

**A Regulatory Overview of Plasma Technology
Report of the Plasma Technology Subgroup
Interstate Technology and Regulatory Cooperation Work
Group**

June, 1996

EXECUTIVE SUMMARY

When the ITRC undertook the task of developing a report on plasma technology in July, 1995, only a few states had heard of plasma technology. Fewer had experience in reviewing permit applications for the technology. The object was to try to develop a guide for permitting projects using this technology so that states addressing the issues for the first (or second) time could benefit from the collective experience of other states, and not have to "reinvent the wheel" to learn about the technology and its permitting issues. At first only five states had experience or an expectation that they would be involved in a plasma technology permit in the near future. As this report goes to press, seven states are expecting to receive permit applications or work on projects involving plasma technology in 1996. Although we could not have predicted this development a year ago, it seems that this guide is coming out just as the market for the technology is increasing.

Plasma technology used to treat, remediate, or recycle waste materials is still a very new and developing technology that has not settled into a definite market niche. In various design configurations, plasma technology units can be used on a wide variety of wastes, and can either destroy toxicity or produce a product from the treatment of waste materials. Plasma units can be operated in a manner that has fewer impacts on the environment than conventional thermal destruction technologies, such as lower air emissions and a stable vitrified residue. State permit staffs found that although the plasma technology was new to the environmental control area, the waste feed, air management systems, and residue handling systems could be similar to other projects which regulatory agencies have dealt with in the past.

The Plasma Technology Subgroup developed the following findings and policy options for consideration by the Demonstrate Onsite Innovative Technology Committee of the Western Governors' Association at their June, 1996 meeting:

- o State regulatory agencies have spent a considerable amount of staff time trying to determine if the units should be regulated under RCRA as an incinerator or as a "miscellaneous unit". Plasma units have considerable differences and advantages over incinerators. The regulations for "miscellaneous units" allow for evaluation of all environmental impacts from the facilities. Plasma units which require a RCRA or state equivalent permit should be classified as "miscellaneous units" and regulated under "Subpart X" regulations unless there is a compelling reason to do otherwise.
- o Reliable cost information for environmental applications of plasma technology is not available, but is necessary for comparisons with other technologies. The Subgroup suggests that future projects using the technology should keep cost and performance data in a common format such as that suggested by the Federal Remediation Roundtable document, A Guide to Documenting Cost and Performance Data. The cost and performance data should compare long term or life-cycle costs of a project, not just short term costs. A focus on short term costs only tends to discourage the use of technologies which provide a more permanent solution to waste management.
- o The development of performance based regulations with specific goals for cleanup and limits on emissions, rather than regulations designed for a specific technology, will remove some regulatory barriers to plasma technology and other innovative technologies. States should develop performance based environmental standards, not only because it would help bring innovative technologies to market, but also, because it encourages a focus on environmental impacts - the goal, rather than the technology - the means of achieving the goal.
- o State regulatory agencies should coordinate permitting activities on new technology projects such as plasma. Coordination and communication between different permitting groups within an agency or between separate state agencies issuing permits on a project makes agency responses to an applicant more consistent and will usually reduce the time spent addressing issues by eliminating duplication of effort. Agency staff and a permit applicant can achieve further efficiency in review time by agreeing up-front on the type and amount of data that needs to be collected on a new technology in order evaluate a permit application.

Further information is needed about the true costs of plasma technology. Documentation of emissions and residue quality of commercial scale units is also needed. However, as individual states go forward with plasma technology projects in 1996, they do so with a greater understanding and confidence in the technology. It is hoped that this

report and the network developed among the state regulators will provide a much more efficient and thorough technical review of these projects, as well as resulting in a more consistent approach to the technology across these states.