



المجلس الاستشاري الدولي
INTERNATIONAL ADVISORY BOARD

Fifteenth Semi-Annual Report 2017

Brief summary on the International Advisory Board for the UAE nuclear program

The International Advisory Board (IAB) was a concept first developed by the UAE government to augment the transparency of its peaceful nuclear energy program. Indeed, the commitment to form such a body was among the original commitments undertaken by the UAE government in its original white paper describing its intent to evaluate and potentially deploy peaceful nuclear energy within its borders.

More specifically, the IAB represents an unprecedented collection of internationally recognized experts in various disciplines associated with the nuclear energy sector. The board includes world-class expertise in the areas of nuclear safety, security and non-proliferation, as well as regulation, quality assurance, operations, human resource development and waste management associated with the construction, operation and decommissioning of civil nuclear power plants. Led by Dr. Hans Blix, the former Director General of the International Atomic Energy Agency (from 1997-1982), the IAB is charged with conducting semi-annual reviews of the UAE's entire peaceful nuclear energy program and subsequently preparing a semi-annual report summarizing their observations, findings and recommendations. The decision by the UAE government to make these reports available to the public in hard-copy form and over the internet represents yet another example of the latter's commitment to achieving the highest standards of transparency in its peaceful nuclear energy program.

The IAB, while not invested with any legally binding powers, has nevertheless been designed to be an independent advisory body. As stated above, after each of its semi-annual meetings, the Board will issue a report detailing the consensus views of its members with regard to the progress achieved by the program, as well as any areas of concern that merit special attention. The government will not seek to edit these consensus IAB views and will undertake to publish them free of modification, as intended by the IAB members. Notably, however, the government and the IAB membership have agreed to work together to make those modifications necessary to avoid the dissemination of any sensitive security-related information to which the IAB may have access.

While the IAB's semi-annual reports may address additional topics, they will always be required to specifically address the issues of:

1. Nuclear safety
2. Nuclear security
3. Nuclear non-proliferation
4. Program transparency
5. Program sustainability

The UAE government, and those entities involved in the UAE will use the Board's semi-annual reports to improve performance and, where necessary, allocate additional resources in order to ensure the successful implementation of the over-all program. It is hoped that the UAE populace and the international community will use the reports as an objective source of information via which they may become more informed about and follow the progress of the UAE's nuclear sector.

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Dr. Hans Blix, IAB Chairman

CHAIRMAN'S PREFACE

With great pleasure, I deliver to you the fifteenth report of the International Advisory Board on the recent developments of the United Arab Emirates' Nuclear Power Program. This report outlines the overview of the Barakah licensing status and the progress of the Operating License application. In addition, the report highlights detailed information on engineering issues that were noted in Unit 1 commissioning tests.

For the next report, the Board looks forward to hear more about the waste disposal issue, recruitment status and an update on the technical issues of Unit 1

Once more, the Board congratulates the UAE on the continued success of its nuclear energy program and finds that the UAE in its program remains fully committed to the principles of safety, security, non-proliferation, transparency, and sustainability.

With respect,
Dr. Hans Blix

BOARD MEMBERS



Ambassador Thomas Graham



Mr. Takuya Hattori



Dr. KunMo Chung



Lady Barbara Thomas Judge



Sir John Rose



Mr. Jukka Laaksonen

Introduction



The fifteenth semi-annual meeting of the International Advisory Board (IAB) for the United Arab Emirates (UAE) Peaceful Nuclear Energy Program took place in Abu Dhabi on April 2-3rd, 2017.

The Federal Authority for Nuclear Regulation (FANR) held the first briefing in April 2nd, 2017. The Director General, assisted by the Deputy Director General for Administration, and the Nuclear Safety Director led the FANR's briefing.

The second part of the meeting was carried out on the following day of April 3rd. This meeting featured two briefings, the first conducted by the Emirates Nuclear Energy Corporation (ENEC) and the second by Mr. David Scott, ENEC Board member and member of the Committee on Nuclear Power (CNP).

Following these meetings, the Board held its own private discussion, as has been the regular practice.

