

Board of Governors

GOV/2004/33

Date: 28 May 2004

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Original: English

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Item 8(b) of the provisional agenda
(GOV/2004/27)

Implementation of the NPT Safeguards Agreement of the Socialist People's Libyan Arab Jamahiriya

Report by the Director General

1. This report on safeguards issues in the Libyan Arab Jamahiriya (hereinafter referred to as Libya) responds to paragraph 5 of the Board of Governors' resolution GOV/2004/18 of 10 March 2004. It covers relevant developments from the time of the Director General's last report (GOV/2004/12 of 20 February 2004). This report sets out a chronology of recent events (Section A) and findings and next steps (Section B). Information on the Agency's verification activities is summarized in Annex 1, organized according to the various technical processes involved. Annex 2 contains a list of the locations identified to date as relevant to the implementation of safeguards in Libya. Annexes 3 and 4 contain a listing of the sites in Libya visited by the Agency regarding the assessment of nuclear weapon development capabilities. Annex 5 contains the Statement by the President of the United Nations Security Council in connection with the Council's consideration of Libya's decision to abandon its weapons of mass destruction programmes.

2. On 20 February 2004, the Director General submitted to the Board of Governors a report (GOV/2004/12) providing information on the implementation of the Agreement between Libya and the IAEA for the Application of Safeguards, in connection with the Treaty on the Non-Proliferation of Nuclear Weapons (INFCIRC/282) (the Safeguards Agreement), and the actions that needed to be taken and describing developments in that regard since his December 2003 report (GOV/2003/82). The Director General stated that Libya had failed to meet its obligations under its Safeguards Agreement with respect to the reporting of nuclear material imported into Libya and the subsequent processing and use of the material, and to the declaring of facilities and other locations where the material had been stored and processed. He described these failures and the actions being taken by Libya to correct them.

3. On 10 March 2004, the Board of Governors adopted resolution GOV/2004/18 in which it:

- Welcomed Libya's voluntary decision to eliminate materials, equipment and programmes leading to the production of nuclear weapons in a manner verifiable by the Agency, as this would strengthen regional and global security and stability;

- Appreciated the active cooperation and openness that had been provided since 19 December 2003 by Libya to facilitate the elimination of weapons-related materials, equipment and programmes and the Agency's verification work;
- Recalled with satisfaction the approval of Libya's Additional Protocol, looked forward to that Protocol's early entry into force, and commended the decision to act as if the Protocol were in force as of 29 December 2003;
- Found, under Article XII.C of the Statute, that the past failures to meet the requirements of the relevant Safeguards Agreement (INFCIRC/282) identified by the Director General constituted non-compliance, and, in accordance with Article XII.C, requested the Director General to report the matter to the Security Council for information purposes only, while commending Libya for the actions it had taken to date, and had agreed to take, to remedy the non-compliance;
- Commended the Director General and Secretariat for the work they had undertaken since 19 December 2003 in cooperation with Libya and looked forward to receiving a further report from the Director General at its June 2004 meeting, or earlier as appropriate, and thereafter when the Secretariat had formed a complete and coherent understanding of past and present nuclear activities in Libya and could verify the completeness and correctness of its declarations with the goal that the matter would then be resolved and concluded by the Board;
- Requested Libya to provide continuing cooperation and full disclosure to facilitate the Agency's completion of all its mandated tasks;
- Welcomed the verification activities undertaken by the Agency pursuant to Libya's Safeguards Agreement, including the Agency's work to verify declarations and to define the necessary corrective actions, and also welcomed the steps taken to date by Libya to dismantle and eliminate weapons-related materials, equipment and programmes; and
- Urged all third countries to cooperate closely and fully with the Agency in the clarification of open questions on which it may request their assistance, while appreciating such cooperation as may already have been extended.

A. Chronology since February 2004

4. On 23–24 February 2004, the Director General and senior Agency officials visited Libya for discussions with senior officials on safeguards implementation and nuclear proliferation matters.
5. On 25 February 2004, a tripartite contract between Libya, the Russian Federation and the Agency was signed to ship fresh high enriched uranium (HEU) from Libya to Russia.
6. On 10 March 2004, Libya signed a Protocol Additional to its Safeguards Agreement and reiterated its undertaking of 29 December 2003 to act as if the Additional Protocol had entered into force.
7. On 11 March 2004, the Director General sent a letter to the United Nations Secretary General, requesting him to forward to the Security Council the Board of Governors' resolution (GOV/2004/18) on the implementation of safeguards in Libya, as requested by the Board of Governors.

