside event resulting in such release at the Calvert Cliffs-3 cooling pool. Joint Intervenors submit such the risk of an accident or outside event affecting the cooling pool is orders of magnitude larger than the risk of an accidental core damage event.

The current reactors at Calvert Cliffs move some of their high-level waste, after some years of cooling, to dry cask storage outside containment. These air-cooled casks are built to be robust, of course, but they too are subject to potential accidents, acts of terror or sabotage that could release

large quantities of radioactivity. Applicants have not attempted to quantify the risks of accidents, acts of terror or sabotage resulting in radioactive release affecting the dry casks. Joint Intervenors submit such the risk of an accident or outside event affecting the dry casks is orders of magnitude larger than the risk of an accidental core damage event.

It is the intent of the United States Government and the nuclear power industry that at some point, presumably during the 60-year or longer projected lifetime of Calvert Cliffs-3, high-level waste generated by this reactor will be moved from the reactor site to an interim and/or permanent disposal site for high-level radioactive waste. In the case of Calvert Cliffs-3, this waste presumably will travel on roads and/or rails near the homes and businesses of intervenors. Obviously, the risk of a traffic accident or rail accident is far higher than the Applicants' stated core damage frequency of 5.3E-7/year. Applicants have not quantified the risks of a traffic or rail accident resulting in radiation release. Joint Intervenors submit such the risk of an traffic or rail accident or act of terror or sabotage on waste transport casks is many orders of magnitude larger than the risk of an accidental core damage event, as is the risk of release from those casks in the event of such an accident.

All of these potential events can affect the health, safety and livelihoods of joint intervenors, including all of the individuals who signed declarations on behalf of joint intervenors.

Applicant's stated core damage frequency cannot be accepted as asserted at this time

At this point in time, the Applicant's stated core damage frequency is simply an assertion, not a statement of accepted fact, and cannot be relied upon for standing purposes in this case.

Applicants cite only the US EPR Design Control Document, submitted by the reactor's designer Areva (hardly a disinterested party) and their own Environmental Report in support of their assertion of core damage frequency.

The EPR design was submitted to the NRC for design certification only in December 2007. The NRC currently is reviewing this design certification. It has not been certified or approved by NRC in any way. The NRC's website does not list a projected date for final certification, although it does list a projected date of May, 2011 for issuance of a Final Safety Evaluation Report. Until this report is issued, and the design finally certified, the NRC cannot attest to the Applicant's core damage frequency estimates.

Nor can Applicants base their core damage frequency estimate on actual experience. The reality is that no EPR ever has been built or operated. Two EPRs, one in Finland and one in France, are currently in relatively early stages of construction and are not projected to be operational even before the NRC's Safety Evaluation Report for the EPR design is projected to be issued. Thus, no actual experience can be used to justify Applicant's core damage frequency estimate.

Applicants fail to note the difference between a conceptual core damage frequency and an as-built core damage frequency, and have not attempted to quantify the latter. As NRC licensing boards well know, during the first generation of reactor construction in the United States, numerous substantiated allegations arose of ineffective and deficient Quality Control/Quality Assurance (QC/QA) programs at nuclear utilities building nuclear reactors. While some utilities

engaged in substantial and expensive rework to address such deficiencies, it is by no means clear that all reactors are built strictly to specifications (indeed, one unit of Diablo Canyon, for example, was built as a “mirror image” of its original blueprints--a complete reversal of original specifications, although hopefully in that case one that does not adversely affect safety). A reactor not built strictly to specifications is not likely to attain the conceptual core damage frequency of a more pristine Design Control Document which assumes everything is built and works perfectly.

This is of even more import in this case, since the reactor manufacturer for the EPR that would be used by Calvert Cliffs 3 is Areva, which is currently building the Olikuoto-3 EPR reactor in Finland. This reactor, according to many published reports, is some two years behind schedule because of problems and deficiencies with the construction of the reactor’s foundation. Obviously, a problem with the very foundation of a nuclear reactor--even if partially corrected--is likely to affect a theoretical core damage frequency. Similar problems have been reported at Areva’s only other EPR under construction at Flamanville, France.

Since Areva is to supply and build the Calvert Cliffs-3 reactor, it is reasonable to be concerned that this EPR may also experience real-world construction problems that could alter its theoretical core damage frequency.

Another problem that has plagued the entire nuclear power industry is that of substandard and/or counterfeit parts. Numerous NRC Information Bulletins have been issued on this subject. In these cases, not necessarily through any fault of their own, nuclear constructors have used

substandard and/or counterfeit parts obtained through contractors and subcontractors. Obviously, when a substandard or counterfeit part is used on a vital reactor component, an increase in core damage frequency can be expected since the frequency is based upon exact construction specifications. Also obviously, since no construction has begun on Calvert Cliffs-3 has begun, we are not making any allegations that substandard and/or counterfeit parts would be used in that construction. Certainly we would accept that Applicant has no intent to use such parts. Our point is that this has been a persistent problem in the nuclear industry, to the detriment of the nuclear utilities/constructors and public alike and inadvertent use of such parts cannot yet be ruled out at Calvert Cliffs-3, nor can the potential effect of such parts on core damage frequency be calculated.

Even if the core damage frequency were low, consequences of a reactor accident or other event are high

Even if the core damage frequency were as low as Applicant states, which should not be accepted for the reasons above, the consequences of a reactor accident, or act of terror or sabotage at the reactor itself, or related waste storage and transportation events, are extremely high--unlike most other types of industrial or environmental releases or accidents.

A reactor meltdown or irradiated fuel pool accident, transport accident, or act of terror or sabotage of any of those, is a classic low-frequency (although not as low as Applicant would have us believe) high-consequence event. And because the consequences are so high, and can affect people and the environment many miles from the accident site, it is imperative that members of the public, including Joint Petitioners, have the opportunity to participate in

proceedings related to construction and operation of a nuclear reactor.

While we would agree with Applicant that an accident at Calvert Cliffs-3 is certainly less likely to occur than the actual accident at Chernobyl-4 was, Soviet officials put the odds of an accident at Chernobyl as 1 in 10,000 years. It turned out that 1 in 10,000 meant 1986. Regardless of the real odds of an accident there, the fact is that an accident did occur, and the consequences of that accident were experienced thousands of miles away. Sheep in Wales were slaughtered (and in parts of Wales it remains forbidden to raise sheep). Reindeer in Sweden and Norway were slaughtered. Various goods in Turkey, Germany and other countries were interdicted. Even milk in Portland, Oregon was seized and prevented from public distribution. According to the most recent reports of the World Health Organization, some 4,000 people either have died or are expected to die because of this accident. Independent reports put the number far higher.

Applicants have not addressed or quantified the potential consequences of an accident, act of terror or sabotage at Calvert Cliffs-3 or related radioactive waste facilities and transport. It is rational to assume, based on real-world experience at Chernobyl-4, wind patterns, etc, that should such an event occur, all of Joint Intervenors and declarants could and would be affected.

NRC regulations do not recognize a low core melt frequency as a rationale for reduced regulation or potential accident impact

Even if the core damage frequency were as low as Applicant states, which should not be accepted for the reasons above, NRC regulations do not recognize a low core damage frequency as a rationale for such critical requirements as a 10-mile Emergency Planning Zone and a 50-

mile Ingestion Pathway as essential accident mitigation measures due to the reality that considerable consequences to people and the environment can occur in these zones.

All of Joint Intervenors' declarants and organizations are within the 50-mile Ingestion Pathway. Some of the declarants are inside the 10-mile Emergency Planning Zone.

NRC regulations established these zones precisely because a reactor accident can cause adverse effects within these zones. The NRC has not reduced these zones for Calvert Cliffs-3 or any other reactor which claims a low core damage frequency, thus it can be presumed that there is insufficient rationale to reduce the level of protection required by federal regulation. Conversely, the presumption must be that persons living and working within these geographical proximities can be affected by accidents at this reactor, and have standing to participate in proceedings, like this one, on this reactor.

THE NRC'S CONTINUED FAILURE TO ESTABLISH AN ADEQUATE DOCUMENT RETRIEVAL SYSTEM UNFAIRLY HAMPERS INTERVENORS

As we stated in our initial petition to intervene dated November 19, 2008, materials relevant to the Calvert Cliffs-3 application and to intervenors have not been posted on NRC's website.

NRC's reply brief acknowledges this, stating, for example, in response to Contention #1, "The Petition's challenge to the application does not consider the information contained in the Calvert Cliffs application, Revision 3, because it was not publically available at the time the Peititon was filed. The information in the application in Part 1, Section 1.4 'Foreign Ownership, Control, or

Domination' was substantially revised in Revision 3 to the application." (Staff reply brief, page 20-21). It appears that Revision 3, at least on this issue, is still not publicly available. On December 16, 2008, NIRS representative Michael Mariotte searched on NRC's website for Revision 3 and no documents turned up, nor does the Calvert Cliffs license application page on NRC's website provide any information on Revision 3 other than the cover letter NIRS noted in its November 19 filing. NIRS also searched on ADAMS on December 16, 2008 for Revision 3 using Docket 52-016 as the search term, and went through the first 1,000 documents found, and found only the same cover letter as on the Calvert Cliffs license application page on NRC's website.

For its part, Applicant claims (page 28) that Revision 3 was made available on ADAMS on September 16, 2008 as Accession Number ML082400701. NIRS searched for this specific document on December 16, 2008 on ADAMS and received the following response: "No documents were retrieved by this query."

Paul Gunter of Joint Intervenor Beyond Nuclear found on ADAMS on December 17, 2008 a stack of 154 documents under Accession Number ML082400893 that appear to be some part of Revision 3. However, Section 1.3.2 as described by Applicant does not appear to be included among these documents and no document with Accession Number ML082400701 appears among these documents. Nor does Part 1, Section 1.4, as identified by NRC staff's reply, appear in this stack of documents. It is thus unclear to us whether this stack of documents found by Mr. Gunter is indeed intended to be Revision 3 of the Calvert Cliffs-3 application and what, if any, bearing they may have on this application and proceeding.

Obviously, we cannot prepare contentions based on materials we cannot see. It is already an enormous burden on pro se intervenors like Joint Intervenors to read and evaluate very lengthy licensing application documents and prepare relevant contentions in the 60-day period allotted by NRC regulations. We request a full 60-day extension of time, once Revision 3 is fully publicly available, to amend our petition based on information contained in Revision 3. Since we do not know what is in this revision, this extension should not be limited to amending our existing contentions, but should allow for new contentions, subject to the same admissibility standards governing the contentions we filed November 19, 2008, if information in this revision warrants. In addition, we request that the NRC notify all Joint Intervenors when Revision 3 becomes publicly available, and where and how it can be accessed. We also request that Revision 3 and all future revisions be made available directly on NRC's website, rather than only through the cumbersome and user-unfriendly ADAMS system.

CONTRARY TO APPLICANT'S AND NRC STAFF'S BRIEFS, JOINT INTERVENORS' CONTENTIONS ARE ADMISSIBLE

In every case, both NRC staff and Applicant appear to argue the contentions themselves as much as their pertinence and admissibility. In itself, this confirms that all of our contentions represent material disputes that need to be resolved by an ASLB.

