

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

COMMISSIONERS:

Stephen G. Burns, Chairman  
Kristine L. Svinicki  
William C. Ostendorff  
Jeff Baran

In the Matter of

SHAW AREVA MOX SERVICES, LLC

(Mixed Oxide Fuel Fabrication Facility  
Possession and Use License)

Docket No. 70-3098-MLA

**CLI-15-09**

**MEMORANDUM AND ORDER**

Nuclear Watch South, Blue Ridge Environmental Defense League, and Nuclear Information and Resource Service (together, Intervenors) challenge the Atomic Safety and Licensing Board's ruling on the merits of Contentions 9, 10, and 11 in favor of the applicant, Shaw AREVA MOX Services (MOX Services).<sup>1</sup> For the reasons set forth below, we deny their petition for review.

---

<sup>1</sup> *Intervenors' Petition for Review of LBP-14-1* (Mar. 27, 2014; corrected Apr. 1, 2014) (Petition for Review); LBP-14-1, 79 NRC 39 (2014). Judge Farrar issued a "separate statement," wherein he noted his "essential agreement with most of the substance" of the Board's decision, raised additional concerns regarding the Board's treatment of cybersecurity, and dissented with respect to portions of the Board's decision regarding Contentions 9 and 11. *Id.* at 119-27 (Farrar, J., dissenting).

## I. BACKGROUND

### A. Procedural History

This proceeding involves MOX Services' application to possess and use strategic special nuclear material in a mixed oxide fuel fabrication facility located at the Department of Energy's Savannah River Site.<sup>2</sup> The Board, in its initial decision, set forth a comprehensive history of the proceedings involving this facility, which commenced in 2001 when MOX Services submitted its Construction Authorization Request.<sup>3</sup> MOX Services received its construction authorization in 2005, and, in 2006, it filed an application to possess and use strategic special nuclear material, byproduct material, and source material at the MOX Facility.<sup>4</sup> Intervenors filed a petition to intervene, which the Board granted.<sup>5</sup> Based on the issuance of a revised Fundamental Nuclear Material Control Plan (Control Plan) in 2010, Intervenors proposed, and the Board admitted, Contentions 9, 10, and 11, which challenged MOX Services' compliance with our material control and accounting (MC&A) regulations involving verification of the presence and integrity of strategic special nuclear material items and the resolution of alarms related to those items.<sup>6</sup>

As admitted by the Board, Contentions 9, 10, and 11 assert:

**Contention 9:** [MOX Services'] Revised [Control Plan] does not satisfy the MC&A requirements in 10 C.F.R. § 74.55(b)(1) because it does not demonstrate that [MOX Services'] item monitoring program has the capability to verify, on a statistical

---

<sup>2</sup> Ex. APPR00014, *SHAW AREVA MOX Services, LLC's Revised Prefiled Direct Testimony on Contentions 9-11* (Mar. 1, 2012) (non-public) (MOX Services Direct Testimony), at 10.

<sup>3</sup> LBP-14-1, 79 NRC at 47-50.

<sup>4</sup> *Id.* at 47.

<sup>5</sup> *Id.* at 48.

<sup>6</sup> *Id.* at 48 (citing LBP-11-9, 73 NRC 391, 395 (2011)).

sampling basis, the presence and integrity of [strategic special nuclear material] item losses that total 5 formula kilograms of plutonium or more[,] plant-wide[,] within the time frames specified by the regulation[—]30 calendar days for Category 1[A] items and 60 [calendar] days for Category 1B items contained in a vault or in a permanently control[led] access area isolated from the rest of the material access area.<sup>7</sup>

**Contention 10:** The Revised [Control Plan] is inadequate to satisfy the alarm resolution requirements in 10 C.F.R. § 74.57(b), which requires that licensees “shall resolve the nature and cause of any MC&A alarm within approved time periods.” In the event that alarm resolution requires an inventory of one of the four item storage areas identified in [MOX Services’] December 17, 2009 Exemption Request, [MOX Services] has not demonstrated that it can meet its commitment to normally resolve the alarm within three days.<sup>8</sup>

**Contention 11:** [MOX Services] claims that in the event of alleged theft of plutonium from the [MOX Facility], it is capable of confirming the presence of a specific individual plutonium item within eight hours and verifying the presence of all [plutonium] in item form in vault storage within 72 hours. But [MOX Services] does not support this assertion with any information that would show how such confirmation and verification will be carried out in the specified timelines. In addition, as discussed above in Contentions 9 and 10, other statements by [MOX Services] in its exemption application and RAI responses strongly indicate that in fact, [MOX Services] is not capable of meeting these timelines with respect to certain categories of plutonium in vault storage. Therefore [MOX Services] has not demonstrated that it satisfies 10 C.F.R. § [74].57(e).<sup>9</sup>

The Board generated a robust record in this proceeding based on two evidentiary hearings, substantial written testimony, and many exhibits.<sup>10</sup> Based on this record, the Board issued its Initial Decision, LBP-14-1, rejecting Intervenors’ Contentions 9, 10, and 11 on their

---

<sup>7</sup> *Id.* at 55 (citing Licensing Board Order (Appendix—New Contentions 9, 10, 11) (Apr. 1, 2011) at 1 (Contention Order) (unpublished) (non-public)).

<sup>8</sup> *Id.* at 96 (citing Contention Order at 1).

<sup>9</sup> LBP-14-1, 79 NRC at 107-08 (citing Contention Order at 1).

<sup>10</sup> *Id.* at 49-50.

merits.<sup>11</sup> Intervenors have now filed a petition for review asking that we reverse LBP-14-1.<sup>12</sup> MOX Services and the Staff oppose the Petition; Intervenors replied to those answers.<sup>13</sup> Before we address Intervenors' petition for review, we first provide a short summary of our MC&A regulations and the contentions here at issue.

## **B. Summary of Relevant Regulations and MOX Services' Proposed MC&A System**

### **1. Summary of Regulations**

An applicant for a license to possess and use strategic special nuclear material must "establish, implement, and maintain a Commission-approved . . . MC&A . . . system" that will address the loss or theft of such material.<sup>14</sup> Specifically, the system must enable the applicant to achieve the following five objectives:

- (1) Prompt investigation of anomalies potentially indicative of [strategic special nuclear material] losses;<sup>[15]</sup>
- (2) Timely detection of the possible abrupt loss of five or more formula kilograms of [strategic special nuclear material] from an individual unit process;<sup>[16]</sup>

---

<sup>11</sup> See, e.g., *id.* at 46.

<sup>12</sup> Petition for Review.

<sup>13</sup> *Shaw AREVA MOX Services, LLC's Answer Opposing Intervenors' Petition for Review of LBP-14-01* (Apr. 24, 2014) (non-public) (MOX Services Answer); *NRC Staff Answer to Petition for Review of LBP-14-01* (Apr. 24, 2014) (Staff Answer); *Intervenors' Reply to Oppositions to Petition for Review of LBP-14-01* (May 7, 2014) (non-public) (Reply).

<sup>14</sup> 10 C.F.R. § 74.51(a).

<sup>15</sup> The term "strategic special nuclear material" means "uranium-235 (contained in uranium enriched to 20 percent or more in the U<sup>235</sup> isotope), uranium-233, or plutonium." 10 C.F.R. § 74.4.