The Chief Program Officer (CPO), assisted by the Engineering Director led ENEC's briefing. Nawah's senior management consisting of its Chief Nuclear Officer (CNO) assisted by the Nawah Chief Human Capital Officer, Vice President of Strategy, Projects and Controls, and the Nawah's Nuclear Performance Improvement Director provided an operational

readiness update for the plants.

The UAE's nuclear energy program is based on upholding the highest standards for the five principles of safety, security, non-proliferation, transparency, and sustainability. The IAB is tasked with reviewing the UAE program bi-annually and reporting on how the UAE has adhered to these principles. As a result, and in line with previous publications, this report is divided into five sections that review each of these principles based on the presentations of FANR, ENEC and Nawah.

The fourteenth meeting of the IAB was held in late October 2016, less than two weeks prior to entry into force of the Paris Climate Agreement of December 2015. The Report of the fourteenth meeting noted that the Paris Agreement marked the first time that the world's governments have undertaken legally binding obligations to attempt to limit the rise in global temperatures. This fifteenth meeting took place nearly five months later amid worsening prospects for combatting climate change, initially raised by the Paris Agreement. The United States is backing away from the commitments of the Paris Agreement and China continues to increase the use of coal in power generation. In this context, the example of the UAE nuclear peaceful program is even more important to the world community than it has been before.

Safety

Safety assessment and recommendations

The FANR Director General, having given information on recent developments, began the FANR presentation on safety. The current number of FANR staff at the time of the meeting was more than 200. ENEC currently covers 90% of the costs of FANR's regulatory work. In addition, about 1,600 other licensees are owners of various radiation sources. These smaller licensees collectively pay 1-2% of FANR costs, based on fees set out in a Cabinet Resolution. An electronic licensing system (e-licensing) is being introduced to make the regulation of sources more effective and reliable.

The FANR Director General stated that, at the time of the meeting, part of the leading staff of FANR as well as of other UAE nuclear entities were in Vienna, participating in the seventh review meeting of the international Convention on Nuclear Safety (CNS). The UAE acceded to the CNS as a contracting party in 2009. The review meetings are held every three years and this is the third meeting that the UAE has participated in. The FANR Director General noted that, with the exception of Iran, all countries having nuclear power plants in operation or under construction are parties of the CNS.

Ambassador Al Kaabi made the presentation of the UAE nuclear program to its country group (the review meeting is split into six separate country groups according to fixed rules, based on the number of operating nuclear power plants in each participating country). The UAE national report had been prepared with the support of FANR, ENEC, Nawah, and the Critical Infrastructure and Coastal Protection Authority (CICPA), and all these entities were represented in Vienna as part of the UAE delegation for the UAE review day. The reviewing parties had noted with satisfaction the impressive progress of the UAE program. The nuclear legislative and regulatory system is in place, and the licensee and regulatory organizations have achieved a mature state.

Following the UAE presentation at the CNS meeting, the reviewing parties noted three challenges for the UAE that still require special attention:

1. Completion of construction of all four Units and commissioning them without significant non-conformances.
2. Demonstration of operational readiness of Unit 1, especially the adequacy of capable human resources.
3. Preparation of the regulatory oversight process for the operation phase.

The FANR Director General also mentioned the main recommendations of FANR's International Advisory Group from its most recent meeting held in February 2017:

- Attention to transition from the licensing stage to oversight of operation.
- Assessing the needs for Technical Support during the operation stage and beginning actions to find the required qualified TSO's.
- Taking note of worldwide measures taken to address lessons from the Fukushima accident.
- Special attention should be directed to the harsh environmental conditions that are unique to the Barakah NPP site, including the possible need for the assessment of site related hazards before the first periodic safety review that will be conducted every 10 years.

The FANR Director General concluded his part of the presentation by discussing the visit of experienced regulatory experts that the IAEA had sent to assess FANR preparedness for Unit 1 commissioning and operation oversight. The experts had specifically reviewed:

- FANR organizational adaptation to operation oversight.
- Preparation of plans for operation inspections.
- Verification of consistency of the as-built plant with the approved plans.