Contention #1: Contrary to the Atomic Energy Act and NRC regulations, Calvert Cliffs-3 would be owned, dominated and controlled by foreign interests.

On one level, this contention is not that difficult, it's high school math, and NRC's argument against its admissibility borders on the absurd. Applicant essentially argues against the contention, rather than its admissibility. The argument itself should be heard by the ASLB, and is itself evidence of a genuine dispute on a material issue.

A plain reading of the Atomic Energy Act, the relevant part of which was cited in our petition makes clear that Congress intended that foreign entities may not own, control or dominate a corporation or entity operating a nuclear reactor. As the language states clearly, "*No license may be issued to an alien or any corporation or other entity if the Commission knows or has reason to believe it is owned, controlled, or dominated by an alien, a foreign corporation, or a foreign government."*

This isn't difficult to understand, nor does it require an expert to interpret.

What is at issue is whether the unique corporate structure of the Applicants violates this provision of the Atomic Energy Act. To the best of our knowledge, neither an ASLB nor the federal courts have ever ruled upon what level of interest a foreign corporation--in this case Electricite de France--or other entity--in this case the French government--may have in a reactor project without running afoul of this provision of the Atomic Energy Act. Nor are we aware of any ruling that sets in detail what level of interest indicates ownership, what level indicates control, what level indicates domination, which are three distinct standards.

It is our contention that even the 50% of UniStar Nuclear owned by Electricite de France runs afoul of the letter and intent of the Atomic Energy Act.

When that is added to the additional 9.51% ownership of UniStar partner Constellation Energy owned by Electricite de France, the violation of the Atomic Energy Act becomes even more evident.

Further, it is possible to “control” or “dominate” a publicly-traded corporation, which typically has hundreds of thousands of shareholders, with a minority ownership of that corporation.

In addition, the Atomic Energy Act refers specifically to a “foreign government.” In this case, as our petition stated, more than 80% (which presumably everyone will concede constitutes domination, control and ownership) of Electricite de France is owned by the French government. As our petition stated, more than 80% of Areva, the reactor supplier to this project, is owned by the French government. Combined, this offers the potential for tremendous influence by the French government in this project, which, we assert, constitutes both control and domination.

Consider a hypothetical: Assume that Calvert Cliffs-3 is built and operating. It runs into some operational difficulties. Constellation Energy wants to shut the plant down and investigate the difficulties. EdF and reactor designer Areva believe the difficulties are minor and the reactor should keep operating. All of these entities have a financial interest in the reactor: Constellation, as half-owners and sellers of the electricity; EdF as half-owners, and Areva because a shutdown could raise concerns among other potential purchasers of Areva reactors. Which side would win

this dispute? Is this not exactly the kind of dispute the Atomic Energy Act exists to avoid? With both Areva and EdF owned by the same entity--the French government--which is really more dominating and controlling, Areva/EdF or Constellation Energy?

Now, assume that in every instance above, the words “French government” were replaced with the words “Iranian government.” Would the ASLB, not to mention NRC staff (not to mention the U.S. Congress), have concern if a company 80% owned by the Iranian government owned 50% of a U.S. nuclear reactor project using a reactor design from a company also owned 80+% by the Iranian government?

The Atomic Energy Act does not elucidate a difference between friend or foe, ally or enemy in its prohibition of foreign ownership, domination or control. This is appropriate and wise. 35 or so years ago, the U.S. was trying to sell nuclear technology to its good friend, the Shah of Iran. Now, the U.S. is attempting to prevent Iran from building uranium enrichment technology.

The Calvert Cliffs-3 reactor is designed to operate for at least 60 years. It will take six years or more to build. 66 years ago, the United States was in the midst of a world war with its then-mortal enemies Germany, Japan and Italy. All are now, of course, staunch allies. We acknowledge and appreciate that France has been a U.S. ally for generations. We trust and expect that close relationship will continue. But we cannot predict with certainty that relationship will continue because it is not possible to predict the future and it is not possible to predict our future allies and foes. That is why the Atomic Energy Act addresses foreign ownership, control or domination on its own, and not in a context of contemporary national security concerns or any

other artificial framework.

Applicants state that our Exhibit 11, submitted to provide evidence of EDF's ownership share of Constellation Energy, "demonstrates the falseness of the claim." They refer to a paragraph in that Form SC 13D that states that EDF "'shall'" votes its shares in accordance with the recommendation of the Constellation Energy Group Board of Directors. Thus, a necessary premise for the proposed contention is flawed."

Since we have not seen Revision 3, as explained above, we cannot comment on Applicants' current ownership structure as detailed in that revision. However, Applicants state that UniStar Nuclear Energy, LLC (yet another LLC in this convoluted structure) will be the parent company of the Applicants and that it "will be managed by an eight-member Board of Directors, with four members appointed by each of the two owner companies [Constellation Energy and Electricite de France]. The Chairman of the Board of Directors of UNE will be one of the directors appointed by Constellation Energy Group; will be a U.S. citizen; and will have the deciding vote on matters involving nuclear-related classified information and the care of special nuclear material." (Applicants reply brief, page 26).

This structure does not alleviate the concerns of foreign ownership, control or domination expressed in the Atomic Energy Act, nor the concerns of the hypothetical example described above.

We would find it difficult to believe, for example, that any experienced corporate executive

would state under oath that the opinions of the company's largest shareholders are not given special and strong consideration in corporate board meetings. This is how minority shareholders (and in this case EDF is 50% of UniStar plus 9.51% of Constellation, the other owner of UniStar) can wield significant power and authority. The Atomic Energy Act does not define "control" or "domination" as majority ownership. Indeed, these standards can be met without majority ownership.

Further, the Applicants' statement limits the "deciding vote" to matters involving classified information and care of special nuclear material. Applicants do not argue that this "deciding vote" authority extends to operational decisions, maintenance decisions, surveillance decisions, and other types of decisions that may reach the corporate board level above or entail ultimate responsibility above the level of President and Chief Executive Officer, who, according to Applicants reply brief, is responsible for day-to-day operations. Decisions, for example, of when to invest tens of millions of dollars in repairs to steam generators or other large components, for example, would seem to fall above the responsibility of "day-to-day operations," yet can have an enormous public safety significance.

Finally, we have to point out the absurdity of the NRC's statement that the non-EDF share of 50 percent of UniStar plus 90.49 percent of Constellation equals a dominant share of 140.49%. This logic would not even pass in high school math.

The point is that EdF does own 50% of UniStar, as does Constellation Energy, which is not in dispute. EdF owns an additional 9.51% of Constellation Energy, which is also not in dispute.

Constellation does not own any of EdF. Moreover, as our petition pointed out, EdF is currently the second-largest shareholder of Constellation Energy, which is, in fact, owned by tens of thousands of institutions and individuals. Even undergraduate business students know that it does not require majority ownership of a company to assert dominance or control--it is doubtful that any publicly-traded company actually has a majority ownership of a single entity, but many publicly-traded companies may be dominated or effectively controlled by a single entity. The combination of EdF's 50% ownership of the subsidiary, UniStar Nuclear, plus the additional significant interest in the parent company Constellation Energy, does, in fact, give rise to genuine concern about foreign ownership, control or domination, and give rise to a genuine material dispute as to whether this violates the Atomic Energy Act, which can only be resolved by a hearing before and ultimate decision by the Atomic Safety and Licensing Board.

However, there is a new wrinkle to this issue. On December 17, 2008, after our petition was filed, Constellation Energy and EdF reached a new agreement regarding EDF's purchase of reportedly half of Constellation's existing nuclear generating plants and perhaps additional investment in Constellation or its assets as well. We do not, at this point, know the details of this agreement. It is not yet clear to us whether this would result in additional ownership, control or domination of Constellation Energy itself, nor whether Applicants will now have to issue a Revision 4 to their COLA.

We do note the following December 18, 2008 quote from a Constellation Energy attorney in a separate Maryland Public Service Commission proceeding on EDF and Constellation Energy, "said Deborah Jennings, an attorney with DLA Piper representing Constellation in the PSC

briefing, “EDF will not be in a position to exert influence on regulated business. Its sphere of influence will be nuclear plants.”[1]

Whether “sphere of influence” is equivalent to “domination” or “control” is unclear, but the phrase certainly raises the question.

Because this issue has not been determined, it would certainly be premature to dismiss this contention at this time; indeed, it makes resolution of this contention even more compelling. And we reserve the right to amend our contention should EdF acquire an even greater share of Constellation Energy or some other factor change the factual circumstances of this contention.

Contention #2: The Decommissioning Funding Assurance described in the Application is inadequate to assure sufficient funds will be available to fully decontaminate and decommission Calvert Cliffs-3. Applicants must use the prepayment method of assuring decommissioning funding.

Again, both NRC staff and UniStar appear intent on arguing the merits of the contention rather than its admissibility. We fully expect UniStar to oppose the contention; it is of course always disappointing that NRC staff routinely takes the side of Applicants in licensing proceedings, but it is not unexpected. But the opposition to this contention only indicates that the issue is of genuine material dispute, not that the contention is inadmissible.

Our contention is straightforward. By NRC regulation (10 CFR 50.75) , there are three possible

[1] Baltimore Business Journal, December 19, 2008, *Md. AG's office says PSC can rule on EDF-Constellation deal,* http://www.bizjournals.com/baltimore/stories/2008/12/15/daily53.html

ways an applicant can provide for assurance of decommissioning funding: 1) establish an external sinking fund; 2) obtain a surety bond; 3) prepayment.

As an unregulated merchant plant, Calvert Cliffs-3 is not eligible for option 1, according to this regulation.

Joint Intervenors argue that the fragile economic condition of Constellation Energy (which has necessitated the purchase of substantial assets by EdF), and its other decommissioning obligations, precludes the surety bond option based on the criteria in 10 CFR 30 Appendix A. Indeed, the day the new Constellation/EDF agreement was announced (December 17, 2008), Constellation's market value plummeted further. Therefore, the only option left is prepayment.

Applicant (on page 29-30) repeats the relevant portion of 10 CFR 30 which details the financial requirements of an entity which can issue a surety bond. Applicant provides no information to counter Joint Intervenors' argument that Constellation Energy does not have the economic resources to meet these regulations and issue a valid surety bond. UniStar argues that Joint Intervenors' reliance on market capitalization and share price are not relevant to the 10 CFR 30 criteria, but they provide no evidence of how it does meet any of the stated criteria. Joint Intervenors obviously do not have access to information like "a ratio of total liabilities to net worth less than 2.0." But Applicant repeats the same text supplied by intervenors that, "Net working capital and tangible net worth each at least six times the current decommissioning cost estimates for the total of all facilities or parts thereof (or prescribed amount if a certificate is used), or, for a power reactor licensee, at least six times the amount of decommissioning funds

being assured by a parent company guarantee for the total of all reactor units or parts thereof (Tangible net worth shall be calculated to exclude the net book value of the nuclear unit(s))…."

Of course, this is not the time to be arguing evidence in any case—only whether there is a material dispute that requires submission of evidence and a hearing by the ASLB. Applicant's response is an admission that there is a material dispute.