<sup>16</sup> The term "formula kilogram" means strategic special nuclear material "in any combination in a quantity of 1000 grams computed by the formula, grams = (grams contained U-235) + 2.5 (grams U-233 + grams plutonium)." *Id.*

The term "unit process" means "an identifiable segment or segments of processing activities for which the amounts of input and output [strategic special nuclear material] are based on measurements." *Id.*

- (3) Rapid determination of whether an actual loss of five or more formula kilograms occurred;
- (4) Ongoing confirmation of the presence of [strategic special nuclear material] in assigned locations; and
- (5) Timely generation of information to aid in the recovery of [strategic special nuclear material] in the event of an actual loss.<sup>17</sup>

To achieve these objectives, a licensee must, among other things, satisfy the requirements in 10 C.F.R. §§ 74.55(b) and 74.57(b) and (e), the regulations at the center of Intervenors' contentions.<sup>18</sup>

The regulation at issue in Contention 9, 10 C.F.R. § 74.55(b), requires licensees to "verify on a statistical sampling basis, the presence and integrity of [strategic special nuclear material] items."<sup>19</sup> Any statistical sampling plan for verifying the presence and integrity of strategic special nuclear material items "must have at least 99 percent power of detecting item losses that total five formula kilograms or more, plant-wide, within . . . [30] calendar days for Category IA items and 60 calendar days for Category IB items contained in a vault or in a permanently controlled access area isolated from the rest of the material access area."<sup>20</sup>

---

<sup>17</sup> 10 C.F.R. § 74.51(a)(1)-(5).

<sup>18</sup> Although the NRC is currently considering amendments to Part 74, no changes to 10 C.F.R. § 74.55 are proposed; the proposed change to 10 C.F.R. § 74.57 would not affect the issues addressed in this decision. Proposed Rule, Amendments to Material Control and Accounting Regulations, 78 Fed. Reg. 67,225, 67,228, 67,250 (Nov. 8, 2013).

<sup>19</sup> 10 C.F.R. § 74.55(b).

<sup>20</sup> 10 C.F.R. § 74.55(b)(1). To provide additional clarity, we provide below the definitions of some of the key terms used in this adjudication.

A special nuclear material "item" is "any discrete quantity or container of special nuclear material or source material, not undergoing processing, having an unique identity and also having an assigned element and isotope quantity." 10 C.F.R. § 74.4.

The term "Category IA" material means any strategic special nuclear material "directly useable in the manufacture of a nuclear explosive device" (with three exceptions), and the term "Category IB" material refers to all strategic special nuclear material other than Category IA (continued . . .)

Contention 10 raises the issue of compliance with 10 C.F.R. § 74.57(b), which requires a licensee to “resolve the nature and cause of any MC&A alarm within approved time periods.”

Finally, Contention 11 raises the issue of compliance with 10 C.F.R. § 74.57(e), which requires that a licensee be able “to rapidly assess the validity of alleged thefts.”

The regulations at issue here do not prescribe any particular methodology for regulatory compliance, and they instead provide only the result that a licensee must achieve. This absence of specificity provides the “flexibility for licensees to select the most cost-effective way of achieving performance objectives.”<sup>21</sup> A licensee must nonetheless demonstrate that, under the Atomic Energy Act, the licensee’s proposed methodology will not “be inimical to the common defense and security” and will not “constitute an unreasonable risk to the health and safety of the public.”<sup>22</sup> Licensees must show with “reasonable assurance” that this standard has been satisfied.<sup>23</sup>

---

material. *Id.*

A “vault” is “a windowless enclosure with walls, floor, roof and door(s) designed and constructed to delay penetration from forced entry.” *Id.*

A “controlled access area” is “any temporarily or permanently established area which is clearly demarcated, access to which is controlled, and which affords isolation of the material or persons within it.” *Id.*

A “material access area” is “any location which contains special nuclear material, within a vault or a building, the roof, walls, and floor of which constitute a physical barrier.” *Id.*

The phrase “power of detection” means “the probability that the critical value of a statistical test will be exceeded when there is an actual loss of a specific . . . quantity” of strategic special nuclear material. *Id.*

<sup>21</sup> Final Rule, Material Control and Accounting Requirements for Facilities Licensed to Possess and Use Formula Quantities of Strategic Special Nuclear Material, 52 Fed. Reg. 10,033, 10,034 (Mar. 30, 1987) (Final Rule).

<sup>22</sup> Atomic Energy Act of 1954, as amended, § 57c(2), 42 U.S.C. § 2077(c)(2).

<sup>23</sup> *AmerGen Energy Co., LLC* (Oyster Creek Nuclear Generating Station), CLI-09-7, 69 NRC 235, 263 (2009); see also LBP-14-1, 79 NRC at 51-52.

## **2. MOX Services' Proposed MC&A System**

Because all three contentions relate to MOX Services' MC&A system, we provide a short summary of that system. MOX Services proposes to meet its obligation to verify the presence of strategic special nuclear material items using two computer systems that would be used to track the MOX Facility's inventory.<sup>24</sup> These two systems are the Manufacturing Management Information System (MMIS) and the Programmable Logic Controllers (PLCs).<sup>25</sup> The MMIS monitors and supervises the automated production activities at the facility, directs the movement of material throughout the facility, and generates a "Perpetual Inventory Report" that includes items' expected locations.<sup>26</sup> The PLCs control the local movement and placement of strategic special nuclear material items and determine the actual location and identity of those items.<sup>27</sup> MOX Services proposes to verify daily the presence of every item of strategic special nuclear material by comparing the information in the PLCs and the MMIS.<sup>28</sup>

In addition, MOX Services proposes to verify the integrity of strategic special nuclear material items by sealing and designing the storage locations for strategic special nuclear material items in a way that renders the storage locations, and the items within, tamper-safe or the equivalent.<sup>29</sup> Specifically, all but one item-storage-area boundary would constitute a

---

<sup>24</sup> Ex. APPR00014, MOX Services Direct Testimony, at 51-52.

<sup>25</sup> LBP-14-1, 79 NRC at 64-65 (citing Ex. APPR00014, MOX Services Direct Testimony, at 35-37, 47-49, 56-57).

<sup>26</sup> See *id.* at 57, 64-65.

<sup>27</sup> See *id.* at 57, 64-65; MOX Services Answer at 3-4.

<sup>28</sup> See, e.g., Ex. APPR00014, MOX Services Direct Testimony, at 51-52.

<sup>29</sup> See, e.g., *id.* at 52-56. "Tamper-safing" refers to "the use of devices on containers or vaults in a manner and at a time that ensures a clear indication of any violation of the integrity of previously made measurements of special nuclear material within the container or vault." 10 C.F.R. § 74.4.

containment boundary, with each boundary protected by a tamper-indicating device or its equivalent.<sup>30</sup> For these protected boundaries, MOX Services proposes to visually inspect the tamper-indicating device daily.<sup>31</sup> According to MOX Services, “confirmation that the containment boundary has not been breached ensures the integrity of all the items contained therein.”<sup>32</sup> The sole exception is the Assembly Storage Area, where MOX Services proposes to verify the integrity of the heavy assemblies (each about 1,500 pounds and thirteen feet long) by controlling access to the area’s crane.<sup>33</sup> The access logs for the crane would be checked daily.<sup>34</sup>

MOX Services asserts that its use of the computer systems, as well as the periodic monitoring of secured and tamper-safe item-storage-area boundaries, enables it to verify daily the presence and integrity of all items in storage.<sup>35</sup> Further, according to MOX Services, its MC&A procedures enable it to resolve an MC&A alarm “normally” within three days, and to confirm the presence (or absence) of any specific strategic special nuclear material item within eight hours of an alleged theft, and to verify the presence of every item of strategic special nuclear material within seventy-two hours.<sup>36</sup>

---

<sup>30</sup> See, e.g., Ex. APPR00014, MOX Services Direct Testimony, at 52-56.