Safety assessment and recommendations



The FANR Director of Nuclear Safety continued the presentation with an overview of the Barakah licensing status. Since the previous IAB meeting, FANR has issued a Nuclear Fuel Transportation License covering fuel imports for Units 1-4 and the Nuclear Fuel Handling and Storage License for Unit 1. All nuclear fuel for Unit 1 is already on site in its normal storage, in full compliance with the License.

The Operating License application for Units 1 and 2 is still under review, and the decision on the Operations License from the FANR board can be expected after September 2017. The licensing requires inputs from inspections of Nawah readiness, which is not expected to be complete until well beyond September 2017.

FANR has taken a position that the Operating License for Barakah Unit 1 will be issued only when:

- All FANR requests for additional information and all relevant inspection findings have been closed.
- FANR has documented its evaluation in accordance with its procedures in the Safety Evaluation Report (SER).
- Nawah, with support from ENEC is

ready to implement conditions of the Operating License, including Emergency Preparedness.

Meanwhile, applications for the Nuclear Fuel Handling and Storage license for Unit 2 and the Operating License for Units 3 and 4 were recently submitted. FANR will begin thorough review of Units 3 and 4 only when all licensing issues for Unit 1 are closed and all Units 3 and 4 differences from Unit 1 have been identified and addressed in the application.

There are different types of open issues to be resolved before granting the Operating License for Unit 1:

- Completing the safety analysis: for example, remaining areas such as large break loss-of-coolant accident and containment performance during severe accident.
- Operational readiness issues including control room staff training and certification.
- Technical issues with respect to the plant hardware, noted in Unit 1 commissioning tests.

In the area of systems turnover from construction to operations, the commissioning

Safety assessment and recommendations

of separate systems of Unit 1 has required more time than planned. On March 20, 2017, 11 systems out of the total of 150 were accepted by the operating organization. Some of the systems were not completely installed at the time of the integrated Hot Functional Test (HFT). This requires repeating the HFT at least once to demonstrate that all identified non-compliances have been eliminated and all systems and subsystems needed to perform the first HFT were in place to complete the test. Such demonstration is required as a prerequisite for fuel loading. The targeted level of readiness prior to fuel loading is thus higher than in commissioning of plants in most other countries, including the reference plants in Korea.

In parallel with completing the construction and commissioning work by the Korean supplier and completing the reviews and inspections by FANR, Nawah is building and training its operating organization. To gain advice from experts with extensive experience in nuclear power plant operations, ENEC has established a subcommittee of its Board called the Committee on Nuclear Power (CNP). This group comprehensively assesses the nuclear safety issues and the regulatory issues, meeting at least every two months for a three-day period each. In 2017, eight meetings have been scheduled. Additionally, ENEC has

established a Nuclear Safety Review Board (NSRB), which reports to ENEC management, but also shares its findings with the CNP.

The ENEC Engineering Director provided detailed information on engineering issues that have been noted in Unit 1 commissioning tests and need to be addressed before loading fuel as indicated by FANR.

ENEC then presented an operational readiness update led by the Nawah Chief Nuclear Officer (CNO). A status of the licensing effort was included.

With respect to the Operating License Application for Units 1 and 2:

- The application was submitted on March 27, 2015.
- FANR review continues.
- There have been 1,232 requests for additional information by FANR; of these, 62 remain open. Approval for operations for Unit 1 is anticipated by February 2018.

Recent licensing actions include:

- Unit 1, Nuclear Fuel Import License.
- Unit 1-4, Nuclear Fuel Transportation License.



Safety assessment and recommendations

- Unit 1, Fuel Possession, Handling, and Storage License.
- Units 1-2, Core Monitoring System License.
- Unit 2, The Fuel Possession, Handling, and Storage License application has been submitted.