It is our contention, which is clearly in material dispute, that Constellation Energy does not currently meet this requirement. Thus, this contention is admissible and should be heard in an evidentiary fashion.

Both Applicant and NRC staff argue that the requirements only require the Applicant to provide a report to NRC within 30 days of initial fuel loading that the financial assurance for decommissioning will be met. Applicant goes so far as to claim that our contention "therefore amounts to an impermissible attack on the Commission's regulations."

It is not our intent to attack Commission regulations in this instance. However, it is clear that this is the only proceeding in which Joint Intervenors may raise this issue. There is no opportunity for members of the public to raise issues involving decommissioning funds after fuel loading. Indeed, there is no opportunity at all to raise this issue outside of this COL process (Applicant suggests Joint Intervenors could use the 2.206 process at a later time, but this process does not offer discovery, cross-examination, enforcement action or judicial review if necessary, thus it provides none of the legal safeguards of the current COL process). Therefore, unless we raise it

now, we can never raise it. NRC staff's and Applicant's arguments are tantamount to an assertion that decommissioning funding is simply not an issue that the public is allowed to address. We do not believe that is the understanding of Congress or NRC regulations.

Contention #2 is a valid, straightforward contention of material dispute and thus is an admissible contention.

Note: We acknowledge that Applicants say they have amended their initial application documents in Revision 3. As stated above, we have been unable to see this Revision. Therefore, we request that we have 60 days upon the public release of Revision 3 to revise this contention if necessary.

Petitioners' Combined Reply to UniStar and NRC Staff Responses to Contention 3

Contention 3: The ER is Unacceptably Deficient Because it Omits from the Analysis of CCNPP 3's Environmental Impact the New Reactor's Potential Adverse Contribution to the Cumulative and Potentially Synergistic Environmental Impact of 11 Operational Reactor Units and Two Proposed Additional Nuclear Power Projects on the Watershed of an Already Severely Degraded and Declining Chesapeake Bay Whose Recovery Plan Is Currently in Serious Doubt and the Focus of a Federal Lawsuit for Failure to Comply with Mitigation Actions.

The applicant asserts *"This proposed contention is inadmissible because the application contains a discussion of cumulative impacts and because Petitioners have not demonstrated that additional analysis would lead to any different conclusions."* (Applicant Response, page 34)

Petitioners reply that UniStar and the Staff are inappropriately asking the public to perform the analysis that in fact the applicant is federally required to do under the National Environmental Policy Act (NEPA). NEPA clearly requires that the applicant take a "hard look" and provide an analysis of the project's relation to other federal actions with potential collective and cumulatively significant impacts as to the proposed action's intensity. [40 C.F.R. 1508.27]

The petitioners are within their rights and due process afforded under NEPA to an intervention on a dispute created by the insufficiency of the application to provide a collective and cumulative environmental impact analysis for the requested federal action.

As a point of law, NEPA seeks to determine whether the requested federal action is related to other actions with individually insignificant but cumulatively significant impacts. As such, NEPA is clear that significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. More to the point of the petitioners' contention, NEPA is clear that significance cannot be avoided by terming an action temporary or by breaking it down into small component parts. [40 C.F.R. 1508.27(b)(7)]

The petitioners have contended that the applicant inappropriately seeks to limit the scope and significance of the environmental impact of the requested action by breaking down the environmental report analysis into a smaller component part that is too narrowly focused on the immediate marine environment of the Calvert Cliff Nuclear Plant site to the exclusion of additional discharging reactors on the Chesapeake Bay watershed.

Petitioners contend that as a statement of fact the application only considers the two existing units at Calvert Cliffs Nuclear Plant (CCNP Units 1 and 2) currently operating on the Chesapeake Bay as if these were the only operational units collectively and cumulatively contributing to potentially significant impacts on the Chesapeake Bay. As a statement of fact, the application does not look beyond these two units with any analysis to provide an evaluation that there is no collective and cumulative significant impact from other nuclear power plant sources discharging into the Chesapeake Bay watershed. In fact, all of the operational nuclear power plants and proposed new nuclear power plants named in the petition are on the tributary waters of the Chesapeake Bay. By leaving those units out of the application the applicant acknowledges that these units have not been analyzed to conclude one way or another on whether there is a significant collective and cumulative impact on the Chesapeake Bay.

The applicant's response further illuminates its omission by stating, "*The potential dose from the operation of CCNPP Unit 3 was combined with that predicted for CCNPP Units 1 and 2. The ER concludes that while there will be dose consequences resulting from routine releases during operation of CCNPP Unit 3, exposures will remain within applicable NRC dose limits and will not represent an adverse cumulative impact.*" (Applicant Response, page 36)

The applicant's response concedes that it has limited the scope of the application by only considering CCNP Units 1 and 2 as the collective and cumulative sources contributing chemical and radioactive discharge in its Environmental Report as if these units were the only operating units affecting Chesapeake Bay water. The petitioners assert that as a statement of fact this is not true. The petition identified 11 operating units total and two additional proposed new units as

other facilities whose actions should be evaluated for collective and cumulative significant impact on the Chesapeake Bay watershed. The fact that the Bay is in significant decline underscores the petitioners' dispute with the applicant.

The applicant's response further concedes that there will be dose consequences from the operation of Unit 3 that are combined with the collective dose consequence from CCNP Units 1 and 2, concluding that the overall consequences of this major federal action will be acceptable as if these three units were the only operational units collectively and cumulatively affecting Chesapeake Bay water quality.

Once again, the petitioners assert that as a statement of fact this is not true. As previously stated, the petitioners have identified that there are nine additional operating units and two additional proposed units on the watershed with collective, cumulative and potentially significant impact on the Chesapeake Bay water quality that have been excluded from the application's environmental analysis in the applicant's effort to break down the significance of the requested action into a smaller component or subset affecting the Chesapeake Bay.

The applicant asserts "Cumulative impacts to the Chesapeake Bay and associated natural resources are addressed in ER Section 10.5. That section summarizes the potential cumulative adverse environmental impacts to the CCNPP region." (Applicant Response, page 34)
The Staff similarly responds "Additional discussion pertinent to the examination of cumulative impacts can be found in sections 10.5 and 2.8.6 of the ER, which are also not discussed or identified by the Petitioner. Because this contention claims that information is omitted, but does

not identify or account for related information in the ER, it does not meet the requirements of 10 C.F.R. § 2.309(f)(1)(vi), and is therefore inadmissible." [Staff response, p. 26]

The petitioners reply that applicant's ER Section 10.5 expressly evaluates Unit 3 only in the narrow collective and cumulative context of CCNP Units 1 and 2 and as such concedes that it did not look at the collective and cumulative significant impacts of all operating and proposed reactors on the Chesapeake Bay watershed.

Petitioners reply that a review of ER Section 10.5, more precisely Section 10.5.2, finds that the applicant and staff concede that the environmental quality analysis focuses on the smaller component or a subset, namely CCNP Units 1 and 2 within the immediate "*region*" of the requested project. Further, a review of ER 2.8.6 "Non-Federal Potential Impacts" similarly reveals that the applicant's analysis of cumulative impacts did not look at the total number of operating reactors discharging into the Chesapeake Bay watershed nor the additional proposed new reactors that constitute the actual collective and cumulative contribution to the environment impact on the water of the Chesapeake Bay.

The petitioners contend that this omission establishes a genuine dispute between petitioners and the applicant with regard to Code of Federal Regulation regulating NEPA. [40 C.F.R. 1508.27(b)(7)]

The applicant responds that "the environmental 'baseline' described in Chapter 2 necessarily takes into account the condition of the Chesapeake Bay that is currently impacted by all existing

reactor units. Petitioners have provided no information to suggest that any toxic or radiological conditions were not considered or were improperly described in the ER. (Applicant Response, page 35) Similarly, the Staff responds Staff responds "the Petition does not recognize other portions of the ER that discuss the contribution of other pollution sources or the baseline level of water quality in the Bay" [Staff response, p. 25] and "The COLA ER section 2.3.3 describes how the applicant examined existing conditions in the Bay to form a baseline against which to measure the effects of the proposed plant" [Staff response, p. 25] and "The Petitioner does not indicate in its Petition that it reviewed this information in the ER or indicate how the baseline assessment of the conditions of the Bay do not account for possible contribution from upstream nuclear power plants." [Staff response, p. 26]

The petitioners reply that the referenced "environmental baseline" in the applicant's response is expressly limited to the discharges from CCNP Units 1 and 2 to the exclusion of all other nuclear power plants, operating and proposed, and discharges to the water of the Chesapeake Bay. The petition has expressly recognized the omission by its review of the application. That review includes ER Section 2.3.3 which identifies and concedes that the applicant only looked at a smaller component or subset of contributing reactors on the watershed.

The applicant cannot merely imply a lack of collective and cumulative significance, intensity and consequence from the additional operational and proposed units on the watershed for which it has not performed nor evaluated as a result of its decision to limit the scope by analyzing and relying upon a smaller subset of components for the collective and cumulative environmental impact. If the applicant is allowed to place analytical blinders on NEPA there is no limit to the

number of reactors which might be excluded from an environmental review. The petitioners contend that the intent of 40 C.F.R. 1508.27(b)(7) is to head off such a mockery of NEPA.

The applicant asserts "Based on all of the above, the ER concludes that the incremental impact from operation of CCNPP Unit 3 should not result in cumulative adverse ecological impacts." (Applicant Response, page 35) Applicant further asserts "Moreover, conservative estimates of radiological dose to biota also demonstrated that exposure to key selected species should result in no observable effects." [Applicant Response page 36]

Petitioners reply that the applicant cannot make such estimation in CCNP Unit 3 cumulative adverse ecological impacts by selectively breaking down the contributing discharge sources into smaller components such that only CCNP Units 1 and 2 are weighed in the analysis.

Applicant asserts that "the environmental review mandated by NEPA is subject to a 'rule of reason.'" [Applicant Response page 36]

The petitioners reply that the scope of the NEPA review regarding collective and cumulative environmental impacts of the proposed federal action should be constituted by a "hard look" at the requested action and not be determined as a convenience to the applicant. The "rule of reason" is inherent in NEPA to ensure that federal agencies determine whether and to what extent to prepare an EIS is based on the usefulness of any potential new information. [Marsh, 490, U.S. at 373-374.] The operation of 11 discharging reactors on the watershed with three additional proposed new units and perhaps more to come constitutes more than flyspecks on

environmental quality of the Chesapeake Bay watershed. Considering, as the petitioners have, the reality of the significant and unmitigated decline of the Chesapeake Bay, the petitioners contend that it is not in the improved environmental quality interest of the Bay to limit the scope of the additional discharging reactors on the watershed to the applicant's smaller component or subset of reactors (CCNP Units 1 and 2 and the proposed Unit 3). Furthermore, the applicant has not provided any existing reference studies in its application or in its response that justify the exclusion of the analysis of the environmental impacts of the collective and cumulative impacts from all reactors (11 operating units and an additional two units) on the watershed to which CCNP Unit 3 potentially surpasses a tipping point as a result of the applicant's narrow focus on this same smaller component or subset reactor units (CCNP Unit 1 and 2). The applicant and staff merely imply that there are no environmental impacts from the additional discharging units to justify their unsupported exclusion. The petitioners therefore contend that the "rule of reason" should appropriately subject the applicant to a full environmental analysis of all of the operating and proposed units on the watershed to establish whether or not there is significant impact.

