

REPUBLIC OF MOLDOVA



APA CANAL CHISINAU

CHISINAU WATER SUPPLY & SEWAGE TREATMENT - FEASIBILITY STUDY

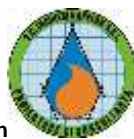


ASSESSMENT OF THE CURRENT ENVIRONMENTAL AND HEALTH AND SAFETY MANAGEMENT PRACTICES - FINAL

August 2012



A Subsidiary of



In association with

and



LIST OF ABBREVIATIONS AND ACRONYMS

ACC	ApaCanal
CAPEX	Capital Expenses
EBRD	European Bank for Reconstruction and Development
EHS	Environmental, Health and Safety
EMP	Environmental Management Plan
EMS	Environmental Management System
ESAP	Environmental and Social Action Plan
GIS	Geographic Information System
HSC	House Service Connection
IAS	International Accounting Standards
IR	Inception Report
KPI	Key Performance Indicators
LLI	Linear Leakage Index
MIS	Management Information System
O&M	Operation and Maintenance
OHS	Occupational Health & Safety
OPEX	Operation Expenses
PSC	Public Service Contract
PIU	Project Implementation Unit
PMU	Project Management Unit
SPP	Stakeholders Participation Programme
SSF	Special Shareholders Fund
ToR	Terms of Reference

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EXECUTIVE SUMMARY

1. EHS REPORT

1.1. INTRODUCTION

This report is part of the Chisinau (Moldova) Water Supply and Sewage Treatment study. It is a preparatory report for the Environmental and Social Action Plan (ESAP), which will be prepared further to the environmental and social analysis. It focuses on the current environmental and health and safety (EHS) management practices of the Apa-Canal company (ACC).

This report uses input from the site visit conducted by the environmental management specialist of Seureca (see below) and from the review of documents provided by the ACC.

Several elements of this report have already been addressed by the environmental inception of report issued in March, 2011.

1.2. KEY RECOMMENDATIONS

The key recommendations from this preliminary report are to:

- Define more specific EHS objectives (see action 3.1 in ESAP)
- Set-up a network of environmental coordinators (action 3.3)
- Define and implement an instruction for the control of chemicals (action 3.7)
- Strengthen resources for OHS controls in order to comply with regulatory requirements; include environmental elements to those controls (action 3.10)
- Define a problem analysis method (for instance 5 M's) and train relevant staff to its use (action 3.13)

DETAILED REPORT

1. INTRODUCTION

1.1. BACKGROUND AND PURPOSE

This report is part of the Chisinau (Moldova) Water Supply and Sewage Treatment study. It is a preparatory report for the Environmental and Social Action Plan (ESAP), which will be prepared further to the environmental and social analysis. It focuses on the current environmental and health and safety (EHS) management practices of the Apa-Canal company (ACC).

This report uses input from the site visit conducted by the environmental management specialist of Seureca (see below) and from the review of documents provided by the ACC.

Several elements of this report have already been addressed by the environmental inception of report issued in March, 2011.

1.2. DESCRIPTION OF THE SITE VISIT

A visit of Chisinau Water Supply & Sewage Treatment Apa-Canal was conducted from 15 till 18 February 2011 by Yann Guérin, environmental management specialist for Seureca. Interviews were conducted with the following functions :

- Quality control and regulation Director
- Health & Safety Director
- Deputy Head of the water treatment plant
- Deputy Head of the waste water treatment plant
- Head of the main laboratory
- Head of the cogeneration plant of the wastewater treatment plant
- Manager of the waste recycling centre & transport unit

The water treatment plant, wastewater treatment plant and their associated storage and utilities were reviewed, as well as the waste-recycling centre.

1.3. GENERAL FINDINGS ON EHS MANAGEMENT

A number of interesting assets were identified through the site visit. First of all, the company operates a certified, integrated quality (ISO9001), environmental (ISO14001) and occupational health and safety (OHSAS18001) management system since June 2008.



Picture 1: ISO14001 certificate of APA Canal



Picture 2: OHSAS18001 certificate of APA Canal

This allows ACC to be well aware of applicable regulations and to manage compliance to their requirements. Procedures are described in details; there is ready access to information.