Operating License Application, Units 3 and 4:

- It was submitted on March 27, 2017.
- It was modeled after the Units 1 and 2 Operating License Application and is materially the same as the licenses for Units 1 and 2.
- There were nine departure reports consisting of differences between the Units 1 and 2 and the Units 3 and 4 PSARs.
- Independent Safety Verification found no significant safety findings.
- The requested approval dates are:
 - Unit 3-June 2019
 - Unit 4-February 2020

The ENEC Chief Project Officer (CPO), assisted by the Nawah CNO, presented a construction and schedule update. The ENEC CPO stated that Unit 1 was 94% complete; Unit 2, 82%

complete; Unit 3, 69% complete; and Unit 4, 44% complete. Unit 1 has been delayed, but the construction knowledge gained through this process has de-risked the schedule for Units 2-4. Due to this transfer of learning, the CPO expressed confidence that the 2020 final operational date of all four reactors will be achievable.

As Nawah prepares itself to operate the plants, several work areas remain in progress. After the Hot Functional Tests (HFT), there were a few areas for improvement resulting in the construction organization re-testing some of the systems. The operating organization will then reheat Unit 1 back up again next month for a second HFT, to ensure the reliability of safety-related components. ENEC intends to resolve all potential operability issues before Unit 1 fuel load.

The present timing is for fuel assemblies loading for Unit 1 to take place during the first quarter of 2018, pending regulatory approval. Following this, Unit 1 will commence the process of Power Ascension Testing (PAT), which involves criticality and stepwise power increases up to full power and is expected to take at least eight months for Unit 1. If PAT can be conducted in the optimum schedule, the first refuel takes place about twelve months later. The first spent fuel assemblies will thus move to the spent fuel storage at the earliest end of 2019.



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Because of these developments the real driver for Unit 2 is Unit 1; Unit 2 will not load fuel until Unit 1 has done so; most likely the wait will be until May 2018 although Unit 1 would be ready well before then. Fuel will be delivered to Unit 2 in the summer of 2018, but it will become operational not long after Unit 1 in early 2019.

Meanwhile, Nawah is working hard to become staffed for Unit 1. The CNO noted that Nawah seeks proficiency in its hires. At fuel load, Nawah will own the responsibility for the management of the fuel assemblies, as per the Operating License.

ENEC CPO stated that throughout all this, ENEC has not lowered its standards. However, the ENEC CPO believes that Team Korea will benefit from this and become even more efficient globally based on what they have learned during the development of this project.

Lady Barbara asked the CPO if he was happy with the current progress. ENEC CPO affirmed he is, but that more attention and focus needs to be placed on the safe delivery of Unit 1. He said yes, it has been tougher than anticipated, reconciling some of these differences. ENEC has pushed forward to get Unit 1 to the operational stage, now they have to deal with some of the small but urgent issues that should have been resolved earlier. For example, some of the pipes were painted the wrong color, which created a discrepancy that needed to be addressed, as the color of certain pipes do not match and this is critical for maintenance. ENEC has encountered many issues like this and they are resolving them. The pipe painting issue is a typical problem. ENEC and Nawah's priorities are and will continue to be:

- Safety;
- Quality;
- Schedule; and
- Cost.

The CNO noted that Nawah was doing everything possible to get ready for operations. Targeted staffing levels will be

greater than that of most other nuclear industry companies. Mr. Laaksonen asked why this is so. The Nawah CNO responded that Emiratisation is the reason; as they are including the employees being trained in the workforce. Nawah will be well staffed with a robust shift management. There will be three senior reactor operators on each shift. It will be a mix of Koreans, expatriates, and Emiratis. Mr. Laaksonen asked whether all such operators will be equal with others at their level or will some be able only to do certain things while others do different things. The CNO replied that there will be language assessments and English remediation courses conducted. Even expats have to improve their English skills. ENEC wants the most effective communication possible in the multicultural environment that they can have. Mr. Laaksonen asked whether employees are permitted to raise questions on any safety concerns, they have in mind. The CNO replied that they encourage this. Nawah's CNO explained that management shares information with employees weekly.

Chairman Blix asked about waste management which the CNO explained is one of ENEC's strategic objectives and that they are awaiting a decision on the disposal subject. ENEC recently held a workshop on this.