Applicant argues "an application need not include all theoretically possible environmental effects arising out of an action, but instead the analysis may be limited to effects which are shown to have some likelihood of occurring." [Applicant Response page 36]

The petitioners reply that the applicant's response is an exaggeration of the petitioners' contention that the application's environmental analysis fails to look at the collective and cumulative impacts on the Chesapeake Bay for the existing 11 operational units discharging chemical and radioactivity upstream and into the Chesapeake Bay as well as the two proposed

additional new construction projects as proposed. The petitioners have not requested a hearing on the theoretical impact of 100 more reactor units on the tributaries of the Chesapeake Bay. The petitioners have found dispute with the applicant's focus on the smaller component or subset (CCNP Units 1 and 2) and claim that the subset constitutes an adequate environmental review for the likelihood of collective and cumulative impacts on the Chesapeake Bay to the exclusion of all other operating reactors and proposed new units.

Applicant responds "UniStar correctly included the cumulative environmental impact of existing Calvert Cliffs Units 1 and 2 and proposed Unit 3. Petitioners, however, argue that UniStar must include a discussion of discharges from other plants (all of which are located greater than 50 miles from Calvert Cliffs) even where discharges from those facilities are within permitted limits. Consideration of such geographically remote impacts is unreasonable and unnecessary." [Applicant Response page 36]

The petitioners reply that given that the 11 operating reactors and two additional proposed units are in fact on the watershed that flows into the Chesapeake Bay, the geographical distance of those additional reactors is not relevant to the petitioners' dispute with the adequacy of the Environmental Review. While the applicant and the staff responses imply that the chemical and radioactive discharges are individually insignificant they have not provided any bases or analyses for determining that there are no collective or cumulative significant impacts from all of units on the Chesapeake Bay. This speaks to the heart of the petitioners' dispute with regard to the failure of the application to consider significance and intensity in context of collective and cumulative environmental impact.

Applicant argues “Petitioners have presented no expert or factual information to call into question the reasonable scoping and conclusions in the ER. Contentions alleging an error or omission in an application must establish some significant link between the claimed deficiency and protection of the health and safety of the public or the environment” [Applicant Response page 37]

Similarly the Staff responds, “NIRS does not cite a reference, supporting document, or expert opinion to support its assertion that contaminants from these upstream sources accumulate in the Chesapeake Bay in a way that merits analysis in addition to the analysis already present in the ER. A “bald assertion that a matter ought to be considered or that a factual dispute exists . . . is not sufficient;” rather, “a petitioner must provide documents or other factual information or expert opinion that set forth the necessary technical analysis to show why the proffered bases support its contention.” [Staff Response, p. 26-27]

The petitioners reply that for a contention of omission they do not need to provide an expert, particularly for the evaluation of the applicant’s non-existent analysis of collective and cumulative environmental impact from the additional licensed nuclear power plants and the proposed new facilities on the watershed. Had the applicant provided a complete and inclusive analysis, rather than the smaller component or subset, the petitioners might well need an expert to evaluate the adequacy of the completed analysis.

The petitioners have pointed to the factual matter that the applicant has inappropriately and

selectively narrowed its Environmental Review to a small component or subset of reactors operating on the watershed or planned to operate on the Chesapeake watershed.

At this point, the petitioners reserve the right to review by their expert at a future date any additional studies, new studies or additional information provided by the applicant that are inclusive of the collective and cumulative contribution of the 11 operating units and two proposed new units in relation to the proposed CCNP Unit 3 and its environmental impact on the Chesapeake Bay.

Applicant argues that with regard to "Notice of Intent to Sue." Pet. at 16; *see also* Pet. Ex. 14. That notice does not allege that toxic or radioactive discharges are causing harm to the bay. Instead, the notice is focused on issues such as low oxygen levels caused by elevated nutrient levels and limited water clarity. Thus, this document provides no support for the alleged contention." [Applicant Response page 37]

The petitioners reply that the contention inclusion of the "Notice of Intent to Sue" identifies that the health of the Chesapeake Bay is in serious decline and that mitigation efforts have been ineffectual, repeatedly delayed and to date are not forthcoming. The Notice of Intent to Sue focuses on the gross failures of the Chesapeake Bay Agreement. Petitioners point out that in addition to the excessive nutrient pollution and limited water clarity, the failed agreement at Section 3. 2 include the elimination and control of chemical contaminants that can bio-accumulate on the living resources that inhabit the Chesapeake Bay. http://dnrweb.dnr.state.md.us/bay/res_protect/c2k/c2k_form.asp?rn1=3&rn2=2&rn3=1&rn4=

As both chemical contaminates and radioactive discharges from the collective and cumulative operation of nuclear power plants on the Chesapeake Bay watershed are part of the applicant's Environment Report and analysis for CCNP Unit 3, the petitioners dispute the adequacy of the application that has focused on a small component and subset of the sources of discharge to the Bay.

Staff further responds "This contention is inadmissible because it does not include references to specific portions of the application, including the environmental report, that are relevant to the information that the Petitioner believes that the application omitted." [Staff Response, p. 24-25]

The petitioners reply that they have amply illuminated the omission in the application a lack of a thorough environmental review of the collective and cumulative environmental impacts of all operating and proposed reactors on the watershed of the Chesapeake Bay. The petitioners have further illuminated that the application instead inappropriately relies upon a smaller component or subset that does not constitute an accurate or sufficient environmental review of the collective and cumulative impacts of the proposed CCNP Unit 3 on the Bay.

Staff further responds "The contention also fails to identify how the alleged omission is a relevant matter required by law. 10 C.F.R. § 2.309(f)(1)(vi)." [Staff Response, p. 25]

The petitioners reply that they have identified a genuine dispute where the application fails to contain information on a relevant matter of law with regard to the collective and cumulative environmental impact of the proposed federal action on the water of the Chesapeake Bay.

The Staff additionally responds, “NIRS must provide support for the assertions it makes upon which its claim of omission relies.” [Staff Response, p. 27]

The petitioners reply that the petition relies upon the statement of fact that the application inappropriately only looks at a smaller component or subset (CCNP Units1 and 2) in relation to CCNP Unit 3 as the sum total of the application’s collective and cumulative analysis of environmental impact on the water of the Chesapeake Bay to the exclusion of the other existing operating and proposed new reactors.

Based on the above combined reply by petitioners, contention 3 should be admitted.

Petitioners’ Combined Reply to UniStar and Staff Responses to Contentions 4 and 5

A. DEFINITIONS: For purposes of reference brevity in this Petitioner response:

1. **Sandia** means Sandia National Laboratories “Guidance on Risk Analysis and Safety Implications of a Large LNG Spill Over Water” (SAND2004-6528, Dec 2004)” which the PPRP indicates as item 19 reference on page B-2.

2. **PPRP** means “Cove Point LNG Terminal Expansion Project Risk Study, Maryland Power Plant Research Program Report PPRP-CPT-01/DNR 12-7312006-147, Maryland Department of Natural Resources, June 28, 2006 (ADAMS Accession No. ML080630231).

3. **DCPLNG** means Dominion Cove Point LNG.

4. **ASLB** means Atomic and Safety Licensing Board

B. Clarification on Petitioners' use of ER and FSAR: Petitioners apologize for the confusion caused by this and wish to state that the submission in the short timeframe allotted to formulate its contentions was using both documents to electronically toggle back and forth and "cut and paste", and obviously made typo errors in reference. Petitioners however, wish to clarify that the contentions were not and have not been based on the comparison of the two or the differences between ER and FSAR, so UniStar's assumption of the aforementioned as the reason for these contentions, is the applicant's lack of understanding of Petitioners' contentions. Contentions 4 and 5 are based on evidence of material fact found in UniStar's application, inclusive of the ER and FSAR and further clarified by the following FACTS and ARGUMENTS in response.

C. STATEMENT REGARDING APPLICCABLE LAWS AND REGULATIONS

Petitioners reply that UniStar and the Staff are inappropriately asking the public to perform the analysis that in fact the applicant is federally required to do under the National Environmental Policy Act (NEPA). NEPA clearly requires that the applicant take a "hard look" and provide an analysis of the project's relation to other federal actions with potential collective and cumulatively significant impacts as to the proposed action's intensity. [40 C.F.R. 1508.27]

Petitioners are within their rights and due process afforded under NEPA to an intervention on a dispute created by the insufficiency of the application to provide a collective and cumulative environmental impact and risk analysis for the requested federal action.

As a point of law, NEPA seeks to determine whether the requested federal action is related to other actions with individually insignificant but cumulatively significant impacts. As such, NEPA is clear that significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment and even more so when the risk analysis involves the design and engineering specifications of a nuclear reactor, further made more risky by the close proximity location (3.2 miles) of the largest LNG gasification and terminal in the U.S.. More to the point of the petitioners' contention, NEPA is clear that significance cannot be avoided by terming an action temporary or (as by its progress in the application process) by breaking it down into small component parts. [40 C.F.R. 1508.27(b)(7)]

Petitioners' Admissibility of Contentions 4 and 5 based on Material Fact that PPRP is deficient and contains omissions of significance for use and reliance by UniStar in their Application to construct the proposed reactor (CC3)

FACT A: PPRP p2: ***1.2 SCOPE***

The scope of this study is limited to assessment of major hazard scenarios involving LNG that may have the potential to cause property damage or adverse impacts on human health offsite. Smaller scale events with direct effects limited to onsite populations are not included except in relation to their potential to cause an escalation to a more severe event.

The proposed expansion project may be implemented in stages; for example, the south pier is expected to be in use well before the expansion project is completed, the new processing and storage equipment is expected to go into service in August 2008, and LNG shipping could reach a maximum of 200 vessels per year in 2009. However these intermediate stages are not considered within this study; risks are calculated only for the current (effectively pre-2004)

baseline and the fully completed expansion project.

The geographical scope of the study, shown in ***Figure 1.1***, covers the area around Cove Point and CCNPP. The risk study is limited to LNG operations contained within this area, e.g., LNG ships en route within the area, berthing of ships and cargo transfer, onshore storage and processing and pipeline export within the study area. There are several additional downstream developments such as further transmission system pipelines and compressor stations, which are outside the scope of this project.

The study does not evaluate construction phase risks, any future modifications to the facility or surrounding areas, or risks to the environment.

ARGUMENT on the PPRP in General: UniStar has relied heavily on the PPRP for its analyses and conclusions regarding Dominion Cove Point LNG (hereinafter referred to as "DCPLNG"). In order for UniStar's analyses and conclusions to be sound and to be in compliance with applicable CFRs, NEPA and FIRE LAWS, among other regulations that the applicant must comply with, the impact of DCPLNG-related issues as it relates to the engineering and specifications of UniStar's permit to construct the 3rd reactor (CC3), must be based on undisputed and substantiated information. The location and severity of the consequences in the CC3 reactor design and its siting at Calvert Cliffs warrants a more stringent look in the section regarding nearby industrial facilities, especially since DCPLNG, just 3.2 miles south of the proposed reactor (Pet. Contentions 4 and 5) poses hazards unique to this location and because of its proximity to the nation's capital. Driving distance to the White House (per MapQuest) of

54.73 miles, thereby placing the White House, the Capitol and the Washington DC population within the 50-mile radius of the Calvert Cliffs emergency zone.