8. On 22 April, at the 4949th meeting of the Security Council, held in connection with the Council's consideration of the item entitled "Decision of the Libyan Arab Jamahiriya to abandon its weapons of mass destruction programmes", the President of the Security Council made a statement on behalf of the Council that took note of resolution 2004/18 of the Board of Governors.¹

9. On 26 May 2004, Libya submitted the initial declarations required under its Additional Protocol, as well as nuclear material accountancy reports for the Tajura Nuclear Research Centre (TNRC).²

B. Findings and Next Steps

10. For more than 20 years, Libya pursued a largely clandestine programme of uranium conversion and enrichment. Starting in the early 1980s and continuing until the end of 2003, Libya imported nuclear material and conducted a wide variety of nuclear activities that it had failed to report to the Agency as required under its Safeguards Agreement. Some development work on these technologies was pursued within Libya, but substantial assistance was received from foreign sources. The Agency, through its verification activities and with Libya's cooperation, has increased its understanding of that country's past undeclared nuclear activities.

11. A uranium conversion plant, different types of gas centrifuges, supporting equipment for the centrifuges, tools for producing centrifuge components and some quantities of uranium hexafluoride (the form of uranium most suitable for enrichment) were acquired by Libya from foreign sources. Information on the procurement channels that provided Libya with nuclear material and sensitive nuclear equipment is being investigated by the Agency. It is clear, however, that the existence of this procurement "network" was of decisive importance in Libya's clandestine nuclear weapon programme.³

12. Libya acknowledged that, at the end of 2001 or early 2002, it had received documentation related to nuclear weapon design and fabrication from a foreign source. It also stated that it did not take any steps to assess the credibility or explore the practical utility of the information available in the documents. To date, the Agency's inspections have not led to the finding of specific facilities related to nuclear weapon component design, manufacturing or testing. It will be necessary for the Agency to continue its verification work to confirm its initial assessment that Libya had not taken any concrete steps in connection with the documents on nuclear weapon design and fabrication.

13. On 29 December 2003 Libya provided a brief "time line" summarizing more than 20 years of undeclared nuclear activities. To fully understand Libya's past activities, the Agency asked for detailed declarations in certain areas, and has received several amplifications. The Agency has also asked for supporting documentation related to the design, procurement and testing of key equipment and facilities and has received some such documentation. Accordingly, some aspects of Libya's past nuclear activities are explained and well documented, while other aspects remain to be assessed. The Agency considers it important that Libya provides the remaining documents as a matter of priority.

¹ Statement by the President of the Security Council, United Nations Security Council document S/PRST/2004/10 of 22 April 2004, reproduced in Annex 5.

² Libya has informed the Agency that the Tajura Nuclear Research Centre (TNRC) has been renamed as the Renewable Energies and Water Desalination Centre (REWDC).

³ Agency investigations into the clandestine procurement channels used by Libya and Iran are ongoing.

14. Matters that need further action include:

- Understanding of Libya's plans to produce and/or acquire UF₆ (uranium hexafluoride) and confirmation of the origin of the UF₆ received by Libya in 2000 and 2001;
- Resolution of the issue of the sources of low enriched and high enriched uranium contamination found on gas centrifuge equipment in Libya;
- Assessment of Libya's gas centrifuge enrichment activities and of the results of environmental and nuclear material samples;
- Verification of uranium ore concentrate holdings in Libya; and
- Assessment of the full history of the Libyan nuclear weapon related activities, including organizational arrangements and supporting documentation.

15. Libya has cooperated with the Agency by providing prompt access to all locations that it had requested, making senior personnel available and taking corrective actions to come into compliance with its Safeguards Agreement.⁴

16. The Director General will report to the Board of Governors at its September 2004 meeting, or earlier, as appropriate.

⁴ Libya has not yet provided inspectors with one-year multiple entry visas as required by the Additional Protocol.

