

International project

“Raising Knowledge among Students and Teachers on Tailings Safety and its Legislative Review in Ukraine“*

PROGRAM

First Training

3–7 October 2016
Dnipro, Ukraine

Venue: National Mining University, D. Yavornitsky Av., 19

I. Training objectives are

- to educate students in the safety of tailings in the context of global experience, European standards and Ukrainian practice;
- to train the students of participating universities how to practically apply the TMF Methodology;
- to prepare tutors for further teaching of the TMF Methodology;
- to test the TMF Methodology and the developed education course; and
- to improve the educational materials and means.

II. Meeting timetable

1st day, October 3, 2016

Greeting the participants and project introduction Chairman: Mr. Dmytro Rudakov Secretary: Ms. Ganna Zadnipriana	
10:00 – 10:10	Acad. Gennadiy Pivnyak, Rector of National Mining University – Official opening
10:10 – 10:15	Mr. Gerhard Winkelmann-Oei – Welcoming remarks
10:15 – 10:20	The representative of Ministry of Ecology and Natural Resources of Ukraine – Welcoming remarks
10:20 – 10:25	The representative of Ministry of Education and Science of Ukraine – Welcoming remarks
10:25 – 10:35	Ms. Iryna Nikolaieva – Presentation of the previous TMF project results as a basis for raising knowledge on TMF safety

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10:35 – 10:45	Mr. Dmytro Rudakov – Project & Training objectives, introduction of training participants
10:45 – 11:00	Mr. Grygorii Shmatkov – Significance of the TMF problem for Ukraine and importance of the education course on TMF safety
11:00 – 11:15	Ms. Tetiana Zavgorodnia – DTEK practical experience in tailings management and TMF inspection
11:15 – 11:30	Ms. Tatiana Omelyanenko – TMF safety within the implementation of Directive 2006/21/EC
11.30 – 12:00	Coffee Break
	The UNECE Strategy for TMF problems
12:00 – 12.15	Ms. Claudia Kamke – The UNECE “Convention on the Transboundary Effects of Industrial Accidents” and “Water Convention“. Brief introduction of the JEG. UNECE online course on industrial accidents
12.15 – 12.30	Mr. Gerhard Winkelmann-Oei – The JEG strategy for Risk Management
12.30 – 13.00	TMF-related Problems in UNECE Countries - (Kazakhstan, Belarus, Serbia) Mr. Serik Akhmetov - TMF-related Problems in UNECE Countries- Kazakhstan Ms. Lubov Hertman - The EIA as a mayor tool for Safety of TMF <i>Proposed themes:</i> <i>Serbia - relevant topic in this regard</i>
13.00 – 14:00	Lunch
Significance of the TMF problem and world experience Chairman: Mr. Gerhard Winkelmann-Oei	
14:00 – 14:15	Mr. Philip Peck – Experience with TMFs in the UNECE region. How can the TMF Methodology improve the situation (by Skype)
14:15 – 14:30	Mr. Wolfhart Pohl – Walkover surveys in the TMF field or Global field experience with TMFs in relation to TMF Methodology (by Skype)
14:30 – 14:45	Mr. Zoltán Török – Experience with TMFs in Romania; prospects of the THI method application
14:45 – 15:00	Adam Kovacs – Lessons Learned in Hungary on TMF red mud disaster in Kolontar for the Danube River Catchment, ICPDR action plan on TMF issues
15:00 – 15:15	Mr. Konstantin Burjanadze – Experience of Georgian competent authorities in addressing the TMF problem
15:15 – 15:30	Ms. Kristina Sahakyan – Armenian situation on the TMFs’ operation
15:30 – 16:00	Coffee Break

TMF Regulatory aspects Chair: Mr. Grygorii Shmatkov	
16:00 – 16:15	Mr. Dmytro Rudakov – Review of the documents regulating the TMFs in different countries of the world. UNECE Guidelines for tailings safety
16:15 – 16:30	Ms. Tetiana Omelyanenko – The current legislative situation on TMFs in Ukraine – comparative analysis of Ukrainian and European legislation on TMF issues
16:30 – 16:45	Mr. Sergii Chumachenko – Review of the approaches to evaluate the safety of hazardous sites
16:45 – 17:00	Ms. Kateryna Okhotnyk – Method of evaluation of the "Tailings Hazard Index" as a tool for state management, Ukrainian TMFs Database; mapping of TMF sites
17:00 – 17:30	Discussion and closing remarks
20:00	Friendly Dinner