Petitioners have presented evidence of material fact in our original submission regarding our disputes with the PPRP and for clarity, summarize the PPRP deficiencies along with corroborating evidence of same, using for the most part, the Sandia document that the PPRP cites as reference. These substantiations of material fact warrant examination by the NRC and ALSB. The following provide clearer substantiation and admissibility of Petitioners' contentions.

ADDITIONAL PPRP FACTS and ARGUMENTS:

FACT 1: Page B-2, Item 19 on REFERENCES: "Guidance on Risk Analysis and Safety Implications of a Large LNG Spill Over Water" (SAND2004-6528, Dec 2004)

ARGUMENT 1: SUMMARY of PPRP Disputes:

(Additional support in specificity follows, beginning with FACT 2.)

1. **Other than a listing on Page B-2, nowhere in the PPRP** is any reference made as to the use of the Sandia National Laboratories' "Guidance on Risk Analysis and Safety Implications of a Large LNG Spill Over Water" (SAND2004-6528, Dec 2004)". Since Sandia is a US Risk Study that specifically addresses large LNG spills on water, use of Sandia studies is material and relevant with consequences to both Dominion Cove Point LNG and CCNPP. However, since it was not included in PPRP's Section 3.1 US Risk Criteria and other sections where assumptions and guidance from Sandia would have

contributed to the accuracy and completeness of the PPRP, therefore this omission renders the PPRP deficient with orders of magnitude that warrant re-examination.

2. **PPRP used an experimental UK Study** of a storage tank failure (on shore) to substantiate **Spreading and Evaporation of LNG Released on Land or Water**: "An experimental investigation of bund wall overtopping and dynamic pressures on the bund wall following catastrophic failure of a storage vessel, a report prepared by Liverpool John Moores University for the Health and Safety Executive 2005, Research Report 333." While this UK study may be appropriate for on-shore LNG releases which can be contained, a LNG spill over water cannot be contained, therefore the use of this UK study alone to draw assumptions and conclusions for LNG spill over water is deficient. Furthermore, the PPRP does not refer to using or considering any of the LNG spill on water studies that the Sandia document contains, even just for comparison or justification for their choice of the UK study. This fact substantiates Petitioners' contention as valid and admissible.
3. **PPRP used the emissive power of fire value** = 220 kW/m2, much less than the 250 kW/m2 in the Sandia China Lakes study (LNG over water spill) which is contained in the Sandia document used by PPRP as reference. Petitioners (Pet. Exhibit 15) provided as material evidence, the fact that the PPRP did not utilize the higher value of 350 kW/m2 for a Sandia National Laboratories study contained in the GAO report (Pet. Exhibit 16). This same value of 350 kW/m2 is also found in the Sandia document PPRP has listed as reference. It appears that the PPRP has ignored these higher values in the Sandia studies. The emissive power value used is relevant and evidence of a material fact that would drastically alter the outcome of the risk analyses, especially when it comes to impact on

structures (such as the current CC1 and CC2 and the proposed CC3), human life, and the environment. The fact that the PPRP has not made any specific reference to the use of the Sandia studies in any of its assumptions, even just to justify why they chose one value over another, substantiates Petitioner claims that the PPRP is deficient and proves that Petitioners' contentions are substantiated and admissible.

4. **PPRP assumption of a total ship loss: "Frequency of total ship loss taken as 10% of a large container release"** quotes their data source as "Internal study based on UK HSC (Health and Safety Commission) research and other shipping studies."
    - **a.** The PPRP assumption of 25,000 m3 volume of LNG in a single compartment in an LNG tanker considered in their modeling is only 16.89% of the smallest LNG ship's cargo carrying capacity (148,000 m3). If the smallest LNG ship has 5 tanks containing each 25,000 m3, the total ship loss would only be 125,000 m3 or 84.46% of the smallest LNG tanker cargo capacity.
    - b. However, given that the PPRP used only a single tanker compartment (25,000 m3) and based on the PPRP assumption that "Frequency of total ship loss taken as 10% of a large container release", it is unclear what is the volume of LNG spill on water that was considered to be making the "pool fire" and the "flammable vapor cloud" which in turn determine the area of spread and the distance to the heat flux of 37.5 kW/m2 which will melt steel stuctures, and any orders of magnitude that the larger spill volume would entail.
5. **Nowhere in the PPRP does it address Rapid Phase Transition (RPT)** which is usually the first of a series of events that occur when LNG is spilled over water. (This is discussed in Sandia.) RPT causes overpressures and explosions when LNG undergoes

change from cryogenic liquid to gas. RPT is a commonly used term in LNG spills over water and for it to be omitted in the PPRP along with any of the Sandia water studies, plus PPRP's use of a shore-based UK study to model LNG spill over water, leaves little doubt of how deficient the PPRP is in addressing LNG spill over water. This is another substantiation of the gross deficiency of the PPRP as a basis for the risk analyses and conclusions drawn by UniStar in support of its application and engineering of the 3rd reactor. This is another substantiation of the admissibility of the Petitioners' contention.

6. Based on the "givens" and "assumptions" presented by the PPRP to draw its conclusions, several factors were missed that would **alter the order of magnitude of the risks and consequences** as it affects CCNPP and the proposed 3rd reactor:

    a. **Emissive power of fire**: kW/m2: PPRP=220 *Vs*. Sandia=350

    b. **"Total ship loss",** m3: PPRP=25,000 *Vs.* DCPLNG=148,000 (smallest LNG taker) to 260,000 (newest large carrying capacity tankers anticipated by DCPLNG when their pier is modified)

    c. **"Frequency of total ship loss taken as 10% of a large container release":** how this PPRP assumption affects LNG spill over water appears to conceal the order of magnitude of the amount spill used in the PPRP model when compared to the reality of what a "total ship loss" actually is.

    d. **The amount of LNG spill determines key parameters, its consequences and risks.** To name a few: overpressure impact from rapid phase transition; size and duration of pool fire; size and spread of flammable vapor cloud; value, intensity and duration of radiant heat that results from an ignited vapor cloud; distance of pool fire and flammable vapor cloud to CCNPP and the 3rd reactor site; Calvert

Cliffs as a bund (or fire fence) increasing the intensity of radiant heat from the pool fire and ignited vapor cloud; risk of secondary fires from radiant heat and so forth. There is a domino effect associated with a large LNG spill over water and all together must be taken as an aggregate. Failure to do so with accurate and undisputed data renders the C3 application deficient because the basis for its risk analyses and conclusions which is the PPRP is grossly deficient when it comes to LNG spill over water. **The PPRP "domino effect" in Section 4.4 Escalation Study is deficient** because of the aforementioned material facts and argument, supported in specificity below, starting with FACT 2. This further proves that Petitioners' contentions are admissible.

7. **The engineering specifications for the 3rd reactor** must be compliant with the federal, state, NEPA, NUREG and other regulations governing its safety and integrity in mitigating risk to structure, people, and the environment. Resistance of the reactor's design to the aggregated impact of radiant heat posed by an industrial spill of LNG on the Chesapeake Bay at or near the DCPLNG pier as the Petitioners' contention presents, must be based on sound engineering judgment using substantiated and undisputed results. UniStar assumed that the conclusions made by the PPRP rendered their application to have adequately addressed the impact of DCPLNG. Since the thoroughness and accuracy of the PPRP risk study is being disputed with substantiation of material fact, UniStar's conclusions and references in their application must be evaluated in this light and a revisit of the PPRP is being requested by the Petitioners for consideration by the NRC and ALSB. This also renders Petitioners' contention valid and admissible.

8. UniStar's use of the PPRP to support conclusions regarding the engineering specifications of the USEPR design which continues to be evolving and not approved or certified by the NRC, is being disputed with material fact and substantiation herewith. Petitioners contention 4 and 5, if ignored or rendered as inadmissible would be to condone violation of the most basic of engineering principles and Quality Assurance.

FACT 2:

PPRP p8/p40 cross reference: p8, Par 1 and Table 3.1 Offsite Risk Regulation Criteria for Severe Events (SSRRC Criteria), has exception on p40, par 1: "Comparing the risk contours and calculated societal risk levels in Section 5[1] with the US Risk Criteria defined in Section 3[2], the risk levels from the existing and expanded facility generally lie below the maximum tolerable risk criteria, with the exception that the 1980s SSRRC criteria are exceeded.

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[1] Section 5: HAZARD AND RISK RESULTS , PPRP p21

[2] Section 3: CRITERIA RELATING TO SAFETY/RISK ACCEPTANCE OF FACILITIES**,** PPRP p7

ARGUMENT2: UniStar is relying heavily on the PPRP, yet has not addressed the implication of this SSRRC exception, or made any provisions or plans for mitigation.

FACT 3 (list):

PPRP p21, 5.1 IDENTIFIED HAZARD SCENARIOS and Table 5.1 HAZARD SCENARIOS, code "SH-ER-T" and "SH-AB-T" as scenarios referring to LNG Tankers total

loss of ship's tank "en route" and "at berth" respectively. [Note: The above scenarios are the Petitioners' references for an LNG spill over water (Chesapeake Bay)].

PPRP Page A-5, 2.1.1 states 25,000 m3 capacity of LNG single compartment in an LNG tanker, reference Table A 2-4 Liquid Releases from Storage Tanks and Tanker Compartment.

PPRP Page A-7, 2.2.1 Spreading and Evaporation of LNG Released on Land or Water, Par.2: Large, sudden releases of LNG may overtop a bund intended to contain the release. In this study, overtopping of bunds has been modeled for catastrophic tank failure scenarios using a correlation developed by Liverpool John Moores University as part of a UK HSE research project[18]. This correlation relates the fraction of tank volume that overtops the bund (*Q*) to the ratio of bund height (*h*) and tank height (*H*).

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[18] An experimental investigation of bund wall overtopping and dynamic pressures on the bund wall following catastrophic failure of a storage vessel, a report prepared by Liverpool John Moores University for the Health and Safety Executive 2005, Research Report 333.

Sandia p38, last Par.: Generally, combustion of LNG vapor is controlled by two limiting factors: 1) whether the LNG vapor does not have enough time to mix with the air (called non-pre-mixed combustion), and 2) whether the ignition occurs after the fuel has time to mix with the surrounding air (appropriately called 'pre-mixed combustion'). Therefore, ignition time is important in spill scenarios to assess appropriately the type and extent of thermal radiation from an LNG spill and fire. As noted in Table 6, combustion and thermal damage from a fire

can have severe consequences and should be carefully and thoroughly analyzed.

