

**RECORD OF MEETING**  
between Project Officers and Technical Experts  
to review the implementation process for the AMEC Integration Project  
(1.2, 1.3, 1.4, 1.5, 1.5-1)

November 12-15, 2001

Moscow

## INTRODUCTION

1. Representatives of the Department of Defense of the United States of America, and of the Ministries of Defence of the Kingdom of Norway and the Russian Federation (Attachment 1) have reviewed three main issues in the course of their meeting:
  - the progress of work to create a Mobile Pre-treatment Facility for the initial treatment of solid radioactive wastes (the “MPF-SRW”) to be installed at the Russian Navy’s Polyarninsky Shipyard.
  - the progress of work to create a complex for pre-treatment of radioactive wastes (the “PPP-RAO”), including its individual components, design and infrastructure at the Russian Navy’s Polyarninsky Shipyard.
  - installation of the automated radiation monitoring system (PICASSO) at RTP Atomflot.
2. The Project Officers and Technical Experts discussed the progress of work to implement the decisions stated in the Record of Meeting of Project Officers and Technical Experts of August 15-17, 2001 held in Murmansk and of the ROM of the AMEC Steering Group meeting of August 20-22, 2001 held in Svanhovd, Norway in relation to the AMEC Integration Project (1.2, 1.3, 1.4, 1.5.1).

## PROGRESS REVIEW AND ACCOMPLISHMENTS

- Technical Assignment (TZ) delivery
  1. The Russian Party has developed, approved and submitted November 9, 2001 to the American and the Norwegian Parties the following:
    - an Excerpt of the Technical Assignment (TZ) for the design, construction, test operation and commissioning of a complex for pre-treatment of radioactive waste at the Polyarninsky Shipyard of the RF Navy ( PPP RAO);
    - an Excerpt of the Technical Assignment (TZ) for the development, manufacture and commissioning of the MPF-SRW;
    - a copy of the schedule of Construction and Commissioning of Radioactive Waste Pretreatment Facilities at the Polyarninsky Shipyard (PPP RAO) ;
    - an Excerpt of the Technical Assignment (TZ) for the design, construction, trial operation and commissioning of a SRW storage facility at Polyarninsky Shipyard;
    - an Excerpt of the Technical Requirement (TU) for development, manufacture and construction of a storage facility for unused SRW containers;
    - an Excerpt of the Technical Assignment for the installation of a radiation monitoring system (RMS) at the Polyarninsky Shipyard.

Due to the short review time, NO and US parties will provide written evaluation of the submittals at a later time.

2. The excerpt of the TZ delivered in August 2000 specifies operation of the MTF-LRW at ambient temperatures above +1°C. This excludes outdoor operation of the facility in winter conditions at Polyarninsky Shipyard. Russian side shall revise the TZ for MTF-LRW to be integrated into the PPP-RAO and submit TZ to the US and NO parties.
- MPF-SRW (Project 1.3)
    1. Russian experts have performed a preliminary examination of a Technical Design for the MPF-SRW. All 50 pages of comments generated during this review have been accepted and have been incorporated in the design. After the developer of the Technical design has obtained clearance from the Export Control Committee of the Russian MOD, the Technical Design shall be submitted for approval by the Russian Ministry of Defence. Technical design for MPF-SRW is approved and does not require any technical changes.
    2. The designer (Onega) presented the technical safety justification (TOB) to the US and NO technical experts and the RF Navy. The RF Navy representatives and technical experts agreed that the TOB and operational requirements are complete and acceptable.
    3. Storvik and Zvezdochka (S&Z) orally presented the technical design to the AMEC Co-Chairs, AMEC 1.3/1.4 Project Officers, RF Navy and technical experts and answered specific questions on the design and operation of the MPF-SRW. Technical design does not provide for a forklift or metal decontamination module.
    4. The technical experts reviewed the TZ “excerpts” provided by RF side on 9 November 2001. They provided a comparison of this new TZ with the list of changes agreed upon in the 17 August 2001 ROM (Murmansk) and the previous (August 2001) version of the TZ. This comparison is summarized in Attachment 2. RF Navy accepted that not all changes agreed upon and documented in the Murmansk ROM had been made in the new TZ and agreed to correct this issue.
    5. RF Navy agreed that the new TZ was not a complete list of requirements (i.e., was an “extract”), but committed that none of the missing information will require changes or additions to the MPF-SRW design or cause any cost/schedule impacts. They further agreed that the final TZ will be modified following approval of the MPF-SRW design in accordance with established procedures.
    6. The TZ requires five years of spare parts and accessories for the MPF-SRW. This requirement is not currently funded and remains to be resolved.
    7. ICC Nuclide stated that the cost of designing/building each pad for the PPP-RAO individually would be 1% greater than the cost of designing/building a single, integrated pad for the entire complex.