Security

Security Assessment and Recommendations



During the afternoon of April 3rd, David Scott, ENEC Board member and member of the CNP presented a briefing initially focusing on security but moving on to several other subjects. He informed the board that the Committee on Nuclear Power, as a subcommittee of the ENEC Board, is responsible for evaluating safety, security, and regulatory compliance. The CNP has been in existence for three years and includes among its members Mr. Dale Klein, a former U.S. Nuclear Regulatory Commission Chairman, two former heads of major nuclear power utilities, and a retired senior executive of the Bechtel Corporation.

Mr. Scott explained that, while the recruitment of new staff, via the Energy Pioneers program, was an important component of knowledge transfer and long-term sustainability, an immediate concern, particularly for ENEC's new operating subsidiary, Nawah, was recruiting sufficient numbers of experienced nuclear operators in the disciplines required to operate the Barakah units. In response to a question by an IAB member as to whether Nawah was simply "too big", Mr. Scott responded, "even with a thinner organization, Nawah would still be short in several areas." "Our recruitment simply needs to be improved," observed Mr. Scott.

Mr. Scott described an approach that included recruiting young Emiratis with minimal years of experience, but supplementing

them liberally with veteran nuclear experts, who boasted real and relevant operational experience. As part of the effort to improve recruitment, Mr. Scott noted that a new strategy is being developed in this area, including the liberal use of recruitment in Korea and elsewhere, where large numbers of retired or idled nuclear operators might be found.

In the area of security, the goal for ENEC is to implement and commission the full physical protection system and have it reviewed and accepted by the relevant bodies, including FANR and the Critical Infrastructure and Coastal Protection Authority (CICPA) before loading fuel assemblies into Unit 1.

In building the physical protection system for Barakah, ENEC and CICPA studied physical protection models from around the world. What they discovered was that each country appears to have its own approach to physical protection, sometimes influenced by the geopolitical context, as well as the structure of national governments as it relates to matters of security (e.g., the existence or absence of a national police force, etc.). In this regard, the UAE discovered that physical security standards and practices have not evolved toward the same kind of standardized templates as other aspects of the peaceful nuclear energy industry, requiring new-comers to invest more effort to determine what standards and practices are appropriate for their specific circumstances.

Security Assessment and Recommendations

In the UAE, this effort, which has included the liberal use of experienced foreign experts, has tended to result in relatively robust and advanced approaches, possibly reflecting what these experts would have liked to implement in their own nations, but were unable to achieve owing to economic or other factors. As a result, Mr. Scott observed that the physical protection system implemented at Barakah was likely to be an order of magnitude beyond what is generally found elsewhere in the world. Mr. Scott also noted that, because much of the Unit 1 plant had already been completed, the final stages of the implementation of the Physical Protection System had been hampered by the complexity of building around existing infrastructure.

Special attention has been given to cyber security because cyber risks, due to their anonymous nature, are considered a higher probability than the risk of physical attack on the plant. The UAE is engaging with relevant foreign government partners to ensure that its efforts are in keeping with best practices. The principal threat is malware infection of devices.

Cyber security has been taken into account also in the design of the Instrumentation and Control (I &C) system. It will be less vulnerable to cyberattacks than systems generally used in other industries and in other types of power production. The I &C system is provided by an experienced vendor and FANR conducted vendor inspections in November 2016.

There is national co-operation through a working group established to discuss the critical information infrastructure protection in the nuclear sector. Among others, this group has members from FANR and the National Electronic Security Authority (NESA).

Non-Proliferation

Non-Proliferation Assessment and Recommendations



Safeguards—UAE Full Scope Safeguards

The UAE provided the International Atomic Energy Agency (IAEA) with the required advance notification on the first introduction of nuclear material to Barakah NPP. This introduction signaled the start of the full-scope Safeguards Agreement (Part I and Part II).

- The licenses needed to date have been issued.
- Nuclear material (nuclear fuel) was introduced in Q1 2017.
- Installation of the IAEA camera and seals is progressing well with the final contract between IAEA and ENEC completed in March 2017.

