CoDecS 2.0: the software that will connect EMERCON and ECURIE

Progress report and status of actions triggered by the NCA 2003/10 decision

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Summary:
As requested by the NCA 2003/10 decision the IAEA/IERC and the EC DG-JRC and DG-TREN intensified their discussions in order to find solutions to interface the EMERCON and ECURIE systems. This resulted in drafting a reference guide for a superset data-format that contains all EMERCON and all ECURIE fields. The same document also contains detailed instructions as how to map and convert the related information. Currently a new version of the ECURIE/CoDecS software is being developed that will be compatible with this Superset data-format. Further actions that were agreed by the EC and the IAEA are a) the development of conversion software between the superset format and the data-format used by the ENAC website, b) the testing of the automatic exchange of messages between EMERCON/ENAC and ECURIE/CoDecS and c) defining a legal agreement such that notifying a single Organization will fulfill the legal obligations towards both the IAEA and the EC.

Text of the NCA 2003/10 decision:
The meeting recommended that the IAEA, at no cost to non-EU Member States in the short-term, continue co-operation with the EC for the development and implementation of an interface between the ECURIE system and ENAC for the automatic exchange of relevant emergency information and data. In addition, the meeting recommended that the IAEA investigate the legal and technical aspects of a process to reduce duplication and improve overall coherence with respect to information provided by European Union Member States.
Expected outcome: Simplification and optimization of the processes for notification and exchange of information with regard to European Union Member States.

Background:
ECURIE is an early notification system used in case of radiological and nuclear accidents and is binding for all EU Member States, Switzerland, Romania and Bulgaria. All countries that have to notify the European Commission through ECURIE also have the obligation to notify the IAEA under the Early Notification Convention using the EMERCON system. Although the ECURIE and EMERCON systems serve the same scope, the amount and type of information as well as the used communication protocols and systems are rather different. The need to almost double national resources to satisfy both conventions is the reason that the EU Member States requested the European Commission and the IAEA to harmonize their systems as much as possible. A proposal of the EC during the CA
meeting of 2003 resulted in the 2003/10 decision, recommending the IAEA and EC to proceed with interfacing their systems.

**Current status:**
The 2003/10 recommendation triggered various actions that are still ongoing. These actions were presented during the ECURIE session of the 2005 CA meeting. After completing the software developments and testing the reliability of the overall system, formal agreements regarding the legal obligations have to be finalized.

**Progress report:**
As result of an intensive collaboration and exchange of opinions and proposals between the IAEA and the EC a reference guide describing the superset definition of the ECURIE and EMERCON formats was drafted. This document is currently used for the development of the additional functionalities in the ECURIE/CoDecS software and will also be used as reference for the development of the two-way conversion software between the Superset and the ENAC data-formats. The Superset document splits the information that has to be exchanged under the IAEA and EU conventions in four categories:

1. identical fields (10)
2. similar fields (29)
3. new CIS fields (30)
4. new EMERCON fields (5)

The implementation in the ECURIE/CoDecS software will be such that all IAEA fields can be compiled through windows with a layout very close or identical to the ENAC GUI and thus to the SRF, GENF and MPA forms. The existing CIS fields will be exactly the same as in previous versions of the CoDecS software. In addition there will be new fields added to the previous CIS format i.e. one new field for each IAEA field that does not have a close correspondence with an existing CIS field. The general functionality will be such that each field compiled in one of the IAEA forms is automatically appearing in the corresponding CIS field. Also the opposite will be implemented i.e. each time that a user compiles a CIS field that has a corresponding IAEA field, this IAEA field will be automatically compiled. If corresponding fields do not have the same syntax, then the software will take care of the necessary conversion in an automatic and transparent manner. The following diagram should further clarify this mechanism:
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**CIS Superset format**

<table>
<thead>
<tr>
<th>Field ID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>001-004</td>
<td>Report ID</td>
</tr>
<tr>
<td>010-053</td>
<td>Notification</td>
</tr>
<tr>
<td>100-143</td>
<td>Actual Release</td>
</tr>
<tr>
<td>200-217</td>
<td>Future Release</td>
</tr>
<tr>
<td>300-323</td>
<td>Meteo&amp;Dispersion</td>
</tr>
<tr>
<td>400-409</td>
<td>Projected Dose</td>
</tr>
<tr>
<td>500-547</td>
<td>Off-site Monitoring</td>
</tr>
<tr>
<td>600-655</td>
<td>Protective Measures</td>
</tr>
</tbody>
</table>

**IAEA layout (SRF, GENF, MPA) and fields**

<table>
<thead>
<tr>
<th>Field ID</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>700-775</td>
<td>IAEA data</td>
</tr>
</tbody>
</table>

Identical data

Similar data

The superset data-format has 5 new EMERCON fields (mostly in the header) and 30 new CIS fields while 10 fields are identical and 29 fields will need an automatic conversion.

The adaptation of the ECUERIE/CoDecS software to the Superset format is currently done by an Italian contractor and the first Alpha release is expected to be ready by half July 2005. Some screenshots of the software are given below in order to show the functionality:
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**Fig. 1** Compiling the INES rating on the SRF form will automatically result in the INES scale compiled in the corresponding CIS field.

**Fig. 2** Compiling the geographical coordinates of the accident location in ECURIE/CIS will automatically result in the compilation of the corresponding EMERCON fields on the SRF and GENF forms (with automatic conversion from degrees-minutes to degrees-decimal degree notation).