8. The RF Navy and technical experts agreed upon the certification and licensing procedures for the MPF-SRW as follows:
  - a. All MPF-SRW components requiring certification must be certified by the suppliers.
  - b. Certification of the MPF-SRW will be discussed at future meetings.
  - c. Licensing (permit) for operation of the MPF-SRW will be obtained by the Polyarninsky Shipyard prior to hot testing.
- SRW METAL CONTAINERS (Project 1.4)
  1. All parties recognize the fact that the steel storage and transportation containers are a key element of the PPP RAO:
    - The PST1A-6 metal containers for SRW storage and transportation have been certified (certificate No.RU/2082/A-96 of 1 August 2001);
    - the Russian Navy will be able to accept the containers for storage pending use, provided the following conditions are met:
      - a. documents listed in Attachment 4 are provided to the RF Navy;
      - b. the design agent of the containers completes the revision of the operation documentation package for the containers in accordance with the comments made by the Russian Navy;
      - c. delivery of 70 200-L drums along with containers with the additional commitment by NO to provide future drums to support and keep pace with MPF-SRW operational demand, but not exceeding 2800 pcs.
      - d. delivery of containers, drums and operational manuals to Polyarninski Shipyard of the RF Navy.
- PICASSO (Project 1.5-1) and dosimeters (Project 1.5)

Polyarninsky shipyard:

1. An extract of the approved TZ for the “Installation of a radiation monitoring system (RMS) at the Polyarninsky shipyard” (RMS PICASSO) was provided by the RF Delegation and reviewed by the NO and US Delegations. The following comments were discussed:
  - a. Point 3.2: The TZ does not mention any procedure for data transfer to NO and US.
  - b. Point 4.5.3 and 4.16.2 discuss the supply of spare and expendable parts. The NO and US obligations will be defined in the contract negotiations.
2. The technical experts discussed and proposed the time schedule for the installation of PICASSO at Polyarninsky shipyard. This is attached to the ROM (Attachment 3).
3. The design for installation of the PICASSO monitoring system is part of the PPP-RAO design documentation. The US has funded the design of the PICASSO system at Polyarninski Shipyard. NO and US will finance the installation of the PICASSO system at Polyarninski shipyard.

RTP Atomflot:

4. ICC Nuclide provided an oral description of the conceptual design of installation of PICASSO at RTP Atomflot (ARMS-SP-LRW).

5. The TZ for ARMS-SP-LRW has been prepared by ICC Nuclide and coordinated with IBRAE RAN and RTP Atomflot. It has been submitted for coordination to various authorities including: UGN YaRB (aka MOD GAN), Mintrans, Minatom, and the RF Navy. Once all signatures are secured it will be submitted to the RF MOD Principal for approval. After approval, an excerpt of the TZ will be submitted to the NO and US parties.
6. Minatom has funded work on the technical proposals for ARMS-SP-LRW under a contract from ICC Nuclide to IBRAE RAN. This should be completed by December 15, 2001 and will then be provided to the NO and US experts. These reports will then be a subject of discussion at the next meeting.
7. The experts discussed, reviewed and agreed upon the scope of work for a new contract to be let by NO on, "Development of technical design and installation design for the automatic radiation monitoring system of interim storage pad for Naval SNF casks and LRW processing facility at RTP Atomflot (ARMS-SP-LRW)".

#### REPORT TO STEERING GROUP

- Polyarninsky Shipyard complex (PPP-RAO) funding issues
  1. The project officers and the technical experts acknowledged the disparity between the estimated cost for the integrated projects at Polyarninsky shipyard (PPP-RAO) and the available funding from the AMEC parties. The main issues evolved from additional requirements stipulated by the final TZ (AMEC project 1.3 – Mobile Pre-treatment Facility for SRW) and an undefined cost of design and construction of PPP-RAO. A key next step towards defining the total cost of the infrastructure required to support the PPP-RAO is the completion of a Justification for Investment, including an Environmental Impact Evaluation (OVOS).

At this time, there is no US or NO funding available to fund portions of the PPP-RAO that are not parts of the MPF-SRW, SRW storage and PICASSO. Additionally, Norway does not have legal coverage for supporting the funding of PPP-RAO infrastructure. NO and RF will start the process to resolve this issue through the bi-lateral legal agreement and propose a new AMEC project to address the infrastructure improvements in the Polyarninsky complex (PPP-RAO) to be approved interessionally by the Principals.