2. EHS POLICY

2.1. CURRENT STATUS

An integrated quality, environmental and health and safety policy has been defined. Its key elements regarding Environment and occupational Health and Safety are presented below :



Table 1: Key EHS aspects of the integrated policy

The policy sets out the broad objectives for the integrated management system. Those regarding EHS are:

- Continuous improvement
- Identify the environmental aspects on which the organisation can have an influence
- Prevent pollution
- Identify hazards, risks to health and safety and establish control methods
- Compliance with environmental regulations and other requirements to which the company subscribes
- Preparation and analysis of general and specific objectives for EHS
- Requests to suppliers to comply with OHS as well
- Set up rigorous control methods

It appears that those objectives are too generic and do not provide clear improvement directions.

2.2. RECOMMENDATIONS

The objectives defined in the policy should be more specific to APA-Canal. For instance, the identification of environmental aspects or OHS risks is a normal requirement of ISO14001 and OHSAS18001 and can not constitute, as such, an objective. The consultant could further exchange with APA-CANAL in order to identify more adapted, practical objectives for the policy. Examples could be:

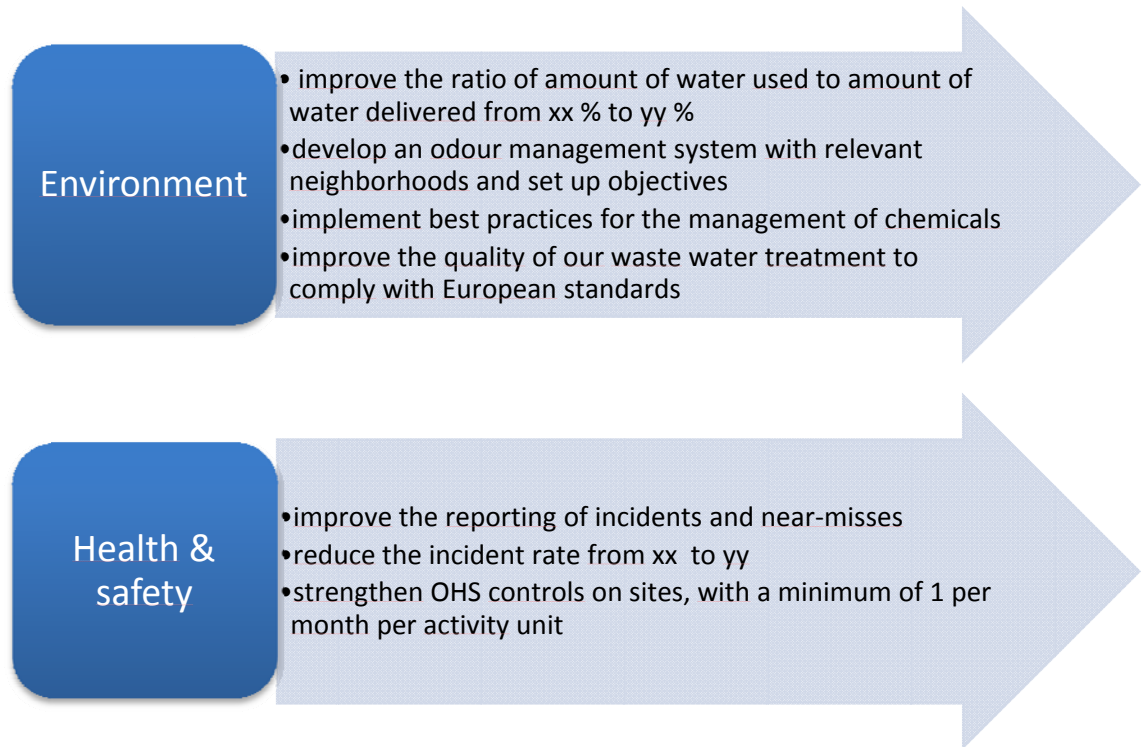


Table 2: Examples of potential, specific objectives for the policy

A sample QHSE policy is given in appendix 1.

See also on the subject the [objective setting section](#) below.

Related actions of the ESAP : 3.1

3. PLANNING

3.1. ENVIRONMENTAL ASPECTS AND OHS RISKS

3.1.1. CURRENT STATUS

Procedures are in place for the identification of significant environmental aspects (procedure PG-07-01) and the risk analysis (procedure PG-13-01).

Procedure for significant environmental aspects

The procedure to identify significant environmental aspects takes into account the following criteria: frequency, seriousness, quantity, regulatory requirements, public opinion, legal enforcement decisions. Each criteria is quoted (1, 5 or 10), according to a generic grid. Aspects are deemed significant if the weighted sum of those criteria is above 5. Several forms are used to implement this procedure, which are unusually numerous.