Verification Activities

A. Agency Activities in Libya since February 2004

1. The Director General last provided a report to the Board of Governors concerning verification activities in Libya on 20 February 2004. Since then, the Agency has conducted inspections in Libya with the objective of confirming the completeness and correctness of Libya's declarations of its past and present nuclear activities.
2. Since February 2004, the Agency has conducted three additional inspections at the Tajura Nuclear Research Centre (TNRC) to verify previously undeclared nuclear materials, to verify design information for previously undeclared nuclear facilities, to examine relevant non-nuclear materials declared by Libya and to discuss the corrective actions that Libya must take to come into full compliance with its Safeguards Agreement. On two occasions, complementary access to previously unknown locations on the Tajura site was conducted for the purpose of confirming the absence of undeclared nuclear material or activities.
3. Agency experts on centrifuge enrichment, uranium conversion and nuclear weapons have carried out extensive discussions with Libyan officials and have conducted many visits to relevant sites in Libya.
4. From 28 February to 9 March 2004, an Agency inspection team visited Libya to inspect and witness the removal of gas centrifuge enrichment related equipment and sealing of HEU fresh fuel prior to shipment to Russia.
5. On 20–25 March 2004, the Agency conducted inspections in Libya and held discussions related to nuclear material accountancy, conversion and environmental sampling.
6. On 18–22 April 2004, Agency inspectors visited Libya and had discussions regarding the uranium enrichment and conversion programmes.
7. On 21 April 2004, Agency inspectors visited Sabha (Site F), where Libya's "yellowcake" (a type of uranium ore concentrate) is stored, to review Libya's progress in improving the organization of the containers of yellowcake and to plan a comprehensive verification of the declared yellowcake inventory.
8. On 22–27 April 2004, the Agency conducted inspections and held discussions in order to progress in the assessment of the correctness and completeness of Libya's declaration with regard to nuclear weapon development and associated capabilities.
9. On 28 April 2004, the Agency requested Libya to submit its outstanding nuclear material accountancy reports and design information questionnaires for the Tajura Research Reactor and the Research and Development Facility.
10. On 17–19 May 2004, Agency inspectors visited Libya for further discussions on its uranium enrichment and conversion programmes that included clarifications on the sources of nuclear material and technologies imported by Libya.
11. An Agency team carried out inspections in Libya from 23 to 27 May 2004.

B. Verification Activities and Findings

12. On 29 December 2003, Libya provided the Agency a brief (4-page) “time line” describing a series of past nuclear related activities that had not been previously reported to the Agency. Since then the Agency has undertaken to confirm, as far as technically possible, all aspects of the “time line” provided by Libya and has sought more detailed declarations and supporting documents in some areas.

13. Libyan authorities have provided prompt, unhindered access to all locations requested by the Agency and to all relevant equipment and material declared to be in Libya. The Agency has held extensive discussions with senior Libyan nuclear authorities in an attempt to gain a complete understanding of Libya’s past nuclear activities. Libyan authorities have usually provided clear answers to Agency questions and have provided some supplementary declarations. However, Libyan authorities have not always been able to provide supporting documents to augment their short December 2003 “time line”. Lack of supporting documents limits the Agency’s ability to fully confirm the completeness of Libya’s declarations in some areas, as explained further below.

14. Nearly all of the technology involved in Libya’s past nuclear activities was obtained from foreign sources, often through intermediaries. Full verification of Libya’s declarations requires investigation of the foreign sources and intermediaries. To this end, the Agency has been in contact with relevant governments and companies with a view to corroborating information received from Libya. This is a slow process and will continue for some time, but preliminary findings are presented below.

B.1. Imports of Nuclear Material

B.1.1. Imports of Uranium Ore Concentrate

15. In its December 2003 “time line” declaration, Libya stated that a total of 2263 tonnes of yellowcake had been imported between 1978 and 1981. A quantity of 2263 tonnes of yellowcake would contain approximately 1500 tonnes of uranium. As required by its Safeguards Agreement, Libya reported the imports of yellowcake that arrived after the entry into force of its Safeguards Agreement in July 1980, amounting to 1000 tonnes of uranium. There was no requirement for Libya to report the yellowcake imported prior to July 1980.

16. Libya has now provided information on all yellowcake imports, including those received before July 1980. Libya received yellowcake from two producers in another country. The first contracts were signed in 1977 and the first shipments arrived in Libya in 1978. A total of 587 tonnes of uranium (yellowcake) were imported by Libya before the Safeguards Agreement entered into force. The total amount of uranium imported by Libya from another country was 1587 tonnes in 6367 containers. That total has been confirmed by documents provided by the producers and Libya has stated that uranium ore concentrate was not imported from other suppliers nor produced domestically.

17. In summer 2004, the Agency will carry out a thorough verification of Libya’s yellowcake inventory. Libya has begun to reorganize the drums containing the yellowcake, so that they are will be accessible to the Agency for such verification. This process has been slow due to lack of equipment and difficult working conditions. The verification will be carried out as soon as the reorganization of the yellowcake containers has been completed.