FANR has cooperated with the IAEA and the UAE Ministry of Foreign Affairs to prepare pre-final drafts of the UAE Subsidiary Arrangement - General Part and Barakah NPP Unit 1 Facility attachment. FANR has managed the procedures for Barakah NPP to ensure

complete and correct compliance with these strategic documents.

FANR submitted the UAE Safeguards Initial Report to the IAEA on March 20, 2017.

- A detailed declaration of all nuclear material received in the UAE was included.
- This represents the start of routine accounting reports to be submitted to the IAEA.

Safeguards - general updates

- All companies possessing nuclear material have been licensed by FANR and registered.
- The first simultaneous physical inventory taken across the entire UAE was carried out on February 28, 2017. This records the starting point of the full-scope safeguards for the UAE Initial Report to the IAEA.

Non-Proliferation Assessment and Recommendations

- Over 250 safeguards inspections have been performed.
- The IAEA conducted the third Complementary Access visit to the UAE in December 2016. This was the first such visit to Barakah.
- All Annual and Quarterly Additional Protocol declarations have been issued representing over one hundred verified declarations, each requiring multiple inspections.

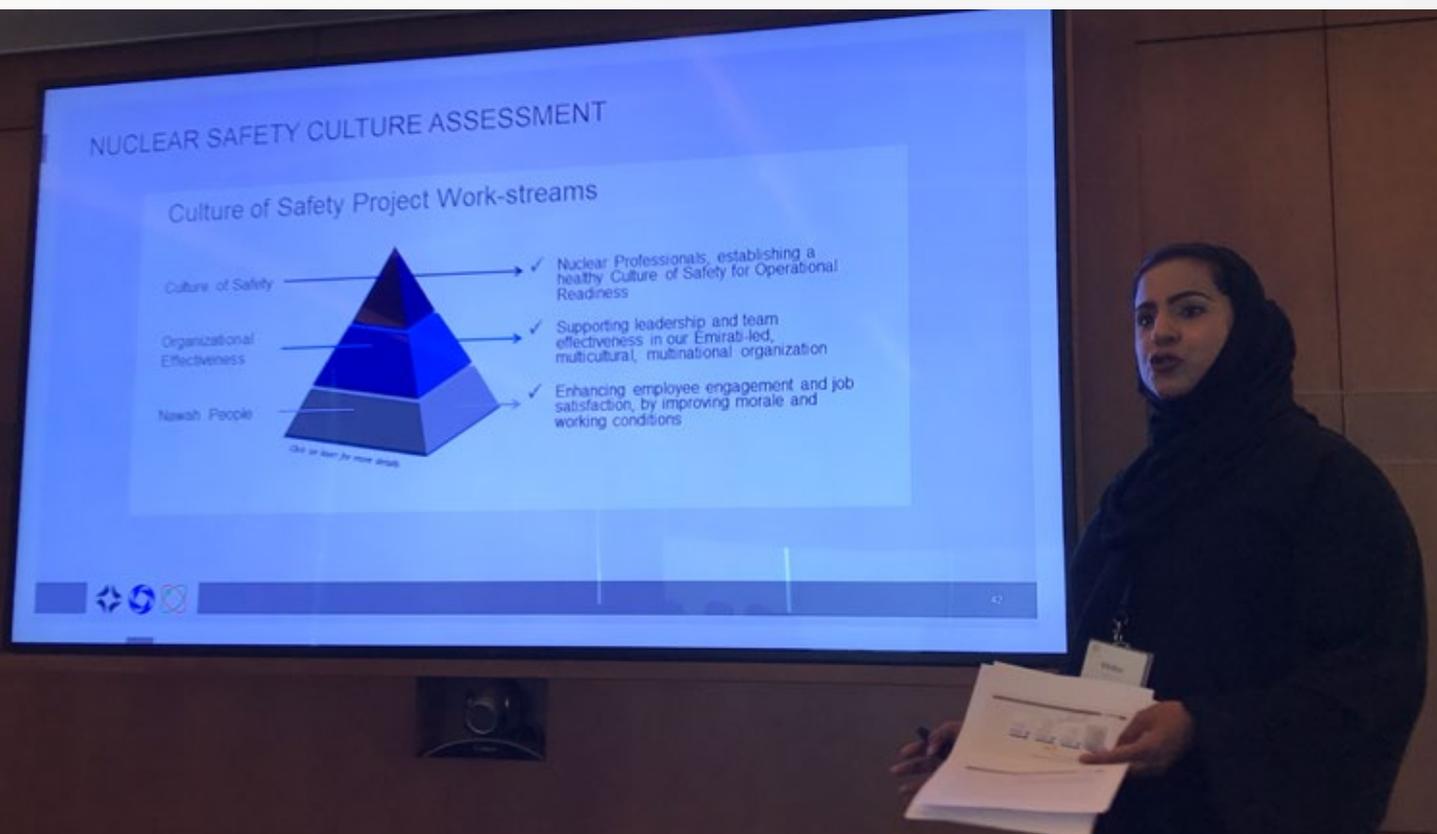
Export Control

Some of the recent highlights were:

- More than 30 transfer license applications were submitted, 10 for Barakah.
- 20 transfer licenses were issued in 2016; six were for Barakah including the import licenses for fresh fuel and fission chambers.
- A Memorandum of Intent between the U.S. Department of Commerce and the Federal Customs Authority was signed to strengthen export/import control of nuclear related dual use items.
- Second annual reports to Japan and Australia have been submitted pursuant to bi-lateral safeguards agreements.
- Four training courses were conducted on a quarterly basis for local customs administrators in collaboration with the Federal Customs Authority.
- More than 100 companies involved in the transfer of regulated items have been inspected up to 2016.
- The second National Workshop on Implementation of International Requirements of Nuclear Import-Export Control was successfully conducted.
- An awareness workshop was conducted for Dubai police officers in subject related import/export control and the non-proliferation of nuclear weapons.

Transparency

Transparency Assessment and Recommendations



Both ENEC and FANR remained committed to their transparency obligations and understand the importance of keeping the public involved.