Sandia p95, last Par. and p96, Par. 1 cites: All the reports assume that the fuel ignites immediately and that only a pool fire results. As an example of a different combustion scenario, the experiments performed by Mizner and Eyre involved an ignition source 130 meters away from the spill source. A vapor cloud developed above the spill, propagated towards the ignition source and ignited. They observed that the flame propagated in two modes in the vapor cloud, as a pre-mixed flame in regions where air and fuel were mixed within the flammability limits, and as a diffusion flame in fuel-rich regions. The diffusion flame propagated back to the spill point, whereupon a pool fire resulted. Thus, pre-mixed and diffusion modes of burning can occur. The implication of this deals with the potential occurrence of explosion in pre-mixed regions, given potential breach conditions and ignition sources.

PPRP Page A-13, Table A 4-1 Scenario Frequencies and Bases (comments and assumptions for scenario SH-ER-T and SH-AB-T): Frequency of total ship loss taken as 10% of a large container release quotes their data source as “Internal study based on UK HSC (Health and Safety Commission) research and other shipping studies.”

ARGUMENT 3: The data used by PPRP from which UniStar is basing their justification for dismissal does not address the scenarios in the Petitioners’ contention as follows, thereby further deficient for the following reasons:

1. The 25,000 m3 volume of LNG the PPRP 2.1.1 considered in their modeling is only 16.89% of the smallest LNG cargo carrying capacity (148,000 m3). If the smallest LNG ship has 5 tanks containing each 25,000 m3, the total ship loss would only be 125,000 m3
    - Pet. p18 states "LNG pier which is currently being expanded by DCPLNG to accommodate the larger ships which transport cargoes of up to 267,000 cubic meters of LNG than the smaller ships (148,000 cubic meters maximum LNG capacity) currently utilizing the existing LNG pier."
2. For the two scenarios on "total loss of ship's tank", PPRP's assumption of "The Frequency of total ship loss taken as 10% of a large container release." Petitioners argue that when such an event happens as a "total loss of ship's tank", statistical assumption used to justify the risk at 10% of a large container release are theoretical and do not reflect the reality of what "total loss of ship's tank" truly means which could be volume of LNG between 148,000 cubic meters and 267,000 cubic meters, depending on the type of LNG tanker. (The PPRP uses 25,000 m3 for a single tanker compartment to denote "total ship loss" which is 16.89% of the smallest LNG ship's cargo carrying capacity of 148,000 m^3.
3. **PPRP used an experimental UK Study** of a storage tank failure (on shore) to substantiate **Spreading and Evaporation of LNG Released on Land or Water,** as described above. PPRP does not refer to using or considering any of the LNG spill on water studies that the Sandia document contains, even just for comparison or justification for their choice of the UK study. Therefore, in this respect, the PPRP is deficient and Petitioners' contention presents substantiation of a material fact supporting admissibility.

4. Although the PPRP utilized a "delayed ignition assumption" and made representations regarding combustion and flame, nowhere in the PPRP is "mode of combustion" addressed as described in the two references to Sandia, above (non-premixed and pre-mixed and diffusion flame). These assumptions and considerations are material and affect risk analysis, therefore the PPRP is also deficient in this respect.

FACT 4 (list):

PPRP Page A-3, *1.3 FIRE AND EXPLOSION MODELS*

1.3.1 Pool Fire Model

This model is used to assess fires from pools of hydrocarbons lying on the ground or in a bund, berm, or dike. These types of model estimate the flame height and surface emissive flux of the fire (the quantity of heat radiated from the surface of the fire) to characterize the fire, and then use a 'view factor' calculation and an 'atmospheric attenuation' algorithm in order to estimate the thermal radiation burden at a specific point some distance from the fire.

This model is capable of modeling confined and unconfined fires on either land or water.

Sandia p91, Par. 2 cites: Pool diameter, radiant flux, and burn duration will depend upon the scenario or example assumptions used, as evident from the reports. Obviously, **a larger pool fire would result if all of the five cargo tanks were ruptured due to a larger amount of fuel spilled**……. **Thus, pool area will make a significant difference**."

Sandia p145, last Par: "suggest LNG pool fires of as much as 8900 m in diameter before breakup, based on results of laboratory testing on approximately 7 m by 7m wood fiberboards."

ARGUMENT 4:

1. As described above**,** and in The PPRP assumptions in 1.3.1 Pool Fire model that "This model is used to assess fires from pools of hydrocarbons lying on the ground or in a bund, berm, or dike," supports the conclusion that "This model is capable of modeling confined and unconfined fires on either land or water" is deficient when used as the model for an LNG spill over water where the spill cannot be confined.
2. The same UK study was cited in FACT 3 where deficient assumptions were used to determine amount of LNG spill which is a key factor in determining size, duration, and intensity of the pool fire. The deficiency carried over to the PPRP hazard scenarios which used the same data and assumptions. The order of magnitude of the deficiency in the PPRP is what appears to be its dependence on this UK study to develop the parameters for its modeling to determine risk and consequences of a large LNG spill over water.
3. None of the Sandia studies supporting a pool fire on water were used by the PPRP. These Sandia studies which address the large LNG spill over water impact many key assumptions and parameters that affect the outcome of the risk study. This is where the PPRP is grossly deficient.

FACT 5 (lists):

PPRP Page A-4, *Table A 2-2 LNG Physical Properties:*

Property	**Value**
Material	Pure Methane
Black body emissive power, kW m-2	220

Sandia p120, Par.1, for the China Lakes experiment: "The percentage of methane in the LNG used for each test varied from 75 to 95 %. The highest spot emissive power of 250 kW/m2 occurred with the highest concentration of methane."

Sandia p141, Table 41: Sensitivity Analysis of Thermal Intensity Level Distances includes the 350 kW/m2 emissive power for a single tank breach.

Table 1 of the GAO-07-316 February 2007 report: "MARITIME SECURITY, Public Safety Consequences of a Terrorist Attack on a Tanker Carrying Liquid Natural Gas Need Clarification" (Pet. Exhibit 15), also reflected Sandia National Laboratories' 350 kW/m2 along with other LNG studies.

ARGUMENT 5:

1. Data assumptions in the PPRP were drawn from the UK study as evidenced by the previous FACTS and ARGUMENTS. The emissive power used by the PPRP was 220 kW/m2, much less than the 250 kW/m2 in the Sandia China Lakes study (water spill) which is contained in the Sandia document used by PPRP as reference. Petitioners (Pet. Exhibit 15-GAO Table) provided as material evidence, the fact that the PPRP did not utilize the higher value of 350 kW/m2, also found in its Sandia reference and further

corroborated by its appearance in the GAO report. PPRP omitted any reference to Sandia in their use of data and assumptions and did not provide any rationale for their choice.

2. Furthermore, since the PPRP assumption was “Pure Methane”, the emissive power should have been higher, to be consistent at least, with the findings in the China Lakes experiment and with the Sandia Sensitivity Analysis, which also summarized that there are more severe consequences when there is an intentional breach of more than one tanker container.
3. Based on the above arguments, consideration of the impact of the greater emissive power was not considered in the PPRP modeling. The order of magnitude on the PPRP results is impacted by the choice of parameters such as the emissive power of fire, therefore the risk and consequences are understated by that order of magnitude.
4. Using simple logic, one can conclude that based on these recognized scientific experiments and analyses provided in evidence in the aforementioned FACTS and ARGUMENTS, that the greater the LNG spill, the greater the diameter of the pool fire. The spread of the spill over water would be faster since it is unconfined, thereby increasing the area of threat both from the pool fire and the flammable vapor cloud. The PPRP data and assumptions appear to be “diluted” and do not reflect the values that are mathematically and scientifically expected, using Sandia’s studies and expert opinions as a guide. The omissions and lack of justification as to the rationale for using the assumptions and data for the UK study and not Sandia or a combination thereof, is one of the reasons why Petitioners conclude that the PPRP risk study is deficient and one of the basis of Petitioners having submitted Contentions 4 and 5.

5. Further expanding on this order of magnitude, the probability and aggregation of escalating events resulting from all these factors naturally places a deficiency in the Escalation Study of the PPRP, thereby necessitating the revisit of UniStar's application as their conclusions are impacted negatively by the bases from which their assumptions and conclusions are based, the PPRP. Petitioner Contentions 4 and 5, having provided specificity in the foregoing FACTS and ARGUMENTS are therefore substantiated and admissible.

6. The following addresses UniStar's issues in specificity:

Contention 4: The ER is Unacceptably Deficient Because it Omits from Analysis of CCNPP 3's Reactor Design and Safety of the CCNPP Facility, Additional Relevant Impacts Arising from the Expansion of the Dominion Cove Point Liquefied Natural Gas Facility Located 3.2 Miles South of the Proposed Reactor.

The applicant asserts:

App. p37: "In this proposed contention, Petitioners assert that the ER is deficient because it omits analysis of certain issues. However, as discussed below, this proposed contention of omission is inadmissible because the application contains the allegedly omitted analysis and because the petitioners fail to demonstrate a genuine dispute on a material issue.22 Although 22 In the proposed contention, Petitioners variously describe the deficiency as being related to the ER or FSAR (or the "application"). In fact, as described further below, substantial information is provided in the COL application in both the ER and the FSAR. To the extent that Petitioners argue an omission in the ER as a matter of formality (*i.e.*, that a specific risk analysis that is in

the FSAR is not in the ER), this is not a meaningful distinction. The key is that the issues related to the LNG facility are fully evaluated and the information is available for the NRC Staff to include in its review documents (either Petitioners attempt to circumvent the requirement that a proposed contention provide a statement of the factual or expert support for the proposed contention by couching the contention as one of omission, many of the asserted bases implicitly argue that the application reaches an incorrect conclusion. However, because these challenges are unsupported, they cannot provide the basis for an admissible contention."

Petitioners reply that as already stated previously in the **Clarification on Petitioners' use of ER and FSAR:** Petitioners <u>are not and have not</u> based Contentions 4 and 5 on the comparison of the two or the differences between ER and FSAR, so UniStar's assumption of the aforementioned as the reason for these contentions, is UniStar'slack of understanding of Petitioners' contentions. Contentions 4 and 5 are based on evidence of material fact found in UniStar's application, inclusive of the ER and FSAR and further clarified by the foregoing FACTS and ARGUMENTS about the deficiencies and omissions in the PPRP upon which UniStar has relied upon to justify its position regarding the DCPLNG issues. Specifically, UniStar's assertion that "The key is that the issues related to the LNG facility are fully evaluated and the information is available for the NRC Staff to include in its review documents" is deficient since the PPRP from which UniStar draws its basis for facts and conclusions has been documented as deficient in specificity in each of the foregoing FACTS and ARGUMENTS. Petitioners' contentions have been substantiated in specificity regarding deficiencies and omissions, therefore admissible.

NRC p.28

"The Staff opposes admission of proposed contention 4 because it does not articulate a genuine dispute with the Applicant, raises issues outside the scope of this proceeding, does not support any dispute with the Application with facts or expert opinion, nor does the proposed contention support its claims of alleged omissions with supporting reasons as to why omitted material is required. Accordingly, proposed contention 4 does not comply with 10 C.F.R. § 2.309(f)(1)(iii)-(vi), and is inadmissible."