A register of significant environmental aspects is in place. An overall environmental assessment was conducted in 2008. There is a good link between the environmental aspects and applicable regulatory requirements. Aspects are evaluated in both normal and abnormal conditions.

Procedure for risk analysis

The risk analysis procedure describes in details the various steps conducting to the quantification of risks. The one devoted to the root cause analysis of identified risk factors is quite general as compared to others.

The application of the procedure leads to detailed risk analysis per activity and to a list of global risks. Those have a low spread and range from 2.83 to 3.01, for a standard deviation of 0.067: this may infer that some data used in the method are not accurate or that the method itself is not fully adapted.

3.1.2. RECOMMENDATIONS

Procedure for significant environmental aspects

The quotation method for the 6 criteria used to assess environmental aspects is quite broad and would need to be more precise for some aspects, especially seriousness and quantity. More precise grids may be designed, such as the one below.

Type of aspect	Quantity		
	10	5	1
Air emissions	> Regulatory requirements	< Regulatory requirements	< 50% Regulatory requirements
Waste water	> Regulatory requirements	< Regulatory requirements	< 50% Regulatory requirements
Waste	> 20% total waste (in weight) or hazardous waste	> 10% total waste	< 10 % total waste
Spillage	> 100 l	> 20 l	< 20 l
Water use	> 20% total consumption	> 10% total consumption	< 10 % total consumption
Energy use	> 20% total consumption	> 10% total consumption	< 10 % total consumption
Other aspects	Very significant	Quite significant	Low

Table 3: Example criteria for a more precise quotation of quantities for the evaluation of environmental aspects

The procedure for identifying significant environmental aspects should be simplified through integrating some of its forms.

Procedure for risk analysis

The root cause analysis step of the procedure would deserve to be more detailed and to use, when necessary, standard problem solving tools (5 why's, Ishikawa diagram...). The reasons leading to very similar levels of global risks should also be analysed.

✍ Related actions of the ESAP : 3.2

3.2. LEGAL AND OTHER REQUIREMENTS

3.2.1. CURRENT STATUS

A Procedure is in place for the tracking of applicable regulations. APA Canal has permits for water use, as well as for water discharge for its four waste water treatment plants. They also have licenses for their air emissions.

3.2.2. RECOMMENDATIONS

No specific recommendations have been identified on this item.

3.3. OBJECTIVES AND PROGRAMME(S)

3.3.1. CURRENT STATUS

EHS management programmes in place; they are approved at the time of yearly management reviews. As mentioned in the policy section, EHS objectives are too broad.

3.3.2. RECOMMENDATIONS

SMART objectives should be defined.

S	<ul style="list-style-type: none"> • SPECIFIC • Objectives should describe precisely the scope of the goal ; for instance, does the objective concern part or all of the company ? Does it include contractors or not?
M	<ul style="list-style-type: none"> • MEASURABLE • An objective should be associated to a target, that will allow to assess whether the objective is reached or not. Whenever possible, targets should be quantified
A	<ul style="list-style-type: none"> • ACHIEVABLE • Objectives should be realistically achievable. This is a key assumption of management systems : over-stretched objectives are not advisable
R	<ul style="list-style-type: none"> • RESOURCED • Considering the target, resources must be defined in the programme, whenever necessary, and allocated. They can be involve time, finances, technology., systems...
T	<ul style="list-style-type: none"> • TIME-BOUND • The timeframe to reach the objective should be clearly defined. When an objective is long-term, it should be broken down into individual, shorter-term objectives

Table 4: SMART objectives and targets

See examples of objectives in the [policy section](#).

4. IMPLEMENTATION AND OPERATION

4.1. RESOURCES, ROLES, RESPONSIBILITY AND AUTHORITY

4.1.1. CURRENT STATUS


The environmental system is managed by an engineer from the Quality management, control and regulations department. The OHS system is managed by the head of Health and Safety, who runs his own department.

4.1.2. RECOMMENDATIONS

A network of EHS coordinators could be defined. Coordinators should be in each location associated to significant environmental aspects or significant risks. Typical roles and responsibilities of EHS coordinators include :

- contribution to the definition of local procedures
- explanation of procedures to their colleagues
- raising EHS awareness locally
- controlling the implementation of procedures
- collecting improvement ideas and opportunities and reporting them back to the environmental management unit
- reporting back EHS information (implementation of actions from the EHS programmes, incidents, accidents, spillage...) and performance to EHS management

EHS coordinators report functionally to EHS managers and hierarchically to their normal reports. They do not necessarily have managerial responsibilities. Coordination is part of their tasks, on top of their usual job. There is generally no specific time allocated and it is better to build this network on a voluntary basis.

