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GLOBAL LEADERSHIP IN **NUCLEAR SAFETY**

WANO GUIDELINE

GL | 2019-03

Human Performance Programme Assessment Model

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APPLICABILITY

THIS WANO GUIDELINE APPLIES TO ALL REACTOR TYPES

Keyword: Human performance

Plant Area: HU.1

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Revision History

DOCUMENT REFERENCE	GL 2019-03
PUBLISH DATE	November 2019
AUTHOR NAME	Lars Liljeblad & César de la Cal
REVIEWER NAME	WANO RCs Programme Directors, Programme Managers and WANO PC SMEs
APPROVER NAME	Alex Polyakov, WANO MS Programme Director
REASON FOR CHANGES	Initial revision. Developed by industry working group on Human Performance

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Human Performance Programme Assessment Model

Foreword

The WANO performance objective for human performance states:

Human Performance standards and expected behaviours are defined, established and incorporated in an organisation's programmes, processes and training. Leaders reinforce the standards and behaviours to reduce the likelihood of human error and to achieve sustainable event free operations.

Most WANO Members have Human Performance (HU) improvement plans, aimed at supporting the strategic objectives by reducing human error. These programmes have very different scopes, depending on the organisation, the organisational culture or its specific needs.

One of the problems WANO members have is how to assess the maturity, health and progress of their programme.

The WANO HU Working Group has developed a simple methodology to address this problem, which can be used by the WANO members. This methodology was developed by subject matter experts, using the existing WANO PO&C and human performance maturity models as a basis.

The tool was tested in three different organisations, to demonstrate its validity and ease of use in providing insight to the maturity, health and progress of the assessed programmes. One key benefit of using the method is the identification of supporting information that can inform changes to existing and future strategies.

It should be noted that when looking to reduce human error, many factors have significant importance e.g. organisational aspects, the design of the task, user interfaces, training, processes, instructions and procedures. This is currently outside the scope of the maturity methodology, but it is assumed that this exists and is assessed by other means.

Introduction

The primary aim of a Human Performance (HU) Strategy/Programme is to create the desire for continuous improvement within the organisation and to reduce the potential for human error through the use of appropriate analysis methods or techniques. The advantages of this are in improving safety, quality and efficiency by:

- Improved reliability, predictability, business reputation, productivity and profitability.
- Reducing the frequency and consequence of human error.

Human performance is focused on improving performance and reducing error at three levels - organisational, process and individual performer. The framework that supports this covers:

- Embedding of error reduction methods and techniques into key company processes.
- Identification and resolution of those organisational weaknesses, latent errors and latent conditions which contribute to HU events.

- Proactive reduction of active and latent errors.
- Development of robust arrangements for HU defence in depth – i.e. coaching, low-level reporting, Managers in the Field.
- Investigation of events where human error has been a potential causal factor.
- Low level event report analysis on human errors and near misses.

This methodology is intended to provide an assessment of the progress of your HU Programme/Strategy using the WANO Performance Objective as stated in PO&C 2013-(HU.1) as a reference. This methodology will not provide you with a human performance strategy, but it is intended to enable you to assess the health and maturity of an existing programme, including the identification of strengths and areas for improvement to that programme.

Definitions

- HU Programme: Set of activities to improve organisational effectiveness by reducing the potential for human error through the use of appropriate analysis methods or techniques.
- Maturity Model: Model used to determine to what degree some attributes of a project/programme are achieved.

Descriptions of the Tool

The tool is based on a maturity model, including the main general aspects of a HU Programme.

The model considers the following aspects:

1. Establish programme
2. HU Training
3. Leadership Involvement
4. Use of Error Reduction Methods/Tools
5. Organisational weakness:
 - a. Organisational weakness - Written Documents
 - b. Organisational weakness - Physical Conditions
6. Monitoring
7. Assessment

The level of maturity is based on a discussion among HU specialists, managers and other people from the company.

For the discussion, there is a set of questions, taken from the WANO PO&C, associated to each of the attributes.

How to Use

How to use this Assessment Tool

The questions stated in this document can be used in any or all of the following ways, but you should decide what would work well for you in your environment:

1. As a survey for selected groups/individuals; seek explanation on the YES/NO questions.
2. As a survey to all involved in reinforcing the standards & expectations for HU.
3. As a discussion point during focus groups/workshops with a selection of employees chosen by you/the business.
4. As a discussion point during focus groups/workshops following the survey.
5. In face-to-face interviews with individuals responsible for reinforcing the standards & expectations for HU.
6. In face-to-face interviews with selected individuals from all levels of the organisation.