2nd day, October 4, 2016

JEG Meeting, 10:00 - 13:00 (in parallel with training)

Theoretical part of training Introduction to the TMF Checklist method	
Chair: Mr. Grygorii Shmatkov	
10:00 – 10:15	Ms. Iryna Nikolaieva – Introduction of training participants: trainers, tutors, trainees, experts
10:15 – 10:30	Mr. Dmytro Rudakov – Introduction of the training activities; Content of the education course
10:30 – 10:40	Ms. Kateryna Okhotnyk – Print and e-form materials for using within the training
10:40 – 11:00	Ms. Tetiana Zavgorodnya – Description of the TMF site to be tested: enterprise history, technology, TMF infrastructure
11:00 – 11:30	Coffee Break
Chair: Ms. Iryna Nikolaieva	
11:30 – 11:45	Mr. Dmytro Rudakov – TMF Checklist structure. Review of questions in the TMF Checklist (Document check and Visual inspection groups)
11:45 – 12:00	Mr. Dmytro Rudakov – Evaluation Matrix, overall and categorial evaluation of the TMF safety level
12:00 – 12:15	Mr. Dmytro Rudakov – Measure Catalogue, the use of Best Available Techniques
12:15 – 12:30	Ms. Kateryna Okhotnyk – MS Excel template of the TMF Checklist
12:30 – 13:00	Q & A
13:00 – 14:00	Lunch

Chair: Mr. Dmytro Rudakov	
14:00 – 14:10	Ms. Iryna Nikolaieva – The procedure of TMF Checklist application
14:10 – 14:20	Ms. Iryna Nikolaieva – Reporting procedures and templates
14:20 – 14:40	Ms. Iryna Nikolaieva – “CL’s Question and Answer”: requirements of legal documents as criteria for questions, accurate information as proof of answers; examples – live discussion with trainees
14:40 – 15:00	Ms. Kateryna Okhotnyk – The procedure and order of applying of the TMF Checklist template in MS Excel; exercises on computers
15:00 – 15:15	Q & A
15:15 – 15:45	Coffee Break
Chair: Ms. Kateryna Okhotnyk	
15:45 – 16:00	Mr. Grygorii Shmatkov – Types of different TMFs in Ukraine, its features and characteristics
16:00 – 16:15	Ms. Tetiana Zavgorodnia – Review of the TMF Summary prepared for training needs
16:15 – 16:30	Ms. Iryna Nikolaieva – Walkover survey on the field, procedure and the main focus points
16:30 – 17:00	Summary of the 2 nd training day. Brief instructions for the TMF site visit next day

3rd day, October 5, 2016

Practical part of training Site-visit to the Prydniprovskia TPP Chair: Mr. Grygorii Shmatkov	
09:30	Meeting in the hotel hall
09:30 – 10:00	Transfer to the Prydniprovskia TPP of PJSC DTEK Dniiproenergo
10:00 – 10:30	Arrival and passing formalities, photos, getting safety instructions
10:30 – 11:00	Meeting with company’s management
11:00 – 12:00	Shift of clothes, photos, tour of the enterprise, introduction to technological process
12:00 – 13:00	Lunch
13:00 – 13:30	Shift of clothes, departure to the TMF site
13:30 – 15:30	Visiting the TMF site (2 groups of students under the guidance of tutors / trainers / experts and enterprise representative)
15:30 – 16:00	Shift of clothes, groups gathering
16:00 – 16:30	Closing meeting at the company office
16:30 – 17:00	Return to the city