 **Related actions of the ESAP: 3.3**

4.2. COMPETENCE, TRAINING AND AWARENESS

4.2.1. CURRENT STATUS

A procedure describes training provisions in ACC (PG-10-01). It includes the evaluation of the efficiency of training (short term and long term). The

training program for 2010 was reviewed. It included regulatory, professional and management training.

Generally, managers of operational areas have shown a high level of awareness of the environmental aspects and risks related to their activities.

Initial induction training is provided, including for contractors and consultants. Periodic training is provided for staff.

The OHS induction training was found satisfactory, although more details could have been provided in case of emergency; the training could also have been more adapted to the audience (administrative, non-operational tasks). The training did not include environmental subjects.

4.2.2. RECOMMENDATIONS

In order to better capture the attention of the audience and make them aware of their specific risks, the OHS induction could be better tailored to each public category (technical, treatment plants, administrative for instance). Moreover, the OHS induction could also address environmental subjects (waste management instructions, emergency situations, dealing with chemicals...).

Related actions of the ESAP: 3.4

4.3. COMMUNICATION

4.3.1. CURRENT STATUS

A communication and consultation procedure is in place (PG-09-01). It describes internal (top-down, bottom-up, transversal) communication and external communication with interested parties.

Further to the site visite, it was found that visual management is not much developed in Apa Canal. This has a detrimental impact on HSE management. For instance, there is no information about objectives and current performance in operational areas, thus impairing staff involvement.


Similarly, there is no structured, dedicated system in place for communication with neighbourhood, despite the obvious impacts on neighbouring areas (odours namely).

4.3.2. RECOMMENDATIONS

Visual management standards should be defined and deployed throughout the different operational units of the company. For instance, SQCDPE boards of points could be created :

- **Safety** : information on OHS objectives and current performance, accidents, incidents, results of last internal controls
- **Quality**: Integrated QHSE policy, information on quality objectives and current performance, accidents, incidents, results of last internal controls
- **Costs** : Costs of operation as compared to budget
- **Delay** : Level of service, time-to-react to incidents, time keeping of maintenance and construction projects...
- **People**: Staff changes, improvement ideas and their status
- **Environment**: information on environmental objectives and current performance, accidents, incidents, results of last internal controls

Table 5: SQCDPE board

 **Related action of the ESAP: 3.5**

An involvement scheme with neighbours should be created to monitor odours, including:

- Definition of target zones, impacted by odours from treatment plants
- Definition of rules of engagement with neighbours (remuneration or not)
- Training of neighbours to odour detection and reporting
- Periodic meetings to share experience, discuss incidents and explain remediation actions

✍ Related action of the ESAP: 3.6

4.4. DOCUMENTATION

4.4.1. CURRENT STATUS

A single manual (MMI-01) describes the integrated QHSE management system.

4.4.2. RECOMMENDATIONS

Documentation should sometimes be simplified / merged, in order to reduce time to maintain it (see examples in other sections of this report, for instance [environmental analysis](#) and [non-conformities](#)).

✍ Related action of the ESAP: 3.12

4.5. DOCUMENT CONTROL

4.5.1. CURRENT STATUS

A general procedure (PG-01-01) is in place to control documents. Another general procedure (PG-17-01) is used to elaborate documents of the integrated management system. A specific procedure (PSSSM-02-01) has been defined to elaborate safety instructions.

4.5.2. RECOMMENDATIONS

No specific recommendations have been identified on this item.

4.6. OPERATIONAL CONTROL

4.6.1. CURRENT STATUS

A waste recycling center has been set up in the central warehouse. Scrap metals, used cars, tyres, oil are stored there. General waste recycling is available next to APA Canal for plastic and paper, although there is little communication on the latter available. A waste management plan describes the waste segregation provisions and the way waste are thereafter dealt with.



Picture 3: Scrap metal recycling, waste recycling center



Picture 4: Plastic recycling, next to APA Canal

Measures to prevent pollution in case of leakage or spillage of chemical products were not always found satisfactory. For instance, several bottles of reagent in the chlorine station were stored in a normal cupboard, with no bonding and no segregation between products. There were no hazard (COSHH) signs on the bottles.

On another instance, whereas oil drums were properly stored on bonds and locked in a protected area in the waste recycling centre, a spillage during transport of drums could result in a pollution of drains. There is no reaction procedure or equipment in such a case. This was found in several other cases (for example in the coagulant room of the water treatment plant). In the laboratory, spillage would be neutralized, including in case of spillage with mercury (Hg).