2. Design and research activities shall be implemented with consolidated funding of the AMEC Program and the RF state budget. The US will allocate \$55K pending the allocation of additional Russian funding. Russian side has applied for the additional funding necessary to complete the design. At the AMEC Steering Group meeting (December 6-7, 2001), Russian side will inform NO and US parties of the financial conditions for implementation of design and research activities.

3. Prior to the Steering Group meeting, RF, US and NO will study possibilities for funding of PPP-RAO construction.
  4. US and NO stated that further RF financial commitment is needed in order for them to commit additional funding for the MPF-SRW or other components of the PPP-RAO. Without this commitment by February 1, 2002, the plans for implementing AMEC project 1.3 (MPF-SRW) at Polyarninsky shipyard may be stopped. US and NO state that continuation is contingent upon providing them with the detailed Russian standard cost breakdown (in approved Russian Federation format) for the PPP-RAO, including pads and infrastructure.
  5. A plan for the use of the MPF-SRW to process SRW from the whole region with clear cooperation between RF ministries needs to be prepared by the authorized RF MOD contractor ICC Nuclide and presented at the next SG meeting. This should justify the use of the facility to process waste produced at the shipyard as well as waste from other locations in the region and show that the facility will operate to its full capacity.
  6. Phase II, as currently defined, includes the Mobile Treatment Facility for Liquid Radioactive Waste (MTF-LRW), storage for unused containers, and associated infrastructure. There is a need to provide funding by all parties for this future phase, as well.
- MPF-SRW design review conclusions
    1. The Technical Assignment (TZ) for the MPF-SRW will be amended to accommodate the proposals developed and approved at the August 2001 meeting in Murmansk and at the Steering Group meeting in Norway. After the Technical Design has been approved and cleared with the relevant authorities the TZ will be further revised to reflect the scope of the final design. Following this, the appropriate authorization shall be formalized and the amended TZ for submission to the American and the Norwegian Parties.
  - SRW container delivery
    1. In the nearest future, the above conditions for transfer of metal containers to the RF Navy will be carried out (procedures for custody transfer specified by the Russian side are given in Attachment 4).
    2. The parties will consider the supply of 200-L drums an important priority to support the operations of the MPF-SRW.
  - PICASSO and dosimeters
    1. On delivery, review and approval of the Tasks 1 and 13 Reports for PICASSO at the Polyarninsky shipyard as required in the contract between BNL and ICC Nuclide, a meeting will be held to start contract negotiation for installation.
    2. The issue of access to data from a radiation sensor located off-site, but close to the city, will be regulated in the Terms and Conditions of the installation contracts.

3. A coordination meeting with AMEC project 1.1-1 will be set up after receiving materials from the technical reports from ICC Nuclide.
4. The Project 1.5 contract for the “Procurement, delivery, installation, demonstration, and testing operation of means of individual dosimetric monitoring of personnel under the Arctic Conditions” was signed 6 November 2001.

## CONCLUSION

1. The most pressing issue remaining with the Polyarninsky Shipyard complex continues to be the total cost of the effort and the available funding.
2. In order to ensure implementation of the integrated project for development of PPP-RAO at Polyarninski Shipyard, RF, NO and US parties shall undertake measures to seek funding with a view to implement design, research and construction activities, as well as delivery of MPF-SRW and MTF-LRW.
3. By February 1, 2002, the parties shall conduct necessary consultations on possibilities to allocate funding for PPP-RAO development in view of completion of Phase I in October 2002.

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RF Navy

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Dr T Engøy  
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## Attachment 1

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## Attachment 2

### MPF-SRW (Project 1.3)

#### **Comparison Of TZ Changes With Those Agreed Upon And Documented In The 17 August 2001 Murmansk Project Officers Record Of Meeting (ROM)**