<sup>31</sup> See, e.g., *id.* at 57.

<sup>32</sup> *Id.* at 53.

<sup>33</sup> *Id.* at 33-34, 55.

<sup>34</sup> *Id.* at 55.

<sup>35</sup> *Id.* at 53-56.

<sup>36</sup> *Id.* at 69-70, 74.



## II. DISCUSSION

We will grant a petition for review at our discretion, upon a showing that the petitioner has raised a substantial question as to whether

- (i) a finding of material fact is clearly erroneous or in conflict with a finding as to the same fact in a different proceeding;
- (ii) a necessary legal conclusion is without governing precedent or is a departure from or contrary to established law;
- (iii) a substantial and important question of law, policy, or discretion has been raised;
- (iv) the conduct of the proceeding involved a prejudicial procedural error; or
- (v) any other consideration that we may deem to be in the public interest.<sup>37</sup>

We review questions of law *de novo*, but we defer to the Board's findings with respect to the underlying facts unless they are "clearly erroneous."<sup>38</sup> The standard for showing "clear error" is a difficult one to meet: Intervenors must demonstrate that the Board's determination is "not even plausible" in light of the record as a whole.<sup>39</sup>

Intervenors argue that review is warranted here because they have raised substantial questions as to considerations (i), (ii), and (iii) above.<sup>40</sup> Intervenors, at bottom, find fault with the highly-automated MC&A system proposed by MOX Services.<sup>41</sup> Many asserted legal errors, and several factual errors, each discussed in turn below, reflect Intervenors' concerns. Further, Intervenors argue that the Board's "approval" of the Control Plan raises substantial questions

---

<sup>37</sup> 10 C.F.R. § 2.341(b)(4)(i)-(v).

<sup>38</sup> *Honeywell International, Inc.* (Metropolis Works Uranium Conversion Facility), CLI-13-1, 77 NRC 1, 18-19 (2013); *David Geisen*, CLI-10-23, 72 NRC 210, 224-25 (2010).

<sup>39</sup> *Honeywell*, CLI-13-1, 77 NRC at 18-19; *Geisen*, CLI-10-23, 72 NRC at 224-25.

<sup>40</sup> Petition for Review at 2-3.

<sup>41</sup> *Id.* at 2.

“that can only be addressed by the Commission” regarding cybersecurity, the appropriate interpretation of our MC&A regulations, and the NRC Staff’s technical review.<sup>42</sup> As discussed below, we find that Intervenors have not presented a substantial question that would justify review of the Board’s decision.

#### **A. Intervenors’ Challenges to the Board’s Rulings on Contentions 9, 10, and 11**

On appeal, Intervenors raise four specific challenges to the Board’s initial decision on Contentions 9, 10, and 11. First, with respect to Contention 9, Intervenors claim that the Board’s interpretation of 10 C.F.R. § 74.55(b)(1) with respect to item presence verification “ignores the term ‘verify’ in the regulation.”<sup>43</sup> Second, also with respect to Contention 9, Intervenors argue that the Board’s finding regarding “item integrity verification is fatally unclear.”<sup>44</sup> Next, Intervenors challenge the Board’s decision on Contentions 9 and 11 on the grounds that the Board violated “fundamental principles of regulatory interpretation” by allowing MOX Services to “rely on qualitative security measures to comply with the requirements for item integrity verification and theft detection.”<sup>45</sup> Finally, Intervenors challenge the Board’s decision with respect to Contention 10 and the meaning of the phrase “any MC&A alarm” in 10 C.F.R. § 74.57(b).<sup>46</sup> As discussed below, we find that Intervenors have not raised a substantial question related to the Board’s resolution of these contentions.

---

<sup>42</sup> *Id.*

<sup>43</sup> *Id.* at 12.

<sup>44</sup> *Id.* at 15.

<sup>45</sup> *Id.* at 17.

<sup>46</sup> *Id.* at 19.

### **1. Item Presence Verification (Contention 9)**

Intervenors assert that the Board erred by ignoring the term “verify” in 10 C.F.R. § 74.55 in ruling on issues related to item presence verification.<sup>47</sup> Intervenors contend that the plain meaning of the word “verify” requires a comparison of two independent sources of data, which they find incompatible with the Board’s ruling.<sup>48</sup> Moreover, Intervenors interpret the context in which the NRC uses the word “verify” in 10 C.F.R. § 74.55(b) to require “a quantitative statistical measure ... and a sample size determined by quantitative analysis.”<sup>49</sup> Intervenors would require a quantitative statistical measure, which they define as “the random selection, location, removal and physical inspection of an item’s identification and integrity.”<sup>50</sup>

---

<sup>47</sup> *Id.* at 12-15. 10 C.F.R. § 74.55(b) states: “The licensee shall verify on a statistical sampling basis, the presence and integrity of [strategic special nuclear material] items. The statistical sampling plan must have at least 99 percent power of detecting item losses that total five formula kilograms or more, plant-wide, within:

- (1) Thirty calendar days for Category IA items and 60 calendar days for Category IB items contained in a vault or in a permanently controlled access area isolated from the rest of the material access area;
- (2) Three working days for Category IA items and seven calendar days for Category [IB] items located elsewhere in the [material access area], except for reactor components measuring at least one meter in length and weighing in excess of 30 kilograms for which the time interval shall be 30 calendar days;
- (3) Sixty calendar days for items in a permanently controlled access area outside of an [material access area]; or
- (4) Sixty calendar days for samples in a vault or permanently controlled access area and 30 calendar days for samples elsewhere in the [material access area] for samples each containing less than 0.05 formula kilograms of [strategic special nuclear material].”

<sup>48</sup> Petition for Review at 13-15.

<sup>49</sup> *Id.* at 14 (referring to the requirements in 10 C.F.R. § 74.55(b) that a licensee “verify on a statistical basis the presence and integrity of ... items” and also verify that the statistical sampling plan “have at least 99% power of detecting losses that total five formula kilograms or more.”).

<sup>50</sup> *Id.* at 14.

First, Intervenors have not shown that the Board ignored the plain-language meaning of the word “verify” in 10 C.F.R. § 74.55(b). Intervenors argue that the Board’s holding is incompatible with the plain meaning of the word verify, which they contend requires a comparison between two independent sources of information.<sup>51</sup> But, as discussed below, the record contained substantial evidence demonstrating that data from the PLCs and the MMIS are sufficiently independent to enable a meaningful comparison.<sup>52</sup> Therefore, we do not find that the Intervenors’ claim that the Board’s holding eliminates the concept of “independence” from the meaning of “verify” constitutes a substantial question warranting review.<sup>53</sup>

Next, Intervenors claim that that the Board’s holding ignored the requirement in 10 C.F.R. § 74.55(b) that the applicant base the item presence verification on “a quantitative statistical measure” and a “sample size determined by quantitative analysis.”<sup>54</sup> However, after taking extensive evidence on the record, the Board found that MOX Services’ proposed approach to verify item presence, which uses the comparison of two digital (i.e., non-physical) systems to sample “100% of [strategic special nuclear material] items[,] ... complies with the requirement to sample a sufficient number of items to result in at least 99% power of detecting

---

<sup>51</sup> *Id.* at 13-15.