Petitioners reply that the foregoing FACTS and ARGUMENTS support genuine dispute with the applicant, have provided material evidence in specificity especially with regards to the PPRP which applicant has relied on so heavily. Contention 4 raises issues that must be addressed since the risk study used is materially deficient and has material omissions that if not taken into consideration, affect the integrity of the engineering specifications of the still evolving USEPR design. The issues in the PPRP under calculate the risks and hazard scenarios upon which the applicant bases their analyses and conclusions. As such, these issues are well within the scope of this hearing since these issues must be addressed before construction and the assumptions and conclusions must hold true for the life expectancy of the proposed reactor. The deficiencies and omissions of the PPRP, since they form the basis for risk assessment, if not addressed and resolved adequately, put at risk ad infinitum, the United States seat of government and the DC population which is within the 50-mile radius of the CCNPP and proposed 3rd reactor. Dismissal of Contentions 4 and 5 will condone that risk and it cannot be taken lightly since the issues raised have not been fully addressed. In the foregoing FACTS and ARGUMENTS, Petitioners have presented material evidence supporting issues raised in specificity and directly related to the accuracy and completeness of the applicant's application and the bases from which the applicant

draws its facts and risk analysis scenarios, thereby rendering Contentions 4 and 5 admissible.

Applicant asserts: "Section 4.4 of the PPRP Study contains an overview of the "escalation study" that was performed to assess the potential for such interactions."

Petitioners' reply that the foregoing FACTS and ARGUMENTS already answered the omissions and deficiencies of the PPRP in this respect.

Applicant asserts: "FSAR Section 2.4.1.1 states that ESWS cooling tower basins will serve as the Ultimate Heat Sink ("UHS") cooling water storage volumes for use during design basis accidents. The tower basin inventory provides cooling water for safety-related heat removal for the first 72 hours during DBA conditions without the need for additional makeup water from the Chesapeake Bay."

Petitioners' reply that aside from the Chesapeake Bay, the ESWS/UHS as a water source for cooling will have been negatively impacted as a consequence of a large LNG spill and all its implications and escalating orders of magnitude. Given that, the ESWS/UHS, will also be heated from the effect of radiant heat in excess of the 37.5 kW/m2 due to prolonged pool fire and radiant heat from an ignited flammable vapor cloud, and with probability of direct fire since the flammable vapor cloud could be entrained by the wooded area acting as a vapor cloud bund. Since the PPRP used insufficient data and missed some assumptions that were material and relevant in determining the scenarios and impacts in their risk study, the resultant radiant heat from the emissive power of fire, duration and distance to the 3rd reactor would be in order of

magnitude far greater than what was reflected in the PPRP risk assessment. This would increase the probability of shutdown for CCNPP and the proposed reactor. When the basis for engineering and risk analysis are deficient, so are the conclusions drawn ad infinitum. Add to this the hazards posed to government establishments and personnel within the 50 mile radius of CCNPP and CC3, make all the more reason why Contentions 4 and 5 cannot be dismissed so routinely.

NRC, p31-32 attests "insofar as this claim concerns the DCPLNG facility, its expansion, or the environmental impacts of an accident at DCPLNG upon the Chesapeake Bay
and the surrounding environment, it is outside the scope of this proceeding. As concerning the proposed reactor, the Application contains extensive discussion that is relevant to the information that the Petitioner believes that the application omitted. To the extent that the Petitioner has raised a dispute with the Applicant, the Petitioner has not provided references to sources in support of their position, as required by 10 C.F.R. § 2.309(f)(1)(v). Therefore, Claim 2 is inadmissible. The Applicant's FSAR, in Section 2.2.3.1.2, "Flammable Vapor Clouds (Delayed Ignition)," (again recited by the Petitioner) discusses precisely the sort of accident the Petitioner alleges to be omitted. There, the Applicant provides in detail its methodology in predicting the consequences of such an event, as well as the impacts of such an event on the proposed plant and surrounding area, including the DCPLNG facility itself. *See* FSAR at 2-78 to 2-83."

Petitioners reply that an accident of a catastrophic LNG spill over water, though off site to the proposed CC3, is material and relevant and within the scope of this proceeding. Furthermore,

the applicant may have covered their methodologies and scenarios in the FSAR, however, these scenarios and methodologies were based on the PPRP or lifted directly from the PPRP to which the Petitioners have provided facts and expert references (Sandia) that are material and substantiate the disputes (omissions and deficiencies). The aforementioned FACTS and ARGUMENTS address the issues of omissions and deficiencies that require revisiting, otherwise the errors and omissions will continue ad infinitum and put at risk the integrity of the reactor design and all parts that go with it. Consequences to erroneous assumptions and conclusions, given the sensitivity of the CCNPP site and the proposed reactor, substantiate admissibility of Contentions 4 and 5.

NRC, p32 asserts: "While a delayed ignition vapor cloud is considered in the FSAR, the Petitioner alleges that the Applicant "omits full breach of ship borne LNG over water" in its analysis, and that "[t]he assumption that the 'entire contents of the vessel leaked forming a 1 cm thick puddle providing a significant surface area to maximize evaporation and the formation of a vapor cloud' definitely omits risk analysis of a catastrophic LNG spill over water." Petition at 28. However, the Petitioner does not cite to any source or reference as the basis for its disagreement with the Applicant. While the Petitioner has attached, and elsewhere made peripheral reference to a GAO report and studies from Sandia National Laboratories concerning LNG accidents, it has not explained their relevance to the proposed action, or used them to substantiate any dispute with the Application. While the Petitioner does not need to prove its contention at the admissibility stage, *Private Fuel Storage*, CLI-04-22, 60 NRC at 139, 10 C.F.R. § 2.309(f)(1)(v) requires a "concise statement of the alleged facts or expert opinions which support the requestor's [or] petitioner's position on the issue . . . together with references to the

specific sources and documents on which the requestor/petitioner intends to rely ."

Petitioners reply that the aforementioned FACTS and ARGUMENTS on the PPRP have provided substantiation with reference (Sandia and GAO) in specificity addressing the source and references required to meet admissibility on this specific issue. These include size of LNG spill, behavior of LNG as in Rapid Phase Transition when air or water acts as a natural vaporizer. Regarding Petitioner statement that "the Applicant "omits full breach of ship borne LNG over water" in its analysis, and that "[t]he assumption that the 'entire contents of the vessel leaked forming a 1 cm thick puddle providing a significant surface area to maximize evaporation and the formation of a vapor cloud' definitely omits risk analysis of a catastrophic LNG spill over water": Petitioner found that the assumptions used by the applicant in its methodology regarding **2.2.3.1.2 Flammable Vapor Clouds (Delayed Ignition)** which is supposed to be LNG includes an assumption such as "1cm thick puddle ending up as a vapor cloud" is so off base and very odd for an LNG spill. This type assumption in no way even behaves like LNG spill on water, let alone even mimic the characteristics of a full spill. Petitioner was aghast at even finding such a description as this on the Applicant's FSAR, and this is enough reason to warrant and require an in depth analysis and evaluation of the application's assumptions and methodologies. This is above and beyond the omissions and deficiencies cited in the PPRP FACTS and ARGUMENTS included in this response.

Applicant asserts: "Similarly, contentions involving plans of third parties that are not yet concrete proposals should be rejected. Whether Dominion will proceed with the pier reinforcement project is too speculative to support an admissible contention.26 Simply stated, the

issue is premature. Moreover, Petitioners have provided no information to suggest that expanding the pier footprint would lead to potential impacts any different than those already considered."

App. p53

Contention 5: The ER Is Unacceptably Deficient Because it Omits the Combined and Cumulative Mechanical Stress to Chesapeake Bay Biota Caused by the Cooling Water Intake Pumps for the Proposed Unit 3, CCNP Units 1 and 2 Water Intake Pumps and the Water Ballast Intake Pumps of the LNG Tanker Ships that Are Operational During LNG Unloading Operations at the Dominion Cove Point LNG Pier.

Petitioners reply: The expansion of the LNG pier is as real as the application for the permit to construct the 3rd reactor. To state that it is speculative would be to admit that CC3 is speculative, though at this stage it appears to be considering that the USEPR is still not approved or certified for use. The applicant's contention is frivolous and should be deleted. The LNG pier expansion seeks to utilize larger shipments of LNG to the DCPLNG terminal and this expansion of 150 feet on either side of the pier would possibly increase the northerly approach of larger ships, bringing the CC3 siting much closer to the shipping lanes and closer to the risk of an even more catastrophic LNG spill scenario. To ignore this probability as of no consequence is turning a blind eye to the risk factors and engineering design adjustments that the USEPR and all it entails must consider to be compliant to all the rules and regulations governing design and safety. For CC3 to dismiss this as speculative is not in keeping with even good business practices on market and competition, if not the more potent dangers it presents to CC3 engineering and design. Furthermore, in **Contention 5**, it places the CC3 water intake for cooling closer to the ships who

also siphon Chesapeake Bay water into their water ballasts during LNG unloading operations, thereby adding to the environmental strain of an already dying Chesapeake Bay.

It is easy for the applicant to dismiss Contention 5 as already covered with no adverse impact, which was the same conclusion drawn by the PPRP, and now with proven deficiencies and omissions. However, the cumulative effect of these discrete processes such as water suction in large quantities in the same general area cannot be taken in isolation. Petitioners reply that UniStar and the Staff are inappropriately asking the public to perform the analysis that in fact the applicant is federally required to do under the National Environmental Policy Act (NEPA). NEPA clearly requires that the applicant take a "hard look" and provide an analysis of the project's relation to other federal actions with potential collective and cumulatively significant impacts as to the proposed action's intensity. [40 C.F.R. 1508.27]

The petitioners are within their rights and due process afforded under NEPA to an intervention on a dispute created by the insufficiency of the application to provide a collective and cumulative environmental impact analysis for the requested federal action.

As a point of law, NEPA seeks to determine whether the requested federal action is related to other actions with individually insignificant but cumulatively significant impacts. As such, NEPA is clear that significance exists if it is reasonable to anticipate a cumulatively significant impact on the environment. More to the point of the petitioners' contention, NEPA is clear that significance cannot be avoided by terming an action temporary or by breaking it down into small component parts. [40 C.F.R. 1508.27(b)(7)]

The petitioners have contended that the applicant inappropriately seeks to limit the scope and significance of the environmental impact of the requested action by breaking down the environmental report analysis into a smaller component parts that each of which is too narrowly focused on the immediate marine environment of the Calvert Cliff Nuclear Plant site to the exclusion of additional “water usurpers” that suction off Bay waters to the billions of gallons daily, which when all taken together amount to a considerable and sizable sum and impact to the environment and Maryland aquatic commerce .

CONCLUSION:

In the amount of time given the Petitioners to respond to the Applicant’s and NRC Staff’s counter issues, the Petitioner has presented much material evidence, substantiation, and expert and accepted references (such as Sandia) to meet admissibility requirements for Contentions 4 and 5. Petitioner therefore appeals to the NRC and ALSB to grant these contentions admissibility.

Petitioners’ Combined Reply to Applicants and NRC staff’s response to Contention 6

Regarding our Contention Number 6, concerning the Calvert Cliffs 3 COLA’s deficiency in regards to its discussion of the high-level radioactive wastes to be generated by the proposed new reactor, the responses of Applicants and NRC staff to our proferred contention do not include any additional data or discovery to refute our contention. We fully understand the contents, do not misconstrue any statements, and raise genuine issues of contention. The contention has merit and should be admitted.