B.1.2. Imports of Other Nuclear Material

18. Libya has declared that it had exported approximately 100 kg of yellowcake to a nuclear-weapon State in 1985, in connection with the possible construction in Libya of a uranium conversion facility. In February 1985, the nuclear-weapon State shipped back to Libya approximately 39 kg of UF₆, 6 kg of U₃O₈, 6 kg of UO₂ and 5 kg of UF₄ (all masses refer to the uranium content). The uranium compounds were intended to have served as sample materials for the uranium conversion facility, but Libya has stated that those uranium compounds were never used in any way.

19. In January 2004, the UF₆ referred to above was placed under Agency seal and transferred to the United States of America, as part of an agreement between Libya, the United Kingdom and the USA for the removal of sensitive nuclear materials from Libya. The other three containers of uranium received from the nuclear-weapon State are still stored in Libya. Their declared masses have been verified by Agency inspectors, and are consistent with shipping documents provided by Libya. A sample of the UF₆ was analysed by the Agency and found to be natural uranium.

20. Through clandestine intermediaries, Libya also received UF₆ from another country: two small cylinders in September 2000 and a large cylinder in February 2001.⁵ Libya has stated that the three cylinders of UF₆ came from the same clandestine network that had provided Libya the centrifuges and related equipment (see below). Libya stated that the original agreement was for the provision of 20 tonnes of UF₆, but only the three cylinders mentioned above were actually received. The Agency has received information about this UF₆ from other Member States and is continuing to investigate.

21. Agency inspectors made non-destructive assay measurements of the two small cylinders in January 2004; these indicated that one small cylinder contained natural uranium and one contained depleted uranium. Those cylinders were subsequently shipped to the USA. The Agency has analysed samples of the UF₆ from both cylinders and has confirmed that one is natural uranium and the other depleted (0.3 per cent U-235).

22. In 2002, Libya imported approximately 16 kg of uranium compounds, mostly uranium acetate and uranium nitrate, for use as laboratory standards. The Libyan authorities have made these materials available for verification and the Agency has examined them and taken samples for further analysis. Laboratory analysis of the samples is not yet available. Libya has informed the Agency of the origin of the uranium standards and has indicated that they were acquired through foreign intermediaries. However, no billing or shipping documents pertaining to these materials are available. Labels on the bottles containing the uranium compounds do not identify the address of the manufacturer. In addition, the labels on most of the bottles identify the contents as non-nuclear compounds, not uranium.

B.2. Uranium Conversion

B.2.1. Uranium Conversion Experiments at Tajura

23. According to Libya's declarations, small scale uranium conversion experiments were carried out between 1983 and 1989, and to a limited extent again after 1994, at the TNRC. As described by Libya, the purpose of the experiments was to gain experience in the dissolution of yellowcake, the purification of uranium solutions and the production of uranium tetrafluoride and uranium metal. In this regard, Libyan scientists worked closely with foreign counterparts, including some from a nuclear-weapon State, between 1983 and 1986.

⁵ The small cylinders are Type 5A and contain about 25 kg of UF₆ each. The large cylinder is Type 30B and contains about 1600 kg of UF₆.

24. To provide feed material for these experiments, one container of imported yellowcake was brought to Tajura from the yellowcake storage location at Sabha. According to Libya, over the years, approximately 19 kg of yellowcake was removed from the container in small batches for dissolution and processing. An additional 15–20 kg of yellowcake was brought to Tajura as samples from other yellowcake drums stored at Sabha. The main compounds produced were uranyl nitrate, UO_2 and UO_3 , UF_4 and uranium metal. Agency inspectors have verified Libya's current holdings of these compounds at Tajura and have found them to be consistent with Libya's declarations. Libya has stated that there is only limited documentation pertaining to the uranium conversion experiments available.

25. Libya has declared that no UF_6 was produced in the Tajura uranium conversion experiments. However, some literature surveys were done and a group of Libyan scientists studied fluorine chemistry in the mid-1980s in an East European country.