Example of how to use the Maturity Model

1. Read through the items on the table in your group(s) and rate where you think you are now for each subject. If your programme/strategy has been going for some time, it may also be of value to rate where you were when you first introduced your programme/strategy.
2. Go to the Question Set and ask/discuss the questions in order, noting a Yes or No initially. Whether you answer Yes or No, look to give as much detail as possible to help yourselves with the next step, write this information on a flip chart against each question - particularly if you answer No to any.
3. Once you have discussed all the questions and covered all the sections, go back and review where you placed yourself on the Maturity Model in Step 1.
4. Use the comments from your discussions in Step 2 to understand the difference in where you thought you were and where you actually are - if one exists.
5. Identify where you would like to be on the scale up to Level 5 and, using information/ideas from the questions if relevant, agree what actions you can take to achieve your goal; (This is your Improvement Plan).
6. Use the methodology at regular intervals (6-monthly/annual/bi-annual) to assess your progress against your plan and/or your target.

Outcome Benefits

There are different benefits coming from the use of this methodology:

- Knowledge of the overall status of your HU Programme.
- Knowledge of the HU Programme attributes, which need more attention or development.
- Insights about the programme and activities included in it.
- Enhancing HU aspects in the organisation.

Use of Results

The results of the assessments can be used for the following:

- Objective presentation of the HU Programme health and maturity to the leadership team.
- Planning of the HU strategy and action plan.
- Basis for benchmarking with other stations.

Frequently Asked Questions (FAQ)

Q Do I have to follow all questions?

A Not necessarily. It is the discussion that is important; add additional questions that might help with the assessment.

Q Must I only answer YES or NO?

A No; it is important to have a discussion among the team members to identify strengths, areas for improvement, needs, priorities, etc.

Q The model doesn't fit with my assessments needs.

A You can adapt it to your needs, adding attributes or questions.

Q The questions do not always align with my company's terminology. The meaning of some questions is not clear or not according to the expressions or names used in my company.

A You can change the questions, adapting them to the usual terminology or expressions used in your company.

References

- WANO PO&C 2013-1 Performance Objectives and Criteria
- INPO 06-003 Human Performance Reference Manual
- INPO 06-002 HP Tool for Workers
- INPO 07-006 HP Tools for Managers and Supervisors
- HSG Blueprint for human errors
- IAEA NG-T-2.7 Managing Human Performance to Improve Nuclear Facility Operation

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Appendix 1: HU Programme Maturity Model

Maturity Level	Level 1 Fundamental	Level 2 Developing	Level 3 Operational	Level 4 Leading Edge	Level 5 World Class
1. Establish programme/strategy	There is no formal plan to establish an HU Programme/strategy	There is a formal programme to improve HU	The programme is updated according to ongoing assessments	The programme is embedded and provides tangible results	The programme is an integral part of the overall company strategy
2. HU Training	No specific HU training exists	Generic Training in HU and/or Nuclear Safety Culture exists but is dependent on role	Training in HU fundamentals and tools is mandated for all including contractors	Specific practical training – On the Job Training/Simulator - developed for all levels of plant toucher or knowledge worker	Individuals at all levels are involved in delivering training and observing results transferred to the work place.
3. Leadership Involvement	Leaders are not involved	Leaders understand their role in HU but are not 'in the field'	Leaders are seen infrequently on site and standards are inconsistently reinforced	Leaders understand and regularly reinforce or coach the standards & expectations	Leaders promote HU improvement, communicate and reinforce standards and expectations all the time
4. Use of Error Reduction Methods/ Tools	There are no error reduction methods/tools	Error reduction methods exist but there is no defined standard	Error reduction methods are understood and regularly applied by plant touchers	Error reduction methods are applied by everyone and are regularly reinforced by Leaders	Error reduction methods are used by everyone all the time with planned sessions to maintain standards of knowledge and application

5a. Organisational Weakness - Written Documents	Written work instructions/ procedures/ processes/ documents exist but there is no formal approval process established	There is a formal approval process for all documentation	Documentation is regularly updated and everyone knows where to access it	Documentation is well written, structured and is easy to use and available when required.	Documentation is reviewed as it is being used and is updated with amendments required
5b. Organisational Weakness - Physical Conditions	There are no formal arrangements to review job-site conditions	Job-site conditions are only reviewed and assessed after an incident/problem	Job-sites are routinely inspected to reduce risk. There are formal arrangements to walkdown the job-site before work happens to reduce risk	Data from walkdowns and job-site inspections is collated centrally, reviewed and acted upon when necessary	Supervisors/Leaders conduct walkdowns on a regular basis and, where possible, put into place amendments/improvements to remove barriers to good working practices
6. Monitoring	There is no monitoring system for the HU Programme	There are some formal indicators related to the HU Programme	HU indicators are regularly reviewed by the HU/PI* ¹ specialists	HU indicators are reviewed by HU Specialists and regularly discussed by the Management Team	HU indicators are reviewed regularly by HU Specialists, managers and Management Team and actions clearly identified to aid progress/improvement
7. Assessment	HU Programme is not assessed	Assessments are carried out on the HU Programme as and when needed	Formal assessment of the HU Programme is conducted annually through a defined process	HU Programme is formally assessed on a regular basis and results are used to improve the HU plan of work	HU Programme is formally assessed on an internal and external basis, and the results are used to drive overall performance improvement strategy