Smoking ban regulations were not always respected, and some managers were seen smoking in buildings during the visit.

4.6.2. RECOMMENDATIONS

An instruction should be created for the control of chemicals, addressing the following subjects:

- systematic labelling of all containers and bottles with indication of the product and of its risk phrases
- availability of the Material Safety Data Sheet
- storage of chemicals on bunds: plastic bunds for acids or alkaline products, metal bunds for flammable products; bunds should be of a suitable volume to contain a potential leakage
- avoidance of storage of not-compatible chemicals together (e.g. oxidants with flammable products ; strong acids with alkaline products)
- avoidance of discharges of hazardous products in drains (including mercury compounds)

- allocation of spillage reaction kits (gloves, specific absorbents, plastic bag for waste) in places where significant quantities are stored or handled

•  **Related action of the ESAP: 3.7**

Smoking ban regulations should be strictly enforced. Managers and directors must show leadership and set the example on this respect.

•  **Related action of the ESAP: 3.8**

4.7. EMERGENCY PREPAREDNESS AND RESPONSE

4.7.1. CURRENT STATUS

The general procedure PG-12-01 specifies the way emergency instructions are defined and tested. A general plan of reaction in case of emergency is also in place: it defines the potential emergency situations and the way to prevent them and react to them. The significance of each situation is quoted from an environmental and OHS point of view. The highest-ranking risk is linked to the emission of chlorine gas.

The chlorine station of the water treatment plant is located in the vicinity of public buildings. This risk is identified and measures are going to be taken, through substitution of chlorine.



Picture 5: Chlorine station ; vicinity of buildings



Picture 6: Chlorine distribution

Detection of chlorine leakage relies on a sensor, linked to an alarm system through cables, which are in a poor technical status. The detector seems to be located relatively high to allow for a suitable early detection of a leak. The alarm system is checked internally on a monthly basis. The chlorine storage is protected by a sprinkling system.

4.7.2. RECOMMENDATIONS

No specific recommendations have been identified on this item. There is no need for recommendations related to the chlorine storage, as this technology is going to be substituted, as part of the project.

5. CHECKING

5.1. MONITORING AND MEASUREMENT

5.1.1. CURRENT STATUS

A generic monitoring procedure is in place (PG-11-01).

A specific procedure (PSSSM-01-01) defines OHS controls. They are done by the personnel of the OHS department every three months. However, regulatory requirements require those controls monthly. They cannot achieve those because of a lack of resources.

A register of monitoring equipment is maintained, in order to check their status. The register specifies the verification periods.

5.1.2. RECOMMENDATIONS

The feasibility of creating a network of neighbours of the waste water treatment plant could be investigated. This network of volunteers would be trained to detect odours from the plant and register and report odour levels. Alerts could be raised through this mean. This would allow APA Canal to set up a monitoring on this environmental aspect.

Related action of the ESAP: 3.6

An indicator related to waste could be defined. In general, 2 types of indicators are found:

- Indicator on the quality of waste segregation, which shows the level of compliance of waste segregation practices with the waste management plan. This is generally measured through the involvement of waste contractors and/or through internal controls (internal operational audits)
- Indicator on the level of valorisation, as a % of waste which are valorised (material or energy) as compared to total waste (including general waste)


Related action of the ESAP: 3.9

OHS controls must be strengthened, in order to comply with the required monthly frequency. An environmental dimension could be added to those controls, in order to check compliance with provisions such as:

- waste segregation plan (do paper containers contain only papers or also metals or plastics...)
- chemical control (are chemicals properly labelled / stored on bunds...)
- availability and accessibility of fire extinguishers
- knowledge by staff of environmental objectives and of the way they can contribute to those objectives

Checklists are often designed to that effect, including simple questions such as: “is waste segregation appropriate”, guiding assessors through their evaluation.

The purposes of controls and audits are different, as controls are really targeted at operational activities and awareness levels, allowing to be closer to actual operations. Controls must be frequent, brief (1 hour maximum), simple, and can hence be performed by staff who do not have auditing qualifications, thanks to the control checklist.

 **Related action of the ESAP: 3.10**

5.2. EVALUATION OF COMPLIANCE

5.2.1. CURRENT STATUS

The general procedure PG-16-01 describes the provisions for compliance evaluation with regulatory requirements. The auditing process is used to that purpose.