ENEC and Nawah hosted the first Women in Nuclear (WiN) Annual Global Conference held in the Middle East in Abu Dhabi in October 2016. The Conference was held under the patronage of H.H. Sheikha Fatima bint Mubarak, Supreme Chairwoman of the Family Development Foundation, President of the General Woman's Union, Chairwoman of the Motherhood and Childhood Supreme Council.

There were 300 attendees, both days of the Conference 75% of the attendees were international in origin. Panel discussions during the two days conference included:

- Regulators: Current and Future Issues
- Do you have to come from a STEM background to become successful in the nuclear industry?
- Nuclear Professional Attributes in the Nuclear Industry.

- Gender Equality in the Nuclear Industry.
- Succeeding in a Multicultural Environment within the Nuclear Industry.
- Radiation Application Status and Involvement of Women Professionals.

Sustainability

Sustainability Assessment and Recommendations

The number of Nawah employees has rapidly increased in 2017 after several improvements were made in the area of recruitment. Nawah is currently staffed at 1,200 employees and is projected to be at 1,800 employees by early 2018. As mentioned above, the manpower in the Nawah organization will thus be higher than the typical manpower level at European, US, and Korean plants. Such high manpower is considered necessary because the organization will be a mixture of Emiratis, Koreans, and expats from many countries where work cultures are different and a new generation of nuclear energy experts needs to learn from international experts in nuclear operations. However, as David Scott pointed out in his briefing, professionals that are more skilled are required, and recruitment must be strengthened. This is particularly true with respect to the more experienced professionals.

Training and consolidating of the entire organization is a major area for improvement and needs adequate time. A large number of teams have to be built for different tasks, and well-structured internal communication and co-operation between teams is necessary. Management of such an organization requires experience and skills from the managers at all levels.

The ongoing large recruitment process should ensure adequate entry qualifications of expert staff. Proper qualifications of Korean staff could be confirmed with the help of the plant supplier, which can get direct information on the background of candidates. Good professionals can be picked up also from the project organization. Emirati experts come directly from universities and ENEC human capital officers can confirm their qualifications.