¹ Performance Improvement

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Appendix 2: Maturity Model Areas (PO&Cs)

Maturity Model Areas	Subsets (PO&Cs)
1. Establish Programme	a) Management system
	1 a) (i): Is there a clear description and scope for the HU Programme?
	1 a) (ii): Are Managers and Employees aware of, familiar with and understand the intent of the programme?
	1 a) (iii): Do you have a nominated team of people working on HU for the business?
	1 a) (iv): Do you have a clear profile of training and experience for those working in HU?
	b) Communication
	1 b) (i): Are HU trends and focus areas communicated and discussed with employees and contractors at all levels?
	1 b) (ii): Are expectations for the use and reinforcement of error reduction methods/tools in work and instructional settings (Training rooms/Simulators) effectively established and communicated to all, including supplemental station personnel?
	1 b) (iii): Have you communicated the purpose for your HU Programme?
	c) Organisation & Processes
	1 c) (i): Do you have processes within the organisation to manage defences to reduce the potential for events?
	1 c) (ii): Do you have established feedback processes in the company working to provide information on progress and is the information recorded somewhere for easy access to aid learning?
	1 c) (iii): Do your processes clearly define the difference between procedure use and adherence (a tool) and quality of procedures (a defence)?
	1 c) (iv): Will the tools/techniques/methods being used address the identified human performance gaps and deficiencies and the aims of the programme?
	2. Training
2 (ii): Have you identified separate training for Plant Touchers (frontline workers) and Knowledge Workers?	
2 (iii): When a new person starts, do you have a clearly defined timeline for when HU training should take place?	
2 (iv): Are HU standards appropriately integrated and reinforced in all training?	
2 (v): Does the training environment consistently reinforce the appropriate and correct use of human error reduction tools?	
2 (vi): Do you have a programme of Continuing Training for HU?	
2 (vii): Do leaders/management demonstrate unequivocal/full support for HU training?	

3. Leadership Involvement	a) Leadership & Management
	3 a) (i): Do Leaders and Managers understand their role in promoting and supporting HU within the business?
	3 a) (ii): Do Leaders and Managers use learning from events and trends to drive improvement actions?
	3 a) (iii): Are Leaders and Managers at all levels positive advocates of the HU Programme?
	b) Leaders in the field (observation & coaching)
	3 b) (i): Do you have a formal programme which covers Managers Time in the Field and enables them to spend effective time in the field?
	3 b) (ii): Do all Managers understand the intent of the programme and the expected outcomes?
	3 b) (iii): Do Managers understand and value their time in the field to help improve work practices?
	3 b) (iv): Is the programme providing quality data?
	3 b) (v): Are the results from the observation and coaching sessions used to address areas needing improvement at site and department levels?
	c) Supervisors/Front Line Leaders and Team Leaders
	3 c) (i): Do Supervisors/Front Line Leaders and Team Leaders understand their responsibilities to reinforce HU standards & expectations?
	3 c) (ii): Do Supervisors/Front Line Leaders and Team Leaders value regular interaction with their teams at the job site/point of work to understand any barriers to the use of error reduction methods/tools?
	3 c) (iv) Do you have a formal requirement for Supervisors/Front Line Leaders and Team Leaders to coach and reinforce HU practices in the field with their teams?
4. Use of Error Reduction Methods/Tools	4 (i): Does everyone understand their role in error reduction and the expectations of managers/leaders?
	4 (ii): Does everyone know what error reduction methods and tools are available to them in their role?
	4 (iii): Does everyone feel supported by managers/leaders if they decide to stop work due to the potential for error?
	4 (iv): Does everyone know what to do if something unexpected or outside the scope of their work/procedure happens?
	4 (v): Do your design processes define the standards & expectations for incorporating engineered controls to reduce the likelihood of error during operation and maintenance?
	4 (vi): Does everyone feel able to challenge incorrect or poor quality procedures?
	4 (vii): Are defence-in-depth measures/arrangements recognised at the job site/point of work for varying risks; to reduce the probability of error and to mitigate against the impact of an error?