4th day, October 6, 2016

Classroom work - Safety evaluation of the TMF tested	
Chair: Ms. Iryna Nikolaieva	
10:00 – 10:30	Discussion on TMF site visit results by trainers, tutors, and trainees
10:30 – 11:30	Filling in the TMF Checklist – question group “Detailed visual inspection” based on the site visit results. Tutors, trainees
11:30 – 12:00	Coffee Break
12:00 – 13:15	Continuation of filling in the TMF Checklist - question group “Detailed visual inspection” using documentation provided by the TMF operator (TMF Summary prepared for training’s needs). Tutors, trainees
13:15 – 13:30	Discussion
13.30 – 14.30	Lunch
Chair: Mr. Dmytro Rudakov	
14:30 – 15:15	Selection of the measures from Measure Catalogue
15:15 – 15:50	The groups of students supervised by tutors prepare presentations on the results of TMF safety level evaluation
15:50 – 16:00	Discussion
16:00 – 16:30	Coffee Break
16:30 – 17:30	Prepare presentations on the results of TMF safety level evaluation
17:30 – 17:50	Filling the feedback forms by training participants
17:50 – 18:00	Summary of the 4 th training day

5th day, October 7, 2016

Chair: Mr. Dmytro Rudakov	
10:00 – 10:50	Presentations of the results of the site visit by four groups of students
10:50 – 11:10	The students pass the short test in e-form to consolidate their knowledge on the TMF Methodology
11:10 – 11:30	Discussion of the test results and explanations of typical errors
11:30 – 12:00	Coffee Break
12:00 – 12:30	Ms. Kateryna Okhotnyk – Assignment of homework (incl the UNECE on-line course on industrial accidents and TMF site visit results)
12:30 – 13:00	Review of feedback (suggestions and recommendations) on the TMF Checklist Methodology and educational materials
13:00 – 13:30	Summary of the training
13:30 – 14:30	Lunch

III. Training schedule

No	Stages	Dates
1	Sending out invitation letters and the training program to participants by email	09.09.2016
2	Sending out theoretical materials of the education course to training participants for individual study	19.09.2016 – 23.09.2016
3	Sending follow letters with form FF-01 (comments and suggestions)	27.09.2016
4	Classroom work including lectures and practical exercises; generating the report on working at the site	03.10.2016 – 06.10.2016
5	Training review, analysis of participants' feedback.	07.10.2016
6	Elaboration of proposals to improve the education course, reporting.	10.10.2016 – 14.10.2016

IV. List of printed training documents (Russian and English versions)

1. Methodology for Improving TMF Safety.
2. Safety Guidelines and Good Practices for Tailings Management Facilities (UNECE).
3. Feedback form (Form FF-01).

To be continued

V. Training participants

Project coordinator

Mr. Gerhard Winkelmann-Oei – German Environment Agency (UBA), Head of Department, Germany;

Host University

Mr. Gennadiy Pivnyak – Rector of National Mining University, Academician of the National Academy of Science of Ukraine;

Mr. Roman Dychkovskyy – National Mining University, Head of Research Department of NMU, Professor.

International experts

The list will be updated later after participants confirmed.

Ms. Claudia Kamke – United Nations Economic Commission for Europe, Convention on the Transboundary Effects of Industrial Accidents, Associate Environmental Affairs Officer, Switzerland;

Mr. Serik Akhmetov – National Convention Liaison Officer (NCLO), Republic of Kazakhstan;

Ms. Lubov Hertman – Institute for Complex Use of Water Resources, Researcher of the Water Monitoring and Cadastre Department, Belarus;

Mr. Philip Peck – International Institute of Industrial Environmental Economics (IIIEE) at Lund University, Associate Professor, Sweden, participation by Skype;

Mr. Zoltán Török – Research Center for Disaster Management, Faculty of Environmental Science and Engineering, Assistant Professor, chemical engineer, Romania;

Mr. Konstantin Burjanadze – Ministry of Environment and Natural Resources Protection of Georgia, Chief Specialist of Natural and Anthropogenical Hazard management Service, Georgia

Ms. Kristina Sahakyan – NGO "Eco Peace", president of the "Eco Peace" NGO, Armenia;

Ukrainian representatives of competent authorities

The list will be updated later after participants confirmed.