In general, Nawah should not be satisfied with meeting the minimum FANR requirements on organization and performance in practical tasks, and they should strive to more ambitious performance targets.

Nawah Capacity Building and Training

Currently, there are 109 Energy Pioneers in the program, which is critical for the future and some 22 expatriate experienced operators in training status. In technical training, there are over 150 UAE nationals who are qualified Energy Pioneers. One hundred and fifty three have completed this training and 19 are in progress. In chemistry and radiation training there are 45 Energy Pioneers, all UAE nationals, where 32 have completed this training and 13 are in progress of completing the program.



Sustainability Assessment and Recommendations

With respect to Barakah NPP general training:

- Plant access training has been completed by 2,476 employees, contractors, and stakeholders.
- Radiation Worker Training (I) has been completed by 933 employees, contractors, and stakeholders.
- Radiation Worker Training (II) has been completed by 731 employees, contractors, and stakeholders.
- Also nuclear industrial safety training and respirator training are available for appropriate groups.

In the professional development field:

- The Westinghouse Senior Reactor Management Certification program is available. Thirty eight have completed this program, and five are currently in progress. Only handpicked, very talented individuals are sent to this program.
- The UAE-IAEA Nuclear Energy Management School represents an important program. Forty two completed this education in 2012 and 2015. Twenty are now enrolled.

The Nawah Nuclear Performance Improvement Director presented the Nuclear Safety Culture Assessment. Nawah has been conducting these assessments since 2011, which is unprecedented and this potentially reflects industry best practice. Nawah and ENEC have used these results to accelerate improvement in Nuclear Safety Culture leading up to operations. An assessment of the Nuclear Safety Culture (NSC) at Barakah NPP, which consists of four phases, began in January of 2017 and is scheduled to be completed by February of 2018.

The first phase, which is complete, involved the distribution of a survey questionnaire, which was to be completed by over 95% of ENEC and Nawah employees. In addition, there were individual interviews, focus groups,

and observations of meetings and work activities.

Phase 2 involves presentation of the NSC assessment results to ENEC and Nawah leadership teams, workshops on gap analysis, and development of solutions. This phase is scheduled for April 15 to May 15.

The third phase is scheduled for mid-May to the first of July, and the fourth and last phase from July 2017 to February 2018. These phases will be focused on sharing the assessment results with the remainder of the staff, identification of gaps, contributions to development of solutions and tracking, and implementation of any necessary course corrections.

The final phase 1 results of the Survey Questionnaire were completed by more than 98% of all ENEC and Nawah employees. There were interviews with both ENEC and Nawah CEOs and Executive teams; eleven focus group meetings with sections of the workforce at ENEC and fifteen at Nawah; and many observations of work activities and meetings with various divisions of the two organizations.

With respect to the second phase, combined results will be finalized in early April 2017; there will be many workshops and communication sessions on these results; corporate media channels will be used for discussion; and there will be a general sharing of results of the first two phases by the ENEC CEO at a staff meeting in May 2017.

Conclusion

The Board would like to hear a presentation on the waste disposal issue at the next meeting. In addition, more information about specific measures to protect the plant against the harsh environmental conditions at Barakah site and on the remaining FANR concerns on containment performance during severe accident conditions is requested. A briefing next time on recruitment status would also be appreciated. This would include the qualifications of new employees and the building of cooperation inside the Nawah organization.

The Board congratulated H.E Ambassador Al Kaabi for his successes at IAEA.

Although this has been discussed in previous meetings, the Board would like to reiterate that it is content with even substantial delay for safety, whatever is necessary. For non-safety issues, however, the Board urges as few delays as possible.

The Board wants to be fully briefed at the next meeting on the technical issues of Unit 1.

The Board is grateful for the considerable effort undertaken by the UAE supporting entities to provide the IAB with highly competent, informative, and valuable presentations.

Once more, the Board congratulates the UAE on the continued success of its nuclear energy program and finds that the UAE in its program remains fully committed to the principles of safety, security, non-proliferation, transparency, and sustainability.

ACKNOWLEDGEMENT

The International Advisory Board would like to thank all who were involved in developing this report.