B.2.2. Procurement of a Uranium Conversion Facility

26. Based on information provided by a European company to the Agency, the Agency has concluded that Libya's efforts to procure a uranium conversion facility began no later than 1981. In that time frame, Libya was planning to construct a nuclear power industry and was openly pursuing the procurement of nuclear power plants and fuel cycle technology from several countries. In fact, in 1982 Libya requested assistance in uranium fluoride production from the Agency's Department of Technical Cooperation.⁶

27. In 1981, a West European company conducted negotiations with Libya concerning the construction of a yellowcake conversion pilot plant to be located at Sabha. The pilot plant would have been designed to process 100 tonnes per year of yellowcake into UF_4 . One option under the pilot plant proposal would have also provided buildings to house UF_4 to UF_6 conversion equipment (but not the equipment itself), and would have provided buildings and equipment to produce low enriched UO_2 from low enriched UF_6 . The same company also provided Libya with a proposal to construct a related set of laboratories, to be located mainly at Tajura, but possibly at Sabha as well. Four different types of laboratories were discussed: uranium ore analysis and processing; yellowcake to UF_4 conversion; uranium metal production; and uranium metallography. As part of the proposal, the company provided many detailed drawings of buildings and chemical processes. Negotiations were terminated at some point, and neither the pilot plant nor the laboratories were built. Libyan authorities have confirmed that negotiations with the company in question took place and have provided some related documents.

28. In 1983, Libya began to negotiate with a nuclear-weapon State for the construction of a conversion facility to produce 120 tonnes of natural UF_6 per year. Libya has made a copy of the preliminary contract available to the Agency, but has stated that no technical plans or documents related to this project can be found in Libya. According to Libya, the proposed plant was not built.

29. In its December 2003 "time line", Libya indicated that in 1984 it had ordered from a Far Eastern country, a modular uranium conversion facility (UCF), built to Libyan specifications. It further declared that the modules began to arrive in Libya in 1986, and were stored at various locations around Tripoli. In 1998 most of the modules were moved to Al Khalla (Site C), a suburb of Tripoli, and assembled. Some cold testing (i.e. not using uranium) was carried out in early 2002. For reasons of security and secrecy, Libya decided to move the modules to Salah Eddin (Site D), another suburb of Tripoli, and that is where they were first viewed by Agency inspectors in December 2003. In late

⁶ The Department of Technical Cooperation did not provide the requested assistance in uranium fluoride production, but did provide a small project for training in fluoride chemistry in 1985.

January 2004, all of the modules were shipped to the USA under the terms of an agreement between Libya, the United Kingdom and the USA.

30. In late February 2004, Libya provided the Agency a more detailed declaration concerning the UCF, mainly dealing with its assembly and disassembly between 1997 and 2003. The declaration indicates that the facility was delivered without instructions for assembly or operation. The facility could process approximately 30 tonnes of uranium ore concentrate per year into UO_2 , UF_4 or uranium metal. Libya had ordered a UF_6 production capability, but it was not delivered. The Agency is now investigating this matter. Libyan scientists have stated that in 1995, when the nuclear programme was reinvigorated, they requested that the Libyan Government acquire fluorination equipment to produce 15–30 tonnes of UF_6 to complement operation of the UCF, but that no such equipment was acquired.

31. Libya assembled and tested the UCF with non-nuclear materials, but has declared that no uranium feed material was introduced into the UCF. The Agency has taken environmental samples from the surfaces of the UCF components and has found no evidence of uranium processing.

B.3. Uranium Enrichment

B.3.1. Gas Centrifuge Enrichment Development

32. Libya has been pursuing the development of gas centrifuge technology since the early 1980s, when Libyan scientists, assisted by a European expert with relevant experience, started to design a gas centrifuge for uranium enrichment. Centrifuge components remaining from that period indicate that experiments were conducted with two types of centrifuge. Libya has stated that a viable working centrifuge was not produced during the early period. Environmental samples taken from early centrifuge components show no indication of uranium, consistent with Libya's statement that no UF_6 was used in the early development work. A small number of unfinished, maraging steel cylinders were also found in Libya's inventory of centrifuge parts from that period. The cylinders have the same diameter as the more advanced L-2 centrifuges supplied to Libya in September 2000 (see below). The origin of these early maraging steel cylinders is still under investigation.

33. Libya started importing L-1 centrifuges in 1997 through foreign intermediaries. Libya has declared that a total of 20 complete L-1 centrifuges, and most of the components for an additional 200 L-1 centrifuges, except for aluminium rotors and magnets, were acquired by Libya from a supplier State. Most of the other components and supporting equipment came from elsewhere through the clandestine procurement network. Agency discussions with external sources have confirmed this information. Libya conducted two successful high-speed tests of L-1 centrifuges between May and December 2002. Libya has stated that no nuclear material was used during any of the tests.