<sup>52</sup> Although not cited by Intervenors, the Board did state that the NRC does not “require that such verifications be ‘independent.’” LBP-14-1, 79 NRC at 69-70 (citing Tr. at 1707-08). But, in making this statement, the Board was responding to Intervenors’ claim that to be truly independent, the verification must be physical (i.e., non-digital). *Id.* at 61-70. Moreover, the Board cited to portions of the transcript that considered whether § 74.55(b) requires a physical verification, not an independent one. *Id.* at 68-69. Therefore, we interpret this statement from the Board to be a short-hand for addressing the Intervenors’ claims regarding physical verifications and not a general holding regarding the meaning of “verify” within § 74.55(b). Such a holding would be incompatible with the Board’s extensive discussion of the additional measures MOX Services has taken to ensure that the PLC data are sufficiently accurate to enable a meaningful comparison to the MMIS. *Id.* at 77-92.

<sup>53</sup> Petition for Review at 13.

<sup>54</sup> *Id.* at 14.

the specified losses.”<sup>55</sup> The Board concluded that, by sampling “the entire set of [strategic special nuclear material] items,” MOX Services would “sample a sufficient number of items” to comply with the 99% power of detection contemplated by 10 C.F.R. § 74.55(b).<sup>56</sup> The Board found “no support” for Intervenors’ argument that 10 C.F.R. § 74.55(b) “plainly contemplates physical verification” or that MOX Services’ 100% sampling method does not include “a sufficient number of items” to satisfy the regulatory requirement.<sup>57</sup> On appeal, Intervenors do not explain how the Board’s reading of 10 C.F.R. § 74.55(b) departs from existing law or otherwise ignores the sampling component of the verification requirement in 10 C.F.R. § 74.55(b).<sup>58</sup> Therefore, we find nothing in Intervenors’ petition for review or reply that raises a substantial question of law with respect to this issue.

Intervenors also argue that, as a factual matter, the Board erred in finding that MOX Services’ comparison of the data in two computer systems satisfies the presence verification requirement of 10 C.F.R. § 74.55. According to Intervenors, “MOX Services’ own evidence [shows that] the data systems are *not* independent.”<sup>59</sup> Intervenors argue that the absence of an independent means of verification would preclude corroboration of the data in the PLCs and MMIS.<sup>60</sup> But Intervenors do not address record evidence that explains how these systems communicate.<sup>61</sup> To function properly, the two systems must communicate at some level, and,

---

<sup>55</sup> LBP-14-1, 79 NRC at 70.

<sup>56</sup> *Id.*

<sup>57</sup> *Id.* at 68-70.

<sup>58</sup> Petition for Review at 14.

<sup>59</sup> *Id.* at 14-15 (emphasis in original).

<sup>60</sup> Reply at 3.

<sup>61</sup> See, e.g., Ex. APPR00014, MOX Services Direct Testimony, at 50; Ex. APPR10037, *SHAW* (continued . . .)

as MOX Services explained, “[t]he PLC will always maintain its own mapping based on item movements even in manual mode, and if there is a difference at the end of the day between the MMIS and the storage PLC information, the difference will be identified through the nightly automatic mapping comparison.”<sup>62</sup> We give substantial deference to licensing board findings of fact, and we will not overturn a board’s factual findings unless they are “not even plausible in light of the record viewed in its entirety.”<sup>63</sup> Here, Intervenors have failed to raise a substantial question of fact regarding the Board’s finding in view of the ample record evidence that exists to support the Board’s determination.

Intervenors also challenge the reliability of MOX Services’ computer systems, claiming that “MOX Services assumes that the MMIS and PLCs cannot fail and cannot be tampered with undetected under any circumstances.”<sup>64</sup> Yet Intervenors have not identified any portion of the Board’s order that propagates such an error.<sup>65</sup> Moreover, contrary to Intervenors’ claims, the record demonstrates that MOX Services has taken steps to ensure the operation of the MOX Facility is not affected by the failure of the computer systems. As noted by the Board, there are “at least six program features that prevent errors in MMIS and PLC data” and “five actions that are used to detect errors in MMIS and PLC data.”<sup>66</sup> Intervenors’ unsupported statements do not

---

*AREVA MOX Services, LLC’s Revised Pre-Filed Direct Testimony in Response to Board’s June 29, 2012 Memorandum and Order* (Dec. 5, 2012) (non-public) (MOX Services Supplemental Direct Testimony), at 13.

<sup>62</sup> Ex. APPR00014, MOX Services Direct Testimony, at 50.

<sup>63</sup> *Private Fuel Storage, L.L.C.* (Independent Spent Fuel Storage Installation), CLI-03-8, 58 NRC 11, 26 (2003) (citing *Anderson v. Bessemer City*, 470 U.S. 564, 573-76 (1985)) (internal quotation marks omitted); see also *Geisen*, CLI-10-23, 72 NRC at 220.

<sup>64</sup> Petition for Review at 14.

<sup>65</sup> See, e.g., *id.*

<sup>66</sup> See, e.g., LBP-14-1, 79 NRC at 83-86 (citing Ex. APPR00014, MOX Services Direct (continued . . .))

raise a substantial question regarding the Board's findings, nor are they sufficient to satisfy our criteria to overturn the Board's factual findings.

## **2. Item Integrity Verification**

Intervenors next argue that the Board's interpretation of the NRC's item integrity verification requirements is "fatally unclear" and rises to the level of a "clear factual error."<sup>67</sup> They assert that the Board contradicts itself in stating both that (i) integrity can be verified without reference to the accuracy of the underlying data and (ii) the methodology's accuracy "is an integral component of the requirement to provide reasonable assurance of item presence and integrity with a 99% power of detection."<sup>68</sup> Moreover, Intervenors argue, there are "two reasons why the integrity verification approach depends on accuracy of the data": (1) "MOX Services depends on the accuracy of data in the MMIS to ensure that it can keep track of all items ... moving in and out of containment"; and (2) MOX Services uses the MMIS to maintain the seal records for the storage areas.<sup>69</sup>

Here again, Intervenors misconstrue the Board's order and fail to identify a clear factual error on the part of the Board. As discussed by MOX Services, Intervenors conflate MOX Services' proposed approach to verify item presence (comparison of PLC and MMIS data) with MOX Services' proposed approach to verify item integrity (daily, physical inspection of tamper-

---

Testimony, at 10-18, 20-22, 38-39, 49, 53-55; Tr. at 1149, 1155, 1180, 1189-91 (Bell) 1306-07 (Trikouros, Bell) 1185-86 (McDade, Clark); Ex. APPR10037, MOX Services Supplemental Direct Testimony, at 5, 10; Ex. APP000031, *SHAW AREVA MOX Services, LLC's Prefiled Reply Testimony on Contentions 9-11* (Jan. 24, 2012) (MOX Services' Reply Testimony), at 14-16).

<sup>67</sup> Petition for Review at 15-17 (citing LBP-14-1, 79 NRC at 75-77).

<sup>68</sup> Petition for Review at 16 (quoting LBP-14-1, 79 NRC at 77, 81).

<sup>69</sup> Petition for Review at 16-17.

indicating devices or, in the case of the Assembly Storage Area, the crane log).<sup>70</sup> As discussed above, MOX Services' approach to item *presence* verification rests on a nightly comparison of data from the MMIS and the PLC computer systems. Thus, within the context of item presence verification, the Board extensively considered the question of accuracy.<sup>71</sup> In contrast, the Board found that MOX Services' "integrity *verification* approach *does* involve daily, physical, human confirmation that the containment boundaries around [strategic special nuclear material] items have not been breached."<sup>72</sup> Thus, the Board did not consider accuracy with respect to these integrity verification methods. As a result, we do not see any contradiction in the Board's statements that would raise a substantial question warranting review.<sup>73</sup>

Further, Intervenors' complaint that maintaining the tamper-indicating-device seal records in the MMIS illustrates a factual error on the part of the Board is unsupported.<sup>74</sup> As MOX Services points out, Intervenors "provided no testimony, evidence, or legal argument" to support their complaint about the use of the MMIS to maintain seal records.<sup>75</sup> In any event, there is ample evidence on the record that MOX Services' commitment to verify daily—through

---

<sup>70</sup> MOX Services Answer at 13.