<b>Item</b>	<b>Reference</b>	<b>Requested Changes (Murmansk ROM)</b>	<b>Status</b>
1	Murmansk ROM, pg. 3, 2.a	Section 1.5: Paragraph concerning Nuclide's expertise removed.	Reference not removed.
2	Murmansk ROM, pg. 3, 2.b	Section 6.1 and 6.2 and 6.3: To be removed from TZ and replaced with a new section defining procedures for approvals, expert evaluations and testing of the MPF SRW.	Incorporated.
3	Murmansk ROM, pg. 3, 2.c	The Russian side clarified that section 4.19.4 actually requires that the emission limits of the MPF-SRW must be stated in the MPF-SRW documentation as opposed to development of a full environmental impact analysis (OVOS)	Clarification issue, no changes required.
4	Murmansk ROM, pg. 3, 2.d	Section 4.5.3: Warranty period limited to two years after commissioning.	Incorporated.
5	Murmansk ROM, pg. 3, 2.e	Section 4.19.3: Concerning the PICASSO interface will be supported by project 1.5-1	No change required.
6	Murmansk ROM, pg. 3, 2.f	Section 6.6: Russian side agreed that the requirement of military supervision of MPF-SRW construction by military acceptance authorities is not needed for the MPF SRW.	This agreement was changed at the Kirkenes Steering Group Meeting where the requirement for Military Supervision was retained.
7	Murmansk ROM, pg. 3, 2.g	The Russian side agreed that there is no need for the supervision of the MPF-SRW operation by the design bureau (Onega)	Section 6.18 of the new TZ requires designer supervision for all MPF-SRW operations.
8	Murmansk ROM, pg. 3, 2.h	RF side will modify the TZ according to the established procedure in accordance with decisions documented in this ROM by September 15, 2001.	Revised TZ was delivered 11/9/01. Document was not completely in accordance with decisions documented in the Murmansk ROM.

## Summary Of TZ Modifications Not Previously Discussed With The US/NO

<b>Item</b>	<b>Reference</b>	<b>Changes</b>	<b>Impacts</b>
1	Title pg.	Revised TZ document does not contain required signatures.	Signatures are required for document to be valid.
2	Title pg.	Title sheet of TZ states that the document provided to the US/NO project participants is an extract from the complete TZ.	Implies US/NO does not have complete document/requirements
3	Section 1.3	<p>List of reference documents has been changed.</p> <p>Old TZ references the following documents:</p> <ul style="list-style-type: none"> <li>- Decree of the Government of the Russian Federation dated 28.05.98 No. 518 “On Measures of Acceleration of Disposal of Nuclear Submarines and Surface Vessels Having Nuclear Power Plants Decommissioned from the Navy, and Ecological Rehabilitation of Radiation-Hazardous of the Navy”.</li> <li>- Russian-Norwegian agreement on cooperation in the field of disposal of nuclear submarines and increase of nuclear and radiation safety in the Northern Region of Russia dated 26.05.98.</li> <li>- The program of Arctic Military Environmental Cooperation (AMEC Projects 1.2, 1.3, 1.4, 1.5-1).</li> <li>- Feasibility study creation of an industrial infrastructure for collection, transportation, processing, storage and burial of radioactive wastes and non-recyclable spent nuclear fuel in the Northern Russia.</li> <li>- Proposals of the traveling interdepartmental commission on placement of infrastructure sites for handling RW, SNF and RS in the Murmansk Oblast dated June 5-9, 2000.</li> </ul> <p>The new TZ references the following:</p> <ul style="list-style-type: none"> <li>- The instructive document of the Russian Federation Government “On Disposal of Nuclear Submarines and Marine Ships with Nuclear Power Plants.</li> <li>- Arctic Military Environmental Cooperation Program (AMEC Programs 1.2, 1.3, 1.4, 1.5-1)</li> </ul>	Unknown impact.
4	Section 1.6	<p>The old TZ lists the following requirements for the contractor: proposals; development, coordination, and approval of the design documents; manufacturing, certification and delivery of the MPF SRW; and training for personnel.</p> <p>The revised TZ only lists a requirement for the delivery of the MPF-SRW by the contractor.</p>	Requires clarification. Why have the other requirements for the contractor been removed?
5	Section 2.2.3	The old TZ lists the requirement to develop the MPF-SRW per the ESKD standards. The new TZ is less specific and requires the MPF-SRW to conform with established procedures.	Required clarification. Old TZ provided more specific direction.