34. Environmental samples show low and high enriched uranium contamination on the floor of the L-1 centrifuge test area at Al Hashan (Site A), on centrifuge and crashed rotor parts, on feed and take-off systems and on a mass spectrometer used in the tests. It is known that at least one of the L-1 casings used for mechanical testing was in service until 1987 in the supplier State. Most of the U-236 content is similar to that found in the State that had supplied the L-1 centrifuge components. However, the Agency needs to confirm this conclusion by taking and analysing environmental samples from that supplier State. In addition, the mass spectrometer may have been used elsewhere before it arrived in Libya in the early 1980s. The exact source of the enriched uranium contamination is still being investigated.

35. Libya has declared that two L-2 test centrifuges, together with small UF_6 cylinders, were imported in September 2000 from the supplier State. Agency discussions with the supplier State have confirmed this information. These imports were also arranged through the offices of foreign

intermediaries. Libya has stated that it had placed an order for 10 000 additional L-2 centrifuges, the first components of which started to arrive in December 2002, from elsewhere through the clandestine procurement network. By December 2003, when Libya announced its new policy on eliminating its weapons of mass destruction programmes, a large number of centrifuge components had already been delivered. The components delivered to Libya did not constitute complete L-2 centrifuges, however, since no rotating parts had yet been received. The inventory of components delivered to Libya is still being assessed and the origin of the components investigated.⁷

36. The L-2 centrifuge components and supporting equipment examined in Libya by the Agency in January 2004 were found boxed and unopened, tending to confirm Libya's statement that no assembly or testing work had been carried out by Libya on the L-2 centrifuges. HEU contamination was found on the initial two complete L-2 centrifuges, as well as on some of the L-2 components.

37. Two mass spectrometers were brought to Libya in the early 1980s by a foreign expert to support the early centrifuge development work. Two new mass spectrometers were obtained through the foreign procurement network in late 1999 or early 2000.

38. All centrifuges, centrifuge components and associated sensitive equipment were shipped out of Libya to the USA between late January and early March 2004. Several items were placed under Agency seal and all items remain available for future Agency examination, should that prove necessary.

B.3.2. Centrifuge-Related Training

39. Libya has stated that centrifuge-related training had been provided by foreign experts at locations in Africa, Asia, Europe, the Middle East and Southeast Asia. Training was provided on power systems, mass spectrometers, welding, gas handling, quality control, computerized machining techniques and heat treatment of materials. Libya has stated that no practical training was provided on the actual operation or assembly of centrifuges.

40. Libya has stated that Libyan engineers studied a complete set of supporting equipment for the 10 000 L-2 centrifuges during a training visit to another African country. That equipment was apparently intended for shipment to Libya, but was not sent in light of Libya's change of policy. The Agency is still investigating the details of these training programmes and Libya's participation in them.

B.3.3. Centrifuge Enrichment Documents

41. Libya has stated that it had obtained one L-2 centrifuge drawing through the foreign procurement network. This drawing, together with one L-1 centrifuge schematic and some other centrifuge documents, was given to Agency inspectors in January 2004, and transferred to the USA under Agency seal.

42. Libya subsequently turned over to the Agency an additional L-1 centrifuge drawing, a computer hard-drive and two compact disks with centrifuge-related information. The hard-drive contains a promotional film depicting the work of a nuclear laboratory in the supplier State. One disk contains a full set of L-1 centrifuge drawings, together with assembly and test instruction manuals. The second

⁷ One container of L-2 components actually arrived in Libya in March 2004, having escaped the attention of the State authorities that had seized the cargo ship *BBC China* in October 2003. Libya notified the Agency of the arrival of this container and it has since been shipped out of Libya.

disk contains similar data for the L-2 centrifuge. The drawings included on these disks are still being evaluated. Libya has stated that it has no further centrifuge drawings or related documents.

B.4. Irradiation of Uranium Targets

43. The small uranium targets irradiated in the Tajura Research Reactor were placed under Agency seal in February 2004 and shipped to the USA in April 2004. Libya has stated that plutonium was separated from two of the targets. The Agency has taken environmental samples in the hot cells used for target dissolution, target processing and plutonium separation. The results of sample analysis are not yet available.