Ministry of Education and Science of Ukraine;

Ministry of Ecology and Natural Resources of Ukraine;

Ministry of Energy and Coal Industry of Ukraine;

State ecological inspection of Ukraine;

Dnipropetrovsk City Council;

Dnipropetrovsk Regional State Administration;

Mr. Sergii Chumachenko – Ukrainian Research Institute of Civil Protection of State Emergency Service of Ukraine, Head of Department of simulation of emergencies of Research Center for Innovative Technologies;

Representatives of TMF operator

Ms. Tetiana Zavgorodnia – DTEK, Environmental Safety Department manager;

Representative of Prydniprovsk Thermal Power Plant of PJSC DTEK Dniproenergo;

Ms. Nadiya Solomatina – PJSC "HIMDIVISION", Environmental Protection Engineer;

Ukrainian project team

Mr. Dmytro Rudakov – Project director, National Mining University of Ukraine, Head of the Department of Hydrogeology and Engineering Geology, Professor;

Mr. Grygorii Shmatkov – Key expert, Trainer, Head of Ecology and Environment Protection Department of Prydniprov'ska State Academy of Civil Engineering and Architecture, Director of the Centre of Environment audit and Clean Technologies LLC, Professor;

Ms. Kateryna Okhotnyk – Trainer, Education course developer, PhD;

Ms. Tetiana Omelyanenko – Lawyer (key expert) on competent authorities' strategy, Institute of environmental economics and sustainable development of National Academy of Sciences of Ukraine;

Ms. Iryna Nikolaieva – Project manager, Trainer, Lead ecological auditor, Head of LLC "Ecoplatform";

Ms. Ganna Zadnipriana – Project manager assistant, specialist in Environmental Engineering.

Tutors

Mr. Oleksandr Kovrov – National Mining University, Ecology Department of NMU, Associate Prof., PhD;

Ms. Tetyana Yakovishina – Prydniprovs'ka State Academy of Civil Engineering and Architecture, Associate Professor of Ecology and Environment Protection Department, PhD;
Mr. Sergii Kravtsov – National Metallurgical Academy of Ukraine, the Department of Ecology, Heat-Transfer and Labour protection, Assistant;
Ms. Nataliia Maksymova – Dnipropetrovsk State Agrarian and Economic University;
Mr. Dmytro Pikarenia – Dniprodzerzhinsk State Technical University, Professor of Ecology Department.

Trainees (students) – 20 persons

National Mining University;
Prydniprovs'ka State Academy of Civil Engineering and Architecture;
National Metallurgical Academy of Ukraine;
Dnipropetrovsk State Agrarian and Economic University.

ANNEX

Brief content of the Education course
(Under construction)

Module	Lecture	Short lecture content	Lecturer / trainer	Educational work type	Training*
1. Review of the tailings management practice in the world	1.1. International experts' review by countries	The UNECE "Convention on the Transboundary Effects of Industrial Accidents" and "Water Convention". State-of-the-art in tailings safety in the countries represented by the invited experts. Key problems in TMF safety, biggest failures and lessons learned. Global field experience with TMFs in relation to TMF Methodology	International experts	Lecture	1 st
	1.2. Problems and experience of Ukrainian TMF operation	Significance of the TMF problem for Ukraine and importance of the education course on TMF safety. DTEK practical experience in tailings management and TMF inspection. Types of different TMFs in Ukraine, its features and characteristics. Ukrainian documents and technical standards related to TMF operation. Documents adopted in the countries with developed extracting industries (Canada, the USA, Australia, Great Britain, South Africa, and Finland). Analysis and review.	G. Shmatkov T. Zavgorodnia	Lecture	1 st
	1.3. UNECE online course on industrial accidents	Introducing information on the course, guidelines and instructions how to pass the course through, the role of the UNECE course in the education course passed by trainees. Assignment of homework including the UNECE on-line course on industrial accidents	K. Okhotnyk	On-line lecture, practices, tests	Homework for 2 nd
	1.4. UNECE safety guidelines and good practices as the legal	Review of the TMF Safety guidelines: objective, scope and applicability, development history, document structure, key sections and principles, basic	D. Rudakov	Lecture	1 st