<sup>71</sup> LBP-14-1, 79 NRC at 77-92.

<sup>72</sup> *Id.* at 75 (citation omitted) (emphasis in original).

<sup>73</sup> The Board's statement that "accuracy of the methodology is an integral component of the requirement to provide reasonable assurance of item presence and integrity with a 99% power of detection" appears to be the source of Intervenors' confusion. LBP-14-1, 79 NRC at 81; Petition for Review at 16. But, in light of the discussion above, it appears that the Board was simply stating that accuracy is an integral component of the portion of the regulatory requirement in 10 C.F.R. § 75.55(b) that addresses presence verification. Indeed, this view finds considerable support in the statement's placement within the discussion of data accuracy in MOX Services' approach to item presence verification. LBP-14-1, 79 NRC at 81.

<sup>74</sup> Petition for Review at 16-17.

<sup>75</sup> MOX Services Answer at 14.



physical inspection—the tamper-indicating devices and crane log has no relationship to how MOX Services decides to store the records of these inspections. Intervenors have therefore not identified a material error of fact in the Board’s determination regarding verification of item integrity.

Intervenors also criticize as “cumbersome and inefficient” MOX Services’ approach of considering all items contained within a single “containment boundary” to be a single item for purposes of item monitoring.<sup>76</sup> But Intervenors do not claim that this concern raises a material question with respect to the Board’s findings.<sup>77</sup> The Board determined that MOX Services’ approach to item integrity verification meets our regulatory requirements, and a claim of inefficiency in an applicant’s selected procedures is not sufficient to raise a substantial question or to demonstrate a material error in the Board’s decision.

### **3. Physical Security and MC&A (Contentions 9 and 11)**

Intervenors next challenge to the Board’s decision relates to Contentions 9 and 11.<sup>78</sup> Here, the Board found that, based on its commitments in section 3.3 of the Control Plan, MOX Services “has provided reasonable assurance of its ability to rapidly assess the validity of alleged thefts within the 8- and 72-hour time frames.”<sup>79</sup> Intervenors argue that the Board erred as a matter of law because “NRC regulations do not permit the substitution of security measures for MC&A measures; *both* types of measures are required.”<sup>80</sup> Specifically, Intervenors argue

---

<sup>76</sup> Petition for Review at 17.

<sup>77</sup> *Id.* at 17.

<sup>78</sup> *Id.* at 17-18.

<sup>79</sup> LBP-14-1, 79 NRC at 113.

<sup>80</sup> Petition for Review at 18 (emphasis in original). Judge Farrar agrees with this point: MOX Services “cannot be given extra credit for doing what is already required.” LBP-14-1, 79 NRC at 122 (Farrar, J., dissenting). Moreover, Judge Farrar calls into question the adequacy of MOX (continued . . .)

that the Board inappropriately relied “on qualitative security measures to substitute for full compliance with the quantitative requirements of MC&A regulations.”<sup>81</sup> In essence, Intervenors question whether measures implemented by MOX Services to satisfy our 10 C.F.R. part 73 physical security requirements can, at the same time, satisfy MOX Services’ 10 C.F.R. part 74 MC&A obligations.<sup>82</sup> With respect to Contention 9, Intervenors challenge the Board’s determination that “the physical protection features, which prevent intruder access, [provide] assurance that the data as originally generated in the PLCs represent an unchanged condition of storage of the items so tracked and recorded.”<sup>83</sup> Similarly, Intervenors challenge the Board decision on Contention 11, which raised the issue of MOX Services’ ability to comply with 10 C.F.R. § 74.57(e) (requiring that a licensee be able “to rapidly assess the validity of alleged thefts”).<sup>84</sup>

Intervenors again misunderstand the interrelationship of the different protective measures that MOX Services uses. The security measures bolster the MC&A measures; they do not substitute for them, nor did the Board so hold.<sup>85</sup> Intervenors have not provided a basis to question the Board’s consideration of all elements (not just the computer systems) of MOX Services’ theft assessment commitments. Rather, in considering whether MOX Services’

---

Services’ data systems with respect to cybersecurity, given MOX Services’ lack of a current cybersecurity plan. *Id.* Judge Farrar would have conditioned his ruling on Contention 11 on “full-blown NRC review [of cybersecurity] *before* a license can be issued.” *Id.* (emphasis in original). As we discuss below, cybersecurity at fuel cycle facilities, like the MOX Facility, is currently the subject of a rulemaking.

<sup>81</sup> Petition for Review at 17.

<sup>82</sup> *Id.*

<sup>83</sup> *Id.* (citing LBP-14-1, 79 NRC at 76).

<sup>84</sup> *Id.* at 17-18.

<sup>85</sup> *See, e.g.*, LBP-14-1, 79 NRC at 113.

MC&A plan met our regulatory requirements, the Board considered the plan in light of the entire application and facility. As MOX Services observes, “Intervenors point to no ‘fundamental principles of regulatory interpretation’ that preclude the use of one or more specific actions, commitments, capabilities, structures, systems, or components to address the requirements of more than one regulation.”<sup>86</sup> We therefore find that Intervenors have not raised a substantial question of law regarding the Board’s determination that MOX Services has demonstrated an ability to achieve the performance objectives in 10 C.F.R. §§ 74.55(b) and 74.57(e).<sup>87</sup>

#### **4. Resolution of MC&A Alarms (Contention 10)**

Contention 10 raises the issue of compliance with 10 C.F.R. § 74.57(b), which requires a licensee to “resolve the nature and cause of any MC&A alarm within approved time periods.” This regulation, however, does not specify a particular time period for alarm resolution. A licensee must therefore provide reasonable assurance that it can achieve the performance objectives set out in this section of our regulations. NUREG-1280 provides guidance to applicants and licensees regarding compliance with the alarm-resolution requirements in 10 C.F.R. § 74.57(b).<sup>88</sup> In this instance, MOX Services committed to, and the Staff approved, a

---

<sup>86</sup> MOX Services Answer at 15-16 (citing Petition for Review at 17).

<sup>87</sup> LBP-14-1, 79 NRC at 113. “[MOX Services’] theft assessment commitments in Section 3.3 of its [Control Plan] follow NUREG-1280’s recommendations, proposing to use the computer system to identify the location of items in the event of an alleged theft. While [MOX Services] assumes the accuracy of its records systems, we find this acceptable because other NRC regulations and other elements of [MOX Services’] proposal provide reasonable assurance of the security and accuracy of its MC&A system. Additionally, and very importantly, the computer system is not the exclusive means by which [MOX Services] will assess an alleged theft.” (citations omitted). *Id.*

<sup>88</sup> *Id.* at 99 (discussing “Standard Format and Content Acceptance Criteria for the Material Control and Accounting (MC&A) Reform Amendment: 10 CFR Part 74, Subpart E,” NUREG-1280, Rev. 1 (Apr. 1995), ch. 3 (ML031340295) (NUREG-1280)).

timeline consistent with that contemplated in NUREG-1280.<sup>89</sup> The Board found that MOX Services provided “reasonable assurance that its proposed alarm resolution procedures, as a group, can resolve MC&A alarms within the 3-day period to which [MOX Services] has committed.”<sup>90</sup>

Intervenors take issue with the Board’s approval of MOX Services’ commitment to resolve alarms “normally” within three days.<sup>91</sup> Intervenors describe as circular the Board’s reasoning (based on the Staff’s position) that “[w]e do not view as normal the conditions under which alarm resolution would be expected to take more than three days.”<sup>92</sup> Intervenors argue that the Board’s conclusion as to what constitutes (or, more precisely, what does not constitute) normal conditions deprives the word “normal” of meaning and, further, that it “jettisons any objective measure of the condition under which [MOX Services] should be able to resolve an alarm within three days.”<sup>93</sup> Intervenors claim that the Board “is making a wholly arbitrary distinction between ‘normal’ alarms and ‘abnormal’ alarms such that any alarm could be considered ‘abnormal’ just because it was not resolved in three days.”<sup>94</sup>

---

<sup>89</sup> See, e.g., Ex. APPR00014, MOX Services Direct Testimony, at 69; Ex. NRC000006, *NRC Staff’s Prefiled Direct Testimony of Tom Pham Concerning Contentions 9-11* (Oct. 19, 2011) at 5.