The company is regularly inspected by local environmental authorities. The potential findings of those inspections result in action plans submitted by the company to the authorities. For instance, the action plan resulting from the inspection nr 031388 of 8 February 2011 was presented. It included 5 actions, with timetable and responsible:

Nr	Action	Resp.	Target
1	Finalise 2010 actions and include them in the 2011 action plan	M.Mazurean	20/02/2011
2	Secure a positive opinion from the Environmental Expert of the authorities for the operation of the sludge deposit nr 2 of the WWTP of Chisinau	M.Mazurean	28/02/2011
3	Find a solution to the issue linked to the use of "Geotube"	G.Vozian V.Cepurenco	31/10/2011
4	Evacuate waste from the construction of the sludge platform in a compliant way	G.Vozian M.Mazurean V.Cepurenco	As per contractual deadlines
5	Define an environmental action plan for 2011 and agree it with the Environmental Agency of Chisinau	M.Mazurean A.Rusnac	15/03/2011

Table 6: Environmental enforcement actions, 2011

5.2.2. RECOMMENDATIONS

In order to enhance the assurance of the company in its compliance level, compliance checklists could be developed for each identified regulation: those checklists would then be used in periodic conformity assessments. While this is initially time-consuming to prepare checklists, the level of assurance is far greater than through an audit. Such an approach also allows for the generation of a compliance indicator: number of compliant requirements / total number of requirements.

Related action of the ESAP: 3.11

5.3. INCIDENT INVESTIGATION, NON-CONFORMITY, CORRECTIVE & PREVENTIVE ACTION

5.3.1. CURRENT STATUS

4 general procedures deal with the subject of non-conformity, corrective and preventive actions :

- PG-04-01 on the treatment of non-conformities linked to products, processes and environment
- PG-05-01 on corrective actions
- PG-06-01 on preventive actions

- PG-15-01 on the accidents, incidents, noncompliance in the field of OHS

Accident investigations were found to be too oriented towards identifying who is “guilty”.

5.3.2. RECOMMENDATIONS

The 4 general procedures above could be merged into one or two procedures.

Related action of the ESAP: 3.12

Accident investigations should use a more structured approach, to identify the real root causes and initiate improvements. A simple method is to use the 5 M's problem analysis method (also called Ishikawa fishbone).

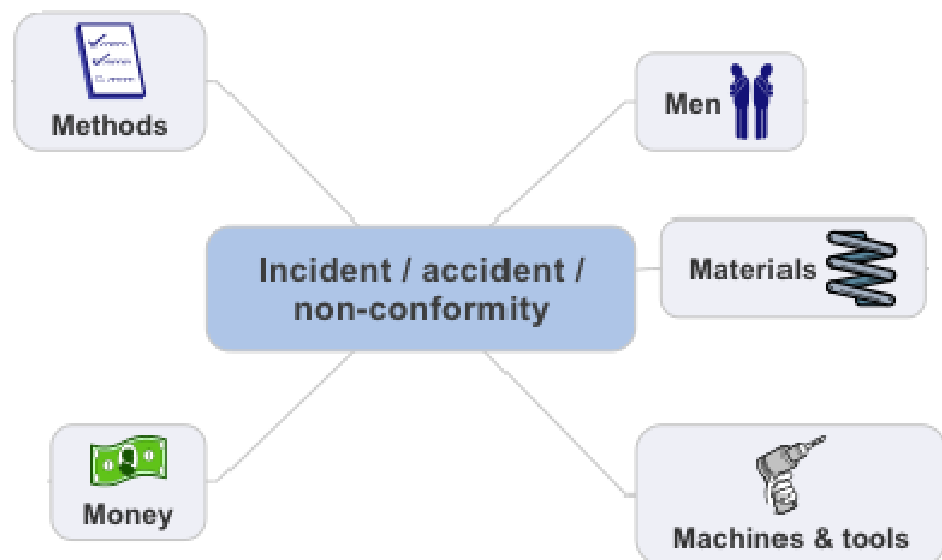


Table 7: 5 M's problem analysis

An illustration for the analysis of a contamination of drains resulting from an oil spillage by contractors could look like this :