B.5. Nuclear Weaponization Issues

44. Libya has reiterated that the documents and drawings transferred to the USA under Agency seal at the end of January 2004 were the only ones related to nuclear weapon design and fabrication ever available to Libya, and stated that in particular, unlike the centrifuge enrichment information, it did not receive any information in electronic form. It is practically impossible for the Agency to prove or disprove such statements

45. Libya has also reiterated that although it had received these documents in late 2001 or early 2002, it did not take any steps to act on the information, nor even to assess its credibility or practical utility. This is surprising given the substantial effort that was being devoted to uranium enrichment. It would have been logical for the Libyan authorities to review Libya's indigenous capabilities in the necessary technical areas and to consider other resources that might be needed to make use of the nuclear-weapons related information.

46. In order to verify Libya's declarations with regard to nuclear weaponization, the Agency has continued to review Libya's nuclear capabilities with the cooperation of the Libyan authorities. Since the last report to the Board, the Agency requested and was granted access to additional potentially relevant sites (such as, universities, institutes and factories). Several of those sites were identified through detailed analysis of the missile-related declaration that Libya provided to the Agency.

47. Although some of the sites visited by the Agency have technical assets capable of supporting development associated with a nuclear weapon programme (e.g. machine tools, other equipment and laboratories), none of the sites had any dedicated nuclear weapon component production capability. From an organizational point of view, the Libyan authorities have stated that no institutional interaction took place between the entity in charge of the nuclear weapon programme (the National Board for Scientific Research (NBSR)) and the organization responsible for the missile activities (Central Organization for Electronic Research (COER)). Within the two universities visited by the Agency, only the Chemical Department of the Faculty of Sciences of the Al Fatah University (Tripoli) has a research laboratory and associated equipment that would be of some use for supporting nuclear weapon related research and development. In fact, the professional institutes belonging to NBSR (Casting, Welding, Advanced Centre of Technology and Higher Technical Centre for Training and Production) have significantly more relevant capabilities than the universities. None of the equipment inspected would be on nuclear export control lists. The Agency was provided with the government orders related to establishing the NBSR institutes, all created in the 1994–1998 time frame. The Libyan authorities have stated that these institutes were not associated with the nuclear programme, although the machine shop for centrifuge manufacture (Site E) was collocated with one of them.

48. The Agency also requested access to installations of the Great Man-Made River (GMMR) project, given the persistent open source references to the association of these installations with

nuclear or other weapons of mass destruction activities. No other present use was identified than the GMMR project – transport of water over thousands of kilometres for irrigation and other purposes.

49. The series of inspections carried out since Libya's 29 December 2003 declaration has not led to the identification of specific facilities involved in nuclear weapon component design, manufacturing or testing. Some additional analytical and field activities, as well as feedback from third parties on questions raised by the Agency, and results of forensic analysis of nuclear weapon related documents will be necessary in order for the Agency to strengthen its assessment of whether Libya had taken any

C. Corrective Actions Taken by Libya and Other Information Provided

50. In the February report to the Board of Governors, several corrective actions were identified that should be taken by Libya in order to come into full compliance with its Safeguards Agreement. The status of the corrective actions is as follows:

- (a) Libya has provided draft inventory change reports (ICRs) for the import of UF₆ in 1985, 2000 and 2001;
- (b) Libya has provided draft ICRs for the import of other uranium compounds in 1985 and 2002;
- (c) Libya has provided the necessary accounting reports related to the uranium conversion experiments at Tajura;
- (d) Libya has provided ICRs and other relevant accounting reports related to the fabrication, irradiation and processing of uranium targets at Tajura;
- (e) Libya has provided design information for the pilot centrifuge facility at Al Hashan;
- (f) Libya has provided design information for the UCF and the locations at Tajura where uranium conversion experiments have taken place; and
- (g) Libya has provided design information for the hot cells associated with the research reactor at Tajura where irradiated uranium targets were processed.

List of Nuclear Research Related Locations in Libya

- Site A The original centrifuge R&D location (Al Hashan)
- Site B The new location for centrifuge R&D, also used to store UF₆ (Al Fallah)
- Site C The original site for the Uranium Conversion Facility (UCF) (Al Khalla)
- Site D The new site for the Uranium Conversion Facility (Salah Eddin)
- Site E The machine shop for centrifuge manufacture (Project 1001, Janzour)
- Site F The yellow cake storage (Sabha)
- Site G The initial storage for the UCF and storage of centrifuge equipment from the 1980s experiments (Sawani)
- Site H The first storage location for Uranium Conversion Facility modules (Al Karamia)
- Site I The desalination production plant (Tajura)
- Site J The National Board of Scientific Research (NBSR) headquarters
- Site K The original construction materials storage location (El Ezeizia)
- Site L Tajura Nuclear Research Centre (TNRC)