<sup>90</sup> LBP-14-1, 79 NRC at 99-100. The Board found that an inventory was not the only means available to an applicant to satisfy 10 C.F.R. § 74.57(b) and that the “suite of procedures” proposed by MOX Services can be used “individually or in combination to resolve alarms.” *Id.* at 99.

<sup>91</sup> Petition for Review at 19.

<sup>92</sup> *Id.* (citing LBP-14-1, 79 NRC at 107).

<sup>93</sup> *Id.* at 19.

<sup>94</sup> *Id.*

Intervenors provide no support for their challenge to the Board's ruling and misconstrue the meaning of the word "normal" in this context. The Board concluded that "nothing before us convinces us that [MOX Services'] use of the term, and the Staff's interpretation of that use, is contradictory to a reasonable interpretation of the rule."<sup>95</sup> Contrary to Intervenors' argument, the Board, the Staff, and MOX Services did not focus on "normal" and "abnormal" alarms but rather on "normal" conditions wherein MOX Services "has committed to resolve alarms within three days."<sup>96</sup> As the Staff observes, the Board found that "an alarm at the MOX facility that would require more than three days to resolve would entail the simultaneous occurrence of five unexpected or unusual circumstances, and thus such circumstances could not be considered 'normal.'"<sup>97</sup> Thus, we again find that Intervenors have not identified a substantial question that would merit granting their petition for review.

**B. Intervenors' Assertions Regarding Additional Substantial Questions of Law, Policy, and Discretion**

Intervenors raise three additional claims asserting questions of law, policy, and discretion.<sup>98</sup> We understand these arguments to support their request that we take review of LBP-14-1 under 10 C.F.R. § 2.341(b)(4)(iii).

---

<sup>95</sup> LBP-14-1, 79 NRC at 106.

<sup>96</sup> *Id.* at 106-07.

<sup>97</sup> Staff Answer at 16 (citing LBP-14-1, 79 NRC at 106-07).

<sup>98</sup> Petition for Review at 3, 20-25. Intervenors raise a fourth issue—a general concern regarding the fundamental importance of MC&A to national security and the protection of public health and safety—that is beyond the scope of this decision. *Id.* at 25. We agree with Intervenors that MC&A is a critical part of the finding that must be made with respect to this application. But this general concern, without more, does not rise to the level of a substantial question under 10 C.F.R. § 2.341(b). Nor does it satisfy our strict contention admissibility rules, which do not allow a petitioner "to attack generic NRC requirements or regulations, or to express generalized grievances about NRC policies." *Duke Energy Co.* (Oconee Nuclear Station, Units 1, 2, and 3), CLI-99-11, 49 NRC 328, 334 (citing *North Atlantic Energy Service Corp.* (Seabrook Station, Unit 1), CLI-99-6 49, NRC 201, 217 n.8 (1999)); *Philadelphia Electric Co.* (Peach Bottom Atomic (continued . . .)

## 1. Cybersecurity

At the supplemental hearing, Intervenors expressed concern that the NRC has not adopted cybersecurity regulations for fuel-cycle facilities.<sup>99</sup> The Board found that “whether or not the NRC may license the MOX Facility without NRC cyber-security regulations in effect is beyond the scope of this proceeding and not relevant” to the resolution of the contentions.<sup>100</sup> Further, the Board found that “Intervenors provided no evidence on [cybersecurity] and did not raise this concern before the supplemental hearing.”<sup>101</sup> Intervenors lodge several, often overlapping, challenges to the Board’s handling of cybersecurity, claiming that it raises “major issues of law and policy.”<sup>102</sup> Intervenors argue that the Board committed factual error in ruling that cybersecurity was “not currently before” the Board and “beyond the scope of the proceeding” because MOX Services brought cybersecurity into the proceeding “by relying on it” in the revised Control Plan.<sup>103</sup> Intervenors further argue that the Board’s reliance on MOX Services’ protective cybersecurity measures raises significant policy questions because we have no cybersecurity regulations for fuel cycle facilities and, therefore, no standard by which to judge the adequacy of a licensee’s cybersecurity program.<sup>104</sup> And Intervenors take issue with

---

Power Station, Units 2 & 3), ALAB-216, 8 AEC 13, 20-21 (1974)). We therefore decline to grant Intervenors’ petition for review with respect to this general concern.

<sup>99</sup> LBP-14-1, 79 NRC at 94 (citing Tr. at 1857 (Curran)).

<sup>100</sup> LBP-14-1, 79 NRC at 95-96. Although Judge Farrar agreed that cybersecurity is not ripe for adjudication, he separately expressed his concern that MOX Services cannot create “a sound MC&A system” without the cybersecurity measures that are “the inherent underpinning ... of a dependable MC&A system.” *Id.* at 119 (Farrar, J., dissenting).

<sup>101</sup> LBP-14-1, 79 NRC at 94.

<sup>102</sup> Petition for Review at 20.

<sup>103</sup> *Id.* at 20-21 (quoting LBP-14-1, 79 NRC at 46-47).

<sup>104</sup> Petition for Review at 20. Regarding the significance of the cybersecurity issue, *see id.* at 23.

the Board's acceptance of MOX Services' commitment to rely on its own compliance with DOE's cybersecurity standards.<sup>105</sup> Intervenor's argue that in the context of this proceeding, it is DOE's responsibility to create cybersecurity standards and to prove their adequacy to the NRC and the public.<sup>106</sup> Citing Judge Farrar's dissent, Intervenor's argue that, "[a]t the very least, the NRC must review DOE's cybersecurity standards in this proceeding or accept them in a [Memorandum of Understanding]."<sup>107</sup> Finally, Intervenor's challenge the Board's decision as "effectively deferr[ing] the question of the adequacy of cyber-security for post-hearing resolution by the Staff."<sup>108</sup> We disagree with these assertions.

Intervenor's have not raised a substantial question related to the Board's conclusions on the cybersecurity issue. The Board concluded that "the adequacy" of MOX Services' cybersecurity systems "[was] not currently before [it]."<sup>109</sup> We have long held that NRC adjudications are limited to the scope of admitted contentions.<sup>110</sup> In interpreting the scope of an admitted contention, we look "back to the bases set forth in support of the contention."<sup>111</sup> We have carefully examined the supporting bases for Contentions 9, 10, and 11 and do not find that

---

<sup>105</sup> *Id.* at 20 (citing LBP-14-1, 79 NRC at 91-92).

<sup>106</sup> Petition for Review at 20-21.

<sup>107</sup> *Id.* at 21 (citing LBP-14-1, 79 NRC at 122-24 (Farrar, J., dissenting)).

