

### **N393. Using Robots For Decommissioning**

One important reason robots are of importance in decommissioning is for protection. When radiation and contamination levels are high robots or some other kind of mechanical device is required to replace human beings. Due to the nature of many of the tasks involved in decommissioning robots are often the better solution. The reasons are: -

- 1) It is often difficult to adapt crude machines to work in the limited space available.
- 2) The variety of tasks is large and it is not possible to adapt machines for all these jobs which may range from inspection to cutting to housekeeping.
- 3) The tasks and their environment is badly structured. For example, there are uncertainties about the amount and position of contaminants.
- 4) When there are multiple work sites the robot approach brings gains in operating time and costs compared to simpler, low performance devices.
- 5) Robots work well in the "workshop" setup of waste processing, packaging and dispatching.
- 6) The automatic coordination that comes with robot use is helpful when many systems (such as transporters and manipulators) are used.

There are also some drawbacks to using robots in active areas:

- 1) Capital costs are high.
- 2) The maintainability and reliability for such advanced technology must be assured.
- 3) Machines with many possible functions may be more bulky than simpler technology.
- 4) More operator training is required.

Future outlook: In future it seems likely that a new generation of manipulators will be developed that combine the advantages of industrial robots, power manipulators and dexterous master-slave manipulators. Small machines will be developed to reduce costs and offer standard subsystems. It may be possible to use such small robots at several work sites. Powerful and nonpolluting cutting processes are also needed.

Robots and telerobots are very useful in decommissioning. Developing new devices will mean designers can make use of suitable and proven devices and the field of decommissioning will grow.

*For more, "Why use robots for decommissioning?", Nuc. Eng. Intl., 1995 Remote technology report, pp 12-13.*