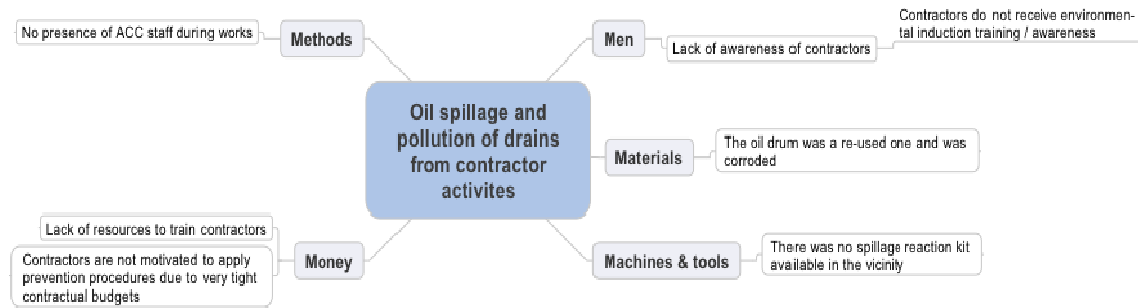


Table 8: Analysis of a drain contamination through 5 M's

Related action of the ESAP: 3.13 (and 3.2)

5.4. MANAGEMENT OF RECORDS

5.4.1. CURRENT STATUS

The general procedure PG-02-01 covers the management of records. It includes the identification, codification, use, retention, protection, archiving and elimination of records.

5.4.2. RECOMMENDATIONS

No specific recommendations have been identified on this item.

5.5. INTERNAL AUDIT

5.5.1. CURRENT STATUS

The general procedure PG-03-01 covers QHSE auditing activities. It addresses the audit programme and the audit realisation and follow-up. PG-19-01 covers auditor competencies. It is based on ISO19011. The 2011 audit programme covers internal, external, compliance and supplier audits. It also covers the simulation of emergency situations, which is an interesting practice.

5.5.2. RECOMMENDATIONS

No specific recommendations have been identified on this item.

6. MANAGEMENT REVIEW


6.1. CURRENT STATUTS

The general procedure PG-18-01 covers management reviews.

A management review is performed every year, at the end of the year in general. All the department heads attend the review, which is a very good practice. Actions from QHSE management plans are reviewed and they discuss actions that are not realized. Beforehand, separate reports are prepared for quality, environment and safety by each system owner. The minutes of the management review of January 2011 have been reviewed and have been found concise and of real added-value.

6.2. RECOMMENDATIONS

With the maturity of the system growing, ACC may ask each process owner to present herself / himself the results of its process, on all quality, environmental and health & safety aspects. This would drive forward the embedment of the system in company culture and is more and more seen in European companies.

 **Related action of the ESAP: 3.14**

Annexes

LIST OF ANNEXES

Annex 1 Sample QHSE policy.....1
Annex 2 ESAP3

Annex 1

Sample QHSE policy

Sample QHSE Policy

The purpose of ACC is to provide drinking water and collect and treat waste water. Since our responsibility is economical, but also social and environmental, I have defined our **TOP10** medium-term objectives for the period 2012-2015:

General objectives

- **G1**: maintain the certification of our integrated Quality, Environmental and Health & Safety (QHSE) management system
- **G2**: make QHSE part of our culture, at all levels

Quality objectives

- **Q1** : improve the service level for drinking water from **xx%** to **yy%**

Environmental objectives

- **E1**: improve the ratio of amount of water used to amount of water delivered from **xx %** to **yy %**
- **E2**: develop an odour management system with relevant neighborhoods and set up objectives
- **E3**: implement best practices for the management of chemicals
- **E4**: improve the quality of our waste water treatment to comply with European standards

Health and Safety objectives

- **S1** : improve the reporting of incidents and near-misses
- **S2** : reduce the incident rate from **xx** to **yy**
- **S3**: strengthen OHS controls on sites, with a minimum of 1 per month per activity unit

It is my responsibility to make our stakeholders aware of this QHSE policy. All our endeavours will be driven by the following **3C** principles :

- **Comply** with requirements from regulations or other identified and accepted sources
- **Continuously** improve our quality, environmental and health and safety performance
- **Care** for the satisfaction of our clients, the well-being of our employees and the environment through preventing risks and all kinds of pollution

(Mrs/Mr. name) is in charge of delivering on this policy through dedicated QHSE management programmes. I expect all of you to contribute positively and actively to this project, which is part of our general development strategy.