5. Organisational Weakness	a) Written Documents
	5 a) (i): Are work plans and schedules critically reviewed to eliminate or reduce conditions that could lead to human error or result in an undesirable impact?
	5 a) (ii): Do your station processes define the standards & expectations for the use of physical barriers to reduce error-likely conditions at the job site? (such as protected equipment barriers, sign use, and exclusion zones around hazards)
	5 a) (iii) Are processes in place to readily challenge, review and correct poor quality or incorrect instructions?
	5 a) (iv) Do the processes for document/instruction production, revision and amendment identify the most appropriate suitably qualified and experienced personnel to carry out the activity?
	5 a) (v) Are work documents/instructions <u>always</u> produced, revised and amended by the right person or persons?
	5 a) (vi) Do people understand the complete hierarchy of written barriers which exist to reduce risk during the task?
	b) Physical Conditions
	5 b) (i): Are job-site conditions properly evaluated and established to enable work assignments to be completed as expected?
	5 b) (ii): Are work preparation and pre-job briefs conducted to address varying levels of risk?
	5 b) (iii): Do you use a graded approach to pre-job briefs within your organisation?
	5 b) (iv): Do people understand the need to identify the error precursors to a task?
	5 b) (v): Are the expectations for procedure use and adherence clearly established and understood?
	5 b) (vi): Are goals, roles and responsibilities for the assigned task discussed and understood before work begins?
	5 b) (vii): Do people regularly coach their peers when standards slip?
	5 b) (viii) Do people understand the complete hierarchy of physical barriers which exist to reduce risk during the task?
6. Monitoring	a) HU improvement processes
	6 a) (i): Do you have clear standards for HU improvement activities?
	6 a) (ii): Is there an organisational structure to enable these improvement activities e.g. committees, peer groups, reporting lines, strategic plans?
	6 a) (iii): Do you have KPI/Metrics/Dashboard for managing HU activities?
	6 a) (iv): Is the collected information used to drive improvements?
	b) Behaviours or how things really are working
	6 b) (i): Do you have evidence to demonstrate that people are using error reduction methods/tools?
	6 b) (ii): Is the collected information used to drive improvements?
	6 b) (iii): Do you have a graded approach to the use of error reduction methods/tools dependent on the level of risk?
	6 b) (iv): Are post-job reviews effective and is the learning from them recorded where everyone can access the information?

	c) Analysing events, corrective actions etc.
	6 c) (i): Are human performance events and trends monitored, evaluated and communicated to station personnel to increase their understanding and awareness?
	6 c) (ii): Do you have an investigation process where appropriate actions are taken to create organisational learning and prevent recurrence?
	6 c) (iii): Are human performance causal factors identified in the corrective action programme?
	6 c) (iv): Do you recognise the existence of organisational contributors to error?
	6 c) (v): When events happen, do you analyse the HU aspects of the event from both a people and an organisational stand point?
	6 c) (vi): Do you carry out HU Evaluations for more significant events?
	6 c) (vii): Is the result of these Evaluations used to inform amendments to the HU Programme?
	6 c) (viii): Is the result of these Evaluations used to inform amendments to other company programmes?
	6 c) (ix): Do you have an established HU performance review board or equivalent?
	6 c) (x): Are HU improvement plans clearly identified at both Corporate/Fleet and site/operational levels?
	6 c) (xi): Are there common breakdowns in the HU processes across Corporate/Fleet?
7. Assessment	7 (i): Is the programme reducing the number and significance of human errors?
	7 (ii): Do you have a self-assessment plan for your HU Programme?
	7 (iii): Are independent reviews by peers (industry partners/technical specialists/internal regulators) carried out?
	7 (iv): Is the outcome from the assessment communicated and shared with all relevant stakeholders?
	7 (v): Is the outcome utilised to amend/improve the overall focus of the HU Programme?
	7 (vi): Do leaders at all levels accept and support the findings of the assessments and the efforts required to close any potential gaps to excellence?
	7 (vii): Do you participate in regular Industry benchmarking activities?
	7 (viii): Have you requested/received assistance from any Industry Associations?
	7 (ix): Do you regularly share organisational learning related to the HU Programme within your organisation?
	7 (x): Do you regularly share organisational learning related to the HU Programme within your industry and other HU-practicing organisations/industries?

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Acknowledgements

Thanks to the following individuals for their help and insights in producing this guidance:

Lars Liljeblad	Vattenfall
César de la Cal	CNAT
Tao Bai	CGN
Samantha Negus	EDF Energy
Gillian Vaughan	EDF Energy
Glyn Thomas	Sellafield
Fiona Moore	Sellafield
Jonathan Pyke	Sellafield
Bob Duarte	Horizon Nuclear Power
Dene Geary	NAWAH
Patricia Allen	Human Performance Improvement Energy Facility Contracting Operating Group Task Team

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