Module	Lecture	Short lecture content	Lecturer / trainer	Educational work type	Training*
	regulatory base of TMF Checklist development	requirements to TMF safety			
2. Legislative regulation of the TMF safety in Ukraine	2.1. Review of the current legislative situation on TMF in Ukraine	Review of Ukrainian laws, regulatory requirements and guidelines for environmental audit of hazardous industrial sites in terms of Ukraine's course to European integration	T. Omelyanenko	Lecture	1 st 2 nd
	2.2. Comparative analysis of Ukrainian and European legislation on TMF issues	Similarities and Inconsistencies of Ukraine's legal framework related to TMF compared to EU legislation. Lack of, transparency and ineffective functioning of current Ukraine's TMF legislation	T. Omelyanenko	Lecture	1 st 2 nd
	2.3. Strategy of competent authorities on TMF issues	The role of Ukrainian responsible ministries and competent authorities in implementation of Directive 2006/21/EC provisions. State-of-the-art and improvement prospects	Experts of MinEcology, MinEnergy T. Omelyanenko	Lecture	2 nd
	2.4. Action plan on harmonization of Ukrainian TMF legislation with relevant EU laws	Main stages of Action plan agreed with Directive 2006/21/EC provisions. The importance of the TMF Methodology in Directive 2006/21/EC implementation. International significance of the TMF Methodology	Experts of MinEcology, MinEnergy T. Omelyanenko	Lecture	2 nd
3. The essence and structure of the TMF Methodology	3.1. THI evaluation method	Definition of Tailings Hazard Index (THI). Basic and extended THI. THI constituents such as capacity, toxicity, tailings management, geological hazards/risks, dam failure criteria	K. Okhotnyk, D. Rudakov	Lecture, tests	1 st , 2 nd
	3.2. Database of Ukrainian TMFs	Data source and database completeness. Geographical distribution of Ukrainian TMFs. TMF database design and template. Instructions to database users	K. Okhotnyk	Lecture	1 st , 2 nd
	3.3. TMF Checklist structure and question groups	Question groups of the TMF Checklist: Basic check, Detailed check, Check of inactive sites. The Checklist users and application. Subgroups of question groups. Checklist hierarchy	D. Rudakov	Lecture, tests	1 st , 2 nd

Module	Lecture	Short lecture content	Lecturer / trainer	Educational work type	Training*
	3.4. Evaluation matrix and Measure Catalogue of the TMF Checklist	Basic principles of TMF safety level assessment, overall and categorial assessment. The indices “Meeting safety requirements” and “Credibility”. Evaluation methods and examples. The structure and elements of Measure Catalogue. Classification and priorities of measures	D. Rudakov	Lecture, tests	1 st , 2 nd
	3.5. MS Excel template of the TMF Checklist	Main features and elements of the template, procedure and order of its applying. Instructions how to fill in the e-form of the TMF Checklist	K. Okhotnyk	Lecture, tests	1 st , 2 nd
	3.6. TMF Checklist application	Development of the TMF evaluation program, information requested for inspection. Familiarization with the TMF to be inspected. Site visit. Templates for reporting	I. Nikolaieva K. Okhotnyk	Lecture, tests	1 st , 2 nd
4. TMF Checklist method application	4.1. Visual inspection of TMFs	Trainee breakout to optimize visiting all key TMF elements, forming the trainee groups. Walkover survey on the field, procedure and the main focus points. Filling in the TMF Checklist in paper form	Ukrainian team (trainers)	Practical training	1 st
	4.2. Document check of TMFs	Check of the documentation provided by the TMF operator. Assessment of its completeness. TMF safety level evaluation and credibility assessment. Filling in the TMF Checklist in spreadsheets	Ukrainian team (trainers)	Practical training	2 nd
	4.3. Selection of measures from Measure Catalogue	Review of inconsistencies with safety requirements revealed in visual inspection and document check. Selection of the measures recommended in Measure Catalogue	Ukrainian team (trainers)	Practical training	1 st , 2 nd
	4.4. Procedure of reporting on TMF safety evaluation	Generating the reports on the TMF safety level evaluation based on the results of the site visit and document check. Preparation of the presentations highlighting the results gained by different groups of trainees. Intergroup discussion	I. Nikolaieva, tutors	Lecture, practical training	2 nd

* 1st training to be held from 3 to 7 October 2016, 2nd training to be held in the mid of November 2016

Educational materials, documents

1. Methodology for TMF safety improving. Final report. UBA. 2016.
2. Safety guidelines and good practices for tailings management facilities. (2014) UNECE. New York and Geneva, 34 p.
3. Reference Document on Best Available Techniques for Management of Tailings and Waste-Rock in Mining Activities (2009) European Commission, 511 p.
4. Tailing pits and sludge stores. State Construction Norms of Ukraine. ДБН В.2.4-5:2012. Part I. Planning. Part II. Building. (2012) Kyiv, 71 p.

To be continued