(signature)

(name, function)

(date)

Annex 2

ESAP

CHISINAU WATER SUPPLY & SEWAGE TREATMENT - FEASIBILITY STUDY
Environmental and Social Action Plan (Environmental and Health & Safety management part only)

Updated on : 30-juin-11

№	Issue	Environmental Risks Liability/ Benefits	Legislative requirement	Mitigation measures	Timetable	Responsibility	Investment Needs	Status
1. OPERATIONAL ISSUES ASSOCIATED WITH THE CURRENT & FUTURE OPERATIONS AND ACTIVITIES OF THE BORROWER (To be developed further to the environmental & social analysis)								
2. OPERATIONAL ISSUES ASSOCIATED WITH THE FUTURE INVESTMENT PROGRAMME (CONSTRUCTION ACTIVITIES) (To be developed further to the environmental & social analysis)								
3. ENVIRONMENTAL MANAGEMENT ACTIONS (APPLICABLE TO CURRENT, PROJECT AND FUTURE ACTIVITIES - see EHS management section)								
3.1	The objectives of the integrated management policy are not specific to the situation of ACC	Clearer objectives	ISO14001 OHSAS18001	Review the integrated management policy and define more specific objectives	To be defined	EHS managers of ACC + Consultant	0.5 day	Not started

3.2	The procedures for environmental and risk analysis are not always adapted	Better identification of issues and improvement opportunities	ISO14001 OHSAS18001	<ul style="list-style-type: none"> > Define more precise criteria for the quotation of environmental aspects > Simplify the forms used for the evaluation of environmental aspects > Develop standard methods for root cause analysis of risk factors > Analyse the reasons leading to very similar levels of global risks 	To be defined	EHS managers of ACC + Consultant	4 days	Not started
3.3	There are no dedicated, local points of contact for cascading of the EHS system	Better ability to cascade EHS management and report back performance and information	ISO14001 OHSAS18001	Set-up a network of EHS coordinators	To be defined	EHS managers + CEO	/	Not started

3.4	The OHS induction training does not include environmental subjects	Lack of awareness of contractors and new employees	ISO14001	Integrate environmental subjects in OHS induction training	To be defined	EHS managers	0.5 day	Not started
3.5	There is no local information on EHS performance	Lack of awareness of staff on EHS objectives and performance	ISO14001 OHSAS18001	Define and implement a visual management programme	To be defined	EHS managers + CEO	10 days	Not started
3.6	Neighbours are not involved to manage odours from treatment plants	Poor relationships , lack of monitoring of odours	ISO14001	Define an odour management scheme with neighbours	To be defined	EHS managers + CEO	10 days	Not started
3.7	Current control of chemicals is not appropriate to prevent pollution	Risk of pollution of soils, networks	ISO14001	Define and implement an instruction for the control of chemicals	To be defined	Environmental manager	3 days + 3000 euros (bunds, spillage reaction kits)	Not started
3.8	Lack of implementation of regulations on smoking ban	Fire risk	OHSAS18001	Ensure compliance with rules on smoking ban, including from management (note from CEO)	To be defined	OHS manager + CEO	0.5 day	Not started

3.9	Lack of monitoring of waste performance	Lack of visibility of performance on waste management	ISO14001	Define a waste management indicator	To be defined	Environmental manager	1 day	Not started
3.10	Lack of compliance of OHS controls with regulatory requirements ; lack of a similar control system for environment	Non-compliance with regulatory and internal requirements	ISO14001 OHSAS18001	> Strengthen resources for OHS controls in order to comply with regulatory requirements > Include environmental elements to those controls	To be defined	EHS managers + CEO	1 day (inclusion of environment) + 1 control / unit / month	Not started
3.11	Low level of assurance of regulatory compliance	Risk of non-compliance with regulatory requirements	ISO14001 OHSAS18001	> Develop compliance checklists for each applicable regulation > Generate an indicator on the % of compliant requirements	To be defined	EHS managers	30 days for the development of checklists. This can be done by a trainee, under the supervision of EHS managers	Not started

3.12	There are too much documentation on some subjects	Excessive time / costs linked to documentation maintainance	ISO14001 OHSAS18001	> Merge some general procedures on accidents, non-conformities, corrective and preventive actions > Simplify the forms used for the evaluation of environmental aspects (see 3.2)	To be defined	QHSE managers	3 days	Not started
3.13	There is no structured method for the analysis of incidents / accidents /non-conformities	Corrective actions may not be appropriate and not prevent re-occurrence of issues	ISO14001 OHSAS18001	> Define a problem analysis method (for instance 5 M's) and train relevant staff to its use	To be defined	QHSE managers	3 days	Not started

3.14	The management reviews may be more process-oriented	Lack of ownership of processes by process owners	ISO9001 ISO14001 OHSAS18001	> Review the structure of management reviews and request each process owner to present the results of its process, according to a pre-defined template	To be defined	QHSE managers + CEO	5 days	Not started
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