<sup>108</sup> *Id.* at 21.

<sup>109</sup> LBP-14-1, 79 NRC at 46-47.

<sup>110</sup> *Entergy Nuclear Generation Co. and Entergy Nuclear Operations, Inc.* (Pilgrim Nuclear Power Station), CLI-10-11, 71 NRC 287, 309 (2010); *see also Dominion Nuclear Connecticut, Inc.* (Millstone Nuclear Power Station, Units 2 and 3), CLI-01-24, 54 NRC 349, 359 (2001) ("Petitioners must articulate at the outset the specific issues they wish to litigate as a prerequisite to gaining formal admission as parties.") (internal quotations and citation omitted).

<sup>111</sup> *Pilgrim*, CLI-10-11, 71 NRC at 308-09 (internal quotations omitted).

they raise cybersecurity issues.<sup>112</sup> Thus, we do not find that the Intervenors have raised a substantial question warranting review regarding the Board's finding that cybersecurity was outside the scope of this adjudicatory proceeding.<sup>113</sup>

Contrary to Intervenors' claims, the Board's ruling is not inconsistent with the Board's acknowledgement of MOX Services' reliance on cybersecurity as one measure of several in place to assess the validity of an allegation of theft from the facility.<sup>114</sup> As MOX Services points out, "[i]t was not an error for the Board to recognize these additional program steps, while also recognizing that the actual adequacy of at least one of those steps (the cyber-security) measures were not before it for decision."<sup>115</sup> In any event, if Intervenors sought to challenge MOX Services' reliance on cybersecurity in its revised Control Plan, then our regulations provide that Intervenors should have filed a new or amended contention.<sup>116</sup> Moreover, MOX Services observes that it "is required to implement the National Nuclear Security Administration (NNSA) Cyber Security Program" and "the NRC can inspect against and enforce [MOX Services'] commitment."<sup>117</sup>

---

<sup>112</sup> *Petitioners' Motion for Admission of Contentions 9, 10, and 11 Regarding Shaw AREVA MOX Services' Revised Fundamental Nuclear Material Control Plan* (July 26, 2010) (ML102220017). As the Board noted, Intervenors raised the concern that the NRC has not yet adopted any cyber security requirements for Part 70 fuel cycle facilities at the supplemental hearing. LBP-14-1, 79 NRC at 94.

<sup>113</sup> We are not persuaded otherwise by Commissioner Baran's dissenting opinion.

<sup>114</sup> See, e.g., MOX Services Answer at 19-20.

<sup>115</sup> *Id.* at 20.

<sup>116</sup> 10 C.F.R. § 2.309(c).

<sup>117</sup> Ex. APP000034, *Program Cyber Security Plan Baseline Requirements* (Jan. 24, 2012); LBP-14-1, 79 NRC at 94-95 (citing Tr. at 1750 (Klukan) and 1844 (Tiktinsky)).



To be sure, cybersecurity at fuel cycle facilities as a general matter presents an important policy issue, even if that issue is not appropriate for resolution in this adjudication as discussed above. Indeed, since the Board's initial decision, we have taken additional steps in the development of rules governing cybersecurity at fuel cycle facilities. In particular, we have directed the NRC staff to engage in a rulemaking proceeding to develop cybersecurity regulations for fuel-cycle facilities, including the MOX Facility.<sup>118</sup> Consistent with our longstanding practice, a licensing proceeding is not the appropriate venue for generic rulemaking issues.<sup>119</sup> But Intervenors will have the opportunity to participate in the NRC's rulemaking activities on cybersecurity for fuel cycle facilities. We encourage Intervenors and other interested members of the public to participate in the rulemaking as it progresses through the notice-and-comment process.

## **2. NRC's Regulations and MOX Services' Control Plan**

Intervenors argue that a gap exists between our 10 C.F.R. part 74 regulations and the revised Control Plan. Intervenors refer to Judge Farrar's juxtaposition of our current, assertedly "antiquated" regulations with MOX Services' modern computerized tracking system and then observe that the Commission, when it originally promulgated part 74, did not contemplate the kind of MC&A measures that MOX Services proposes.<sup>120</sup> This line of argument reiterates Intervenors' earlier expressions of dissatisfaction with MOX Services' proposed use of two computer systems to perform various MC&A functions, as opposed to "physical" verification

---

<sup>118</sup> Staff Requirements—SECY-14-0147—Cyber Security for Fuel Cycle Facilities (Mar. 24, 2015) (ML15083A175).

<sup>119</sup> *Sacramento Municipal Utility District* (Rancho Seco Nuclear Generating Station), ALAB-655, 14 NRC 799, 816 (1981); *Potomac Electric Power Co.* (Douglas Point Nuclear Generating Station, Units 1 and 2), ALAB-218, 8 AEC 79, 85 (1974)).

<sup>120</sup> Petition for Review at 23-24 (quoting LBP-14-1, 79 NRC at 120 (Farrar, J., dissenting)).

processes. As the Board extensively discussed, by its terms, the regulation here is technology-neutral, and it therefore can accommodate technologies developed after its adoption.<sup>121</sup> Here again, Intervenors have failed to raise a material question. The Board has determined, based on an extensive adjudicatory record that took into account Intervenors' arguments and evidence, that MOX Services' approach satisfies our regulations; Intervenors' support for a different approach is not sufficient to raise a substantial question regarding the Board's decision.

### **3. Adequacy of the NRC Staff's Review**

Finally, Intervenors ask us to grant their petition for review based on their claim that the Staff's review was inadequate.<sup>122</sup> Intervenors do not seek reversal of the Board's decision on this ground.<sup>123</sup> Instead, they ask us to conduct such a review ourselves.<sup>124</sup> We decline to do so, on the well-established ground that the adequacy of the Staff's review is not a litigable issue in a licensing case.<sup>125</sup>

### **C. Protected Information**

During the course of the hearing on this matter, the Board received testimony and exhibits, some of which were fully or partially withheld from public disclosure. In addition, the pleadings before us have been fully withheld from public disclosure. To ensure that protected information is not inadvertently disclosed, at this time this Memorandum and Order has been

---

<sup>121</sup> LBP-14-1, 79 NRC at 51-52.

<sup>122</sup> Petition for Review at 4, 24-25.

<sup>123</sup> Intervenors criticize the Board for not stating whether it was relying on the Staff and for stating merely that "[t]he Board has considered each witness' testimony to the extent appropriate." *Id.* at 24 (quoting LBP-14-1, 79 NRC at 55). Yet a review of the Board's decision shows extensive citation to all parties' testimony and exhibits.

<sup>124</sup> Petition for Review at 4.

<sup>125</sup> See, e.g., *Curators of the University of Missouri*, CLI-95-8, 41 NRC 386, 395-96 (1995); *Pa'ina Hawaii, LLC* (Materials License Application), CLI-08-3, 67 NRC 151, 168 n.73 (2008).

released only to the parties. Within ten days of the date of this decision, the parties are directed to jointly submit proposed redactions to this decision or a statement that no redactions are needed. Any proposed redactions should be for the sole purpose of preventing public release of non-public information. Thereafter, we will release a publicly-available version of this Memorandum and Order as soon as practicable.

### III. CONCLUSION

For the reasons set forth above, we *deny* Intervenors' petition for review. We *direct* the parties to jointly submit proposed redactions to this Order or a statement that no redactions are needed within ten days.

IT IS SO ORDERED.<sup>126</sup>

For the Commission

**NRC SEAL**

/RA/

Annette L. Vietti-Cook  
Secretary of the Commission

Dated at Rockville, Maryland  
this 23<sup>rd</sup> day of April, 2015.