Sites Inspected in the course of the Assessment of Nuclear Weapon Development Capabilities (January 2004)

1. Site J, NBSR headquarters
2. Site K, Al Ezeizia Storage Site
3. Site L, Tajura Nuclear Research Centre
4. Al Ezeizia artillery refurbishment site
5. General Company for Engineering Industries (Site 47)
6. Rabta Engineering Industrial Complex
7. Rabta Pharmaceutical Plant
8. Rabta “new service building” (adjacent to the Pharmaceutical Plant)
9. Rabta Factory 69 Bomb Filling Plant
10. Tarhuna rocket engine test stand
11. Tarhuna solid propellant pilot plant
12. Central Organization for Electronic Research (COER), Al Fajer Alga Did (Factory for SCUD Maintenance and Modification)
13. COER, Ber Osta Milad (Tripoli liquid rocket plant)
14. Centre for Remote Sensing and Space Science
15. Advanced Centre of Technology
16. Casting Institute
17. Polymer Institute
18. Welding Institute

Sites Inspected in the course of the Assessment of Nuclear Weapon Development Capabilities (April 2004)

1. Central Research Laboratory, Majara Centre, Central Organization for Electronics Research (COER)
2. Bin Hayan Cold Engine Test Facility, Majara Centre (COER)
3. Production Department, Jamahiriya Manufacturing Centre (COER)
4. Industrial Service Department, Jamhiriya Manufacturing Centre (COER)
5. Quality Control Laboratory, Jamhiriya Manufacturing Centre (COER)
6. Casting Institute (NBSR) (already inspected in January)
7. Higher Technical Centre for Training and Production (NBSR), Janzour
8. Industrial Research Centre, Tajura
9. Al-Fateh University, Tripoli
 - Faculty of Sciences
 - Faculty of Engineering
10. Nassr Nations University (near Tarhuna)
11. Great Man-Made River (GMMR) Project
 - Abu Aisha Reservoir, near Tarhuna
 - Pumping Station

Statement by the President of the United Nations Security Council⁸

At the 4949th meeting of the Security Council, held on 22 April 2004, in connection with the Council's consideration of the item entitled "Decision of the Libyan Arab Jamahiriya to abandon its weapons of mass destruction programmes", the President of the Security Council made the following statement on behalf of the Council:

"The Security Council takes note of resolution 2004/18 of the Board of Governors of the International Atomic Energy Agency (IAEA) regarding the implementation of the safeguards agreement of the Socialist People's Libyan Arab Jamahiriya, a state party to the Nuclear Non-proliferation Treaty, by which the Board requested the Director-General of the IAEA to report a case of non-compliance to the Security Council for information purposes only, while commending the Socialist People's Libyan Arab Jamahiriya for the actions it has taken to date and those it has proposed to take to remedy it.

"The Security Council welcomes the decision by the Socialist People's Libyan Arab Jamahiriya to abandon its programmes for developing weapons of mass destruction and their means of delivery and the positive steps taken to fulfil its commitments and obligations, including its active cooperation with IAEA and the Organization for the Prohibition of Chemical Weapons (OPCW).

"The Security Council takes note that in its resolution 2004/18 the Board of Governors of IAEA recognized the decision of the Socialist People's Libyan Arab Jamahiriya as a step towards the realization of the goal of an Africa and a Middle East free of weapons of mass destruction and at peace.

"The Security Council reaffirms the need to seek to resolve proliferation problems by peaceful means through political and diplomatic channels.

"The Security Council welcomes existing and future efforts to assist the Socialist People's Libyan Arab Jamahiriya in this task and expresses the hope that the steps taken by the Socialist People's Libyan Arab Jamahiriya would facilitate and improve international cooperation with and enhance the security of that country.

"The Security Council encourages the Socialist People's Libyan Arab Jamahiriya to ensure the verified elimination of all of its weapons of mass destruction programmes. It welcomes the roles played in that regard by IAEA and OPCW in facilitating the fulfilment of the Socialist People's Libyan Arab Jamahiriya's commitments, demonstrating the importance and usefulness of existing international treaty regimes.

"The Security Council expresses the hope that resolution 2004/18 of the Board of Governors of IAEA will be implemented in the spirit of continued cooperation."

⁸ United Nations Security Council document S/PRST/2004/10 of 22 April 2004.