Neither the Applicants nor NRC staff address a key new issue raised in our contention: that the NRC is now itself re-examining and accepting public comment on its Nuclear Waste Confidence Decision.

By way of background, on March 1, 2005, attorneys representing the State of Nevada filed a petition for rulemaking to NRC calling on the Commission to amend its Waste Confidence Decision and Rule to avoid prejudging the Yucca Mountain license application (PRM-51-8). But on August 17, 2005 the NRC denied Nevada's petition for rulemaking (70 Federal Register 48329, and NRC Office of Administration "Items of Interest," Week Ending August 19, 2005).

Even as late as early 2008, NRC Chairman Dale Klein was saying that NRC would not be re-evaluating its Nuclear Waste Confidence Decision. Specifically, in his speech entitled "Waste Confidence and Waste Challenges: Managing Radioactive Materials" at the Waste Management Symposium in Phoenix, Arizona on February 25, 2008, NRC Chairman Dale E. Klein said "I personally do not feel that a new [Waste Confidence] rulemaking is necessary at this time..."

However, Chairman Klein's May 16, 2008 letter to U.S. Senator George Voinovich – Ranking Member of the Subcommittee on Clean Air and Nuclear Safety of the Senate Environment and Public Works Committee – showed that the NRC had changed course. Klein wrote: "On September 7, 2007, following a public meeting where the Commission was briefed by the Nuclear Energy Institute and other industry representatives, the Commission "agreed with the nuclear industry view that it was appropriate to update the NRC's waste confidence findings in the near term."

Thus, the NRC Commission rejected Nevada's petition for rulemaking to update the NRC Nuclear Waste Confidence Decision, but embraced the nuclear power industry's call for just such a re-evaluation. In fact, that re-evaluation is currently underway. NRC has granted an extension to the public comment period on the draft revision to the Nuclear Waste Confidence Decision. The new deadline for public comments is February 9, 2009, a public comment opportunity that we fully intend to take advantage of and participate in. After receiving public comments by the deadline, NRC will then consider those comments in preparation of a final revision to the Nuclear Waste Confidence Decision, to be published at an unspecified future date.

Obviously, as worded in the 1999 review of the NRC Nuclear Waste Confidence Decision, "significant and pertinent unexpected events" must have occurred, "raising substantial doubts about the continuing validity of the Waste Confidence finding" (64 Federal Register 68005), for NRC is in fact re-evaluating its Waste Confidence finding as we speak. This further bolsters the merit of our contention for hearings.

Given that the NRC Nuclear Waste Confidence Decision is under re-evaluation, it is inappropriate for NRC staff and Applicants to currently take credit for a renewed expression of "Confidence" that the waste problem is completely under control, and will remain so for many decades to come.

Both NRC staff and Applicants argue that Joint Intervenors are impermissibly attacking NRC regulations in our contention. But the Commission itself has ordered a re-evaluation of its

Nuclear Waste Confidence Decision. We are not attacking NRC regulations; rather, we are acknowledging the reality that the relevant regulations are under review, may change substantially, and may affect the proposed Calvert Cliffs-3 reactor. Thus, at worst this contention should be accepted for hearing but held in abeyance until the Waste Confidence Decision is issued by the NRC; although Joint Intervenors believe the issue is ripe for consideration at this time.

Another recent development that demands mentioning here is the December 2008 publication by the U.S. Department of Energy of "The Report to the President and the Congress by the Secretary of Energy on the Need for a Second Repository." In it, DOE indicates that the State of Maryland itself could serve as the location for a high-level radioactive waste repository if the Yucca dumpsite is not opened and its capacity limits removed.

On page 11 of this report, viewable at
http://www.ymp.gov/info_library/program_docs/Second_Repository_Rpt_120908.pdf,
DOE states that "DOE reference documents...identify 17 states within which there were granitic bodies believed to be adequate for investigation for siting a repository for the second repository program." This list of 17 states included not only Maryland, but also such neighboring states as Pennsylvania, Delaware and Virginia, all within the Chesapeake Bay watershed. However, there has been no evaluation of any of the sites suggested so no claim can be made or implied about suitability or the possibility of any becoming a licensed site.

Figure 3 on page 12 of the same report, entitled "Map of the United States Illustrating First

Repository Program Sites, Second Repository Program Areas Under Consideration, and Shale Deposits Potentially Suitable for a Repository," shows shale deposits in western Maryland, as well as under all of West Virginia, much of Pennsylvania, and various parts of western and central Virginia, that DOE is considering as potential repository locations. There has been no evaluation of any of the sites suggested so no claim can be made or implied about suitability or the possibility of any becoming a licensed site.

This new DOE report shows that, without a repository at Yucca Mountain, Nevada that has current waste amount limits removed, the State of Maryland itself, or other states in the Chesapeake Bay watershed, could be targeted for the nation's high-level radioactive waste dump. The uncertainties concerning high-level radioactive waste management in the U.S.as evidenced by the incoming Obama presidential administration's stated opposition to the Yucca Mountain dumpsite proposal, NRC's current revision of its "Nuclear Waste Confidence Decision," and DOE's new report on the potential of states such as Maryland to be targeted for the national radioactive waste dump in lieu of Yucca Mountain, all serve to bolster the legitimacy of our high-level radioactive waste contentions. We urge that, contrary to NRC staff's and Applicants' arguments, our contention be granted a hearing on the merits.

We would also like to clarify, in response to Applicants' footnote 41 on page 59 of its response to our intervention petition, that the reason we mentioned the U.S. Environmental Protection Agency's Yucca Mountain radiation release regulations was to show that contrary to Applicants' assertion that no radioactivity would be released to the environment from the Yucca Mountain dumpsite, that radioactivity releases would in fact occur for hundreds of thousands of years into

the future. For the first 10,000 years post burial of the wastes at Yucca, EPA has proposed a final rule that would allow for 15 millirems per year of radioactivity to dose persons downstream. After 10,000 years and out to a million years, EPA would allow for 100 millirems per year of radioactivity to dose persons downstream – a six to seven fold increase in allowable levels of harmful radioactivity dosage. EPA's regulations are currently being challenged legally by the State of Nevada. Our point is that, contrary to Applicants' assertion that zero radioactivity would escape the Yucca Mountain dumpsite, that in fact EPA recognizes that radioactivity doses will be delivered to persons living downstream of the leaking dumpsite for a million years into the future. This would, of course, be an environmental and public health impact caused by the Calvert Cliffs 3 reactor if built and allowed to generate forever deadly high-level radioactive wastes.

Petitioners' Combined Reply to Applicants and NRC staff's response to Contention 7

Contention 7 on so-called "low-level" radioactive waste is a contention of omission. Our contention is on NEPA, environmental grounds and on safety and security grounds.

The expert providing the facts and basis for opinion that there is an omission is Diane D'Arrigo, NIRS Radioactive Waste Project Director, whose documentation that her 11-19-08 declaration was signed is being submitted to the docket with this filing.

NRC has admitted that long-term storage of "low-level" radioactive can be a security and safety concern.

The statement of fact is that the Nuclear Regulatory Commission provides 10 CFR Part 61 as the required criteria for the ultimate disposition of so-called “low-level” radioactive waste. Any plan or application to generate new so-called “low-level” radioactive waste should be required to meet it eventually. Despite its inadequacies (which are deserving of dispute but not in dispute in this proceeding), 10 CFR Part 61 provides the regulatory requirements for the disposal of radioactive waste. As of the time of the application, and currently, there is no accessible 10 CFR 61 disposal available for most of the nuclear reactors in the US. It is premature and irresponsible for the applicants to assume that such access will be forthcoming.

The applicants’ plans, including contracting with Studsvik for waste processing, do not actually comply with 10 CFR part 61, nor do they ensure that 10 CFR part 61 will eventually be met. Specifically, Studsvik does not, nor do any of its partners, have a 10 CFR part 61 license for “low-level” radioactive waste disposal for waste from nuclear power reactors. Further, Maryland, (in which Calvert Cliffs 3 would be located) and Tennessee (in which Studsvik is located) are not members of the Texas/Vermont Compact for so-called “low-level” radioactive waste, thus wastes from those generators are not necessarily allowed access to that region for disposal. Important questions must be answered regarding whether waste from either Calvert Cliffs, or Studsvik would be admissible in that event.

NRC should have no confidence in this plan, but that is arguing the substance, and therefore we leave that further discussion until the contention is admitted and the finer points of substance can be argued.

We have reviewed the appropriate portions of both the FSAR and ER and did not cite all the portions describing the production and onsite management of long-lasting radioactive waste because the concern of the contention is the long-term, possibly post-closure storage, potentially perpetual storage of these wastes. What is revealing in the FSAR is that significantly dangerous and long-lasting radioactive waste will be routinely, constantly generated if Calvert Cliffs 3 operates. Those sections did not address the permanent disposal, disposition and isolation of the wastes for the 10-20 half-lives they remain potentially dangerous, rather they reported routine production and management.

10 CFR 2.335

Regarding the risks from long term/de-facto permanent storage, as stated in the original contention (Contention 7 Footnote 1), petitioners anticipate seeking generic revision of Table S-3 and need to preserve out right to ensure that any generic resolution of our concerns is made in a timely way and incorporated into the licensing action in this particular case. These are generic problems thus a waiver or exception is not appropriate here. We are raising this here to ensure any generic resolution is applied back to this case.

This petition includes new information including but not limited to the potential length of time and increasing amounts of radioactive waste remaining at the site for which there is no permanent disposal of radioactive wastes and the potential effects of climate change on the storage location(s). Our petition on Table S-3 is intended to address concerns regarding different but significant impacts of radiation on individuals of different ages and sexes, non-cancer health effects of radiation and protecting the most vulnerable members of the population.

GTCC

Finally, we contend that our concerns are valid regarding Greater than Class C radioactive waste in this proceeding. It is true that the disposal is a federal responsibility but there is no reason to believe that final disposal capacity will be provided by the Department of Energy. There has been a scoping for a rulemaking but not even a decision by DOE to proceed with the rulemaking. Greater than C waste has gone to "low-level" radioactive waste disposal sites on case-by-case bases so in the absence of such, it is orphaned. It has been stored with high-level waste in fuel pools but is not subject to the waste confidence decision (which is under review currently).

In summary, Joint Intervenors believe that all seven of our contentions should be admitted for hearing in this proceeding.

Respectfully submitted,

This 22nd day of December 2008.

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CERTIFICATE OF SERVICE

It is our understanding that all on the Calvert Cliffs-3 service list are receiving this motion through the submission we am making on December 22, 2008 via the EIE system.

JOINT INTERVENORS REPLY TO NRC STAFF'S ANSWER TO PETITION TO INTERVENE AND APPLICANTS' ANSWER TO PETITION TO INTERVENE IN DOCKET NO. 52-016, CALVERT CLIFFS-3 NUCLEAR POWER PLANT COMBINED CONSTRUCTION AND LICENSE APPLICATION

This 22nd day of December 2008.

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