## Summary Of TZ Modifications Not Previously Discussed With The US/NO - Continued

6	Section 2.2.6	<p>The old TZ lists a requirement for licensing of the operating organization.</p> <p>The new TZ changes this to requiring to commissioning of the MPF-SRW for operations.</p>	No impact.
7	Section 4.20	The new TZ requires the MPF-SRW to conform to the basis of regulatory, organizational, and instructive documents in force in the Russian Ministry of Defense.	This reference is vague and should be clarified or removed.
8	Section 6.1	The new TZ lists the following new requirement: The procedure for carrying out and acceptance of the experimental development work shall be in compliance with the state standards of Russia.	No impact.
9	Section 6.2	The new TZ has included the requirement that the MPF-SRW documentation shall be submitted to Nuclide and bodies of the Ministry of Defense of Russia.	Clarification, impact to be determined.
10	Section 6.6–6.14	The requirements listed in these sections of the TZ have been added in response to a request in the Murmansk ROM to remove the classified standards and replace it with the specific non-classified requirements.	No impacts.
11	Section 6.15	This section lists the requirement for the hot testing of the MPF.	The hot test should be done with representatives from the US/NO project teams to validate warrantee, test protocols, etc.
12	Section 6.16	This section of the TZ requires the MPF-SRW cold test to be performed at the Polyarninskiy shipyard. This is not consistent with the reference listed in section 5.5.	Requires a change to make requirement consistent.

## PICASSO (Project 1.5-1)

**Time schedule for the Installation of a radiation monitoring system (RMS) at the Polyarninsky Shipyard (RMS PICASSO)**

Phase	Procedures	Contractors/subcontractors	Due Date <sup>1)</sup>	Cost, RUB 1,000 <sup>2)</sup>	Deliverables	Funding Source
1	Development of technical reports for the RMS PICASSO system	<u>ICC Nuclide</u> ; 10 <sup>th</sup> Ship Repair Plant of the Russian Navy; 23 <sup>rd</sup> GMPI Laboratory of the Ministry of Defense; IBRAE RAN of the Russian Academy of Sciences; GI VNIIEET	17.08.01	2400	Report	AMEC Project 1.5-1
2	Development of technical design documentation for RMS PICASSO	<u>ICC Nuclide</u> ; 10 <sup>th</sup> Ship Repair Plant of the Russian Navy; 23 <sup>rd</sup> GMPI Laboratory of the Ministry of Defense; IBRAE RAN of the Russian Academy of Sciences; GI VNIIEET	2 months after contract initiation	450 (the exact cost will be determined based on contract negotiation)	Technical design documentation	AMEC Project 1.5-1
3	Development of a working project for installation of RMS PICASSO at Polyarninsky Shipyard.	<u>ICC Nuclide</u> ; 10 <sup>th</sup> Ship Repair Plan of the Russian Navy; 23 <sup>rd</sup> GMPI Laboratory of the Ministry of Defense; IBRAE RAN of the Russian Academy of Sciences; GI VNIIEET	3 months after contract initiation	450	Working design documentation	AMEC Project 1.5-1
4	The development of infrastructure installation work	<u>ICC Nuclide</u> ; IBRAE RAN of the Russian Academy of Sciences	9 months after contract initiation		Acceptance act on the installation of the RMS PICASSO system at Polyarninsky Shipyard	AMEC Project 1.5-1
5	Trial operation of RMS PICASSO	<u>ICC Nuclide</u> ; 10 <sup>th</sup> Ship Repair Plant of the Russian Navy	15 months after contract initiation		Approved decision of the trial operation act	AMEC Project 1.5-1
6	Commissioning of RMS PICASSO	<u>ICC Nuclide</u> ; 10 <sup>th</sup> Ship Repair Plant of the Russian Navy; IBRAE RAN of the Russian Academy of Sciences	18 months after contract initiation		RF MOD notification of RMS PICASSO commissioning	AMEC Project 1.5-1

Notes:

1). The due dates can be varied depending on financial provisions.

2). The cost of the work is to be determined according to the project estimate and design documentation.

## **Attachment 4**

### **Property transfer process to RF MOD**

Victor Sheremeteev detailed the following procedure for transfer of the equipment being made available for the Russian Navy under AMEC projects 1.3 and 1.4:

Property transfer process for PST1A-6 metal containers:

Submission of the following documents by the manufacturer to the customer (RF Navy) for its submission to the proper RF authorities (Export Control Board, Ministry of Economy, Ministry of State Property):

- i) contract for the manufacture of the containers, including all annexes
- ii) technical requirements document for the containers (TU in Russian)
- iii) test documentation for the containers, letter from manufacturer stating the total number of containers manufactured to date

Property transfer process for MPF-SRW:

Submission of the following documents by the manufacturer to the customer (RF Navy) for its submission to the proper RF authorities (Export Control Board, Ministry of Economy, Ministry of State Property):

- i) contract for the design and construction of the MPF-SRW, including all annexes
- ii) technical assignment document (TZ in the Russian) for the containers (TU in Russian)
- iii) design documentation / certificates for the MPF-SRW