---

<sup>126</sup> Chairman Burns did not participate in this matter.

## Dissenting Opinion of Commissioner Baran

I respectfully dissent from the majority opinion. In my view, the issue of cyber security raises a substantial question that merits granting Intervenors' petition for review. I believe that the information in the record is insufficient to support the conclusions reached by the Board and the Commission regarding the cyber security of the computerized systems that are intended to perform Material Control and Accounting (MC&A) functions at Shaw AREVA MOX Services' (MOX Services) mixed oxide fuel fabrication facility.

As a preliminary matter, I disagree with the Board's finding that the Intervenors did not raise cyber-security concerns prior to the supplemental hearing. The record reflects that Intervenors expressed concerns relating to MOX Services' cyber-security measures early in the proceeding, both in their initial testimony prior to the first evidentiary hearing and at the first evidentiary hearing.<sup>1</sup> In my view, that early introduction of cyber-security concerns placed the issue before the Board.

I also disagree with the Board when it, in effect, concluded that the determination of the adequacy of MOX Services' cyber-security program was beyond the scope of this proceeding. It is clear from the record before us that MOX Services will be relying on highly automated, computerized systems to, among other things, perform MC&A functions, including verifying item presence. These are novel systems unlike those used by other material licensees to date. Yet,

---

<sup>1</sup> See Ex. INT000001, *Direct Testimony of Dr. Edwin S. Lyman in Support of Intervenors' Contentions 9, 10, and 11* (Oct. 20, 2011), at 11 (unnumbered) (non-public) ("[T]he security of these computer systems [the Manufacturing Management Information System and the Programmable Logic Controllers] must also be a concern, particularly in light of the contemporary threat environment."); Tr. at 1303-04, 1420 (non-public) (Intervenors introducing Ex. INT000014, "MOX Services Cyber Security Threat Analysis," Ver. 2.2 (Sept. 2009) to rebut MOX Services' testimony that it is extremely difficult to tamper with its computer systems); Tr. at 1524 (non-public) (Intervenors' expert witness discussing compromise of the computer system with respect to alleged thefts).

the evidentiary record contains gaps with respect to MOX Services' cyber-security program and how it relates to its MC&A systems.

MOX Services does not currently have a cyber-security plan; rather, it has committed to follow NNSA cyber security standards when it develops its plan in the future. Because MOX Services will rely so heavily on first-of-a-kind, highly automated systems to perform some MC&A functions, the adequacy of its cyber-security program is integral to finding that the MC&A systems will function as intended and satisfy NRC's regulatory requirements. As the Board explained, "accuracy of the methodology is an integral component of the requirement to provide reasonable assurance of item presence and integrity with a 99% power of detection, especially when item sampling is entirely computer-based."<sup>2</sup>

Thus, in order for the Commission to determine that this unique MC&A system will function as intended, the Commission must find that MOX Services' cyber-security program is adequate. To make such a finding, the NRC Staff should review the NNSA cyber-security standards that MOX Services has committed to follow and determine the sufficiency of those standards to provide reasonable assurance that the MC&A system will meet NRC's existing MC&A regulatory requirements. While there is some information in the record related to cyber security, I find nothing in the record stating that either the Board or the NRC staff made a determination regarding the adequacy of cyber security at MOX Services' facility. In the absence of an NRC determination that MOX Services' cyber-security commitments will provide reasonable assurance that its MC&A systems will function as intended, I see no basis for finding that MOX Services' proposed automated MC&A systems will satisfy 10 C.F.R. § 74.55(b).

---

<sup>2</sup> LBP-14-1, 79 NRC 39, 81 (2014).

It may well be that the NRC Staff could readily explain that the cyber-security standards for the MC&A systems are adequate and that the MC&A systems will function as intended. But the record does not currently include such a demonstration. Granting the Petition for Review would provide an opportunity to supplement the record on this key issue.

I acknowledge the agency's longstanding practice of not accepting contentions related to matters that are (or are about to become) the subject of rulemaking.<sup>3</sup> In these circumstances, however, the rulemaking on cyber security for fuel cycle facilities being initiated by the NRC staff is unrelated to MOX Services' ability to meet the NRC's current MC&A regulations. Even though the Commission recently decided to proceed with this rulemaking, MOX Services must satisfy NRC's existing MC&A regulatory requirements. With highly-automated and computerized MC&A systems, MOX Services cannot meet those requirements without ensuring data accuracy, which necessarily assumes data and cyber security.

In sum, I would have the Commission grant the Petition for Review and supplement the record on MOX Services' cyber security measures to provide reasonable assurance that NRC's MC&A regulations can indeed be met by MOX Services' unique systems.

---

<sup>3</sup> See, e.g., *Potomac Electric Power Co.* (Douglas Point Nuclear Generating Station, Units 1 and 2), ALAB-218, 8 AEC 79, 85 (1975) (“[L]icensing boards should not accept in individual license proceedings contentions which are (or are about to become) the subject of general rulemaking by the Commission.”).

UNITED STATES OF AMERICA  
NUCLEAR REGULATORY COMMISSION

In the Matter of )  
)  
Shaw AREVA MOX Services, LLC ) Docket No. 70-3098-MLA  
)  
(Mixed Oxide Fuel Fabrication Facility )  
Possession and Use License) )

CERTIFICATE OF SERVICE

I hereby certify that copies of the foregoing **COMMISSION MEMORANDUM AND ORDER CLI-15-09** have been served upon the following persons by U.S. mail, first class, or through NRC internal distribution.

Office of Commission Appellate  
Adjudication  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Administrative Judge  
Michael C. Farrar, Chair  
Atomic Safety and Licensing Board Panel  
Mail Stop - T-3 F23  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Administrative Judge  
Nicholas G. Trikouros  
Atomic Safety and Licensing Board Panel  
Mail Stop - T-3 F23  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Administrative Judge  
Paul B. Abramson  
Atomic Safety and Licensing Board Panel  
Mail Stop - T-3 F23  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Nicholas Sciretta, Law Clerk  
Matt Zogby, Law Clerk

Catherine Scott, Esq.  
Christopher Hair, Esq.  
Marcia J. Simon, Esq.  
Eric Michel, Esq.  
Office of the General Counsel  
Mail Stop - O-15 D21  
U.S. Nuclear Regulatory Commission  
Washington, DC 20555-0001

Shaw AREVA MOX Services  
P.O. Box 7097  
Aiken, SC 29804  
Attention: Dealis Gwyn



Docket No. 70-3098-MLA

**COMMISSION MEMORANDUM AND ORDER CLI-15-09**

Glenn Carroll  
Coordinator  
Nuclear Watch South  
P.O. Box 8574  
Atlanta, GA 31106

Louis A. Zeller  
Blue Ridge Environmental Defense League  
P.O. Box 88  
Glendale Springs, NC 28629

Mary Olson  
Nuclear Information and Resource Service  
P.O. Box 7586  
Asheville, NC 28802

Donald J. Silverman, Esq.  
Timothy P. Matthews, Esq.  
Anna L. Jones, Esq.  
Morgan, Lewis & Bockius LLP  
1111 Pennsylvania Avenue, NW  
Washington, DC 20004

Diane Curran, Esq.  
Harmon, Curran, Spielberg &  
Eisenberg, L.L.P.  
1726 M Street, NW, Suite 600  
Washington, DC 20036

[Original signed by Brian Newell]

---

Office of the Secretary of the Commission

Dated at Rockville, Maryland,  
this 23<sup>rd</sup> day of April, 2015