

SITING THE CALIFORNIA LLRW DISPOSAL FACILITY: ENTERING THE LICENSING PHASE

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ABSTRACT

US Ecology has been designated by the State of California to site, develop and operate a low-level radioactive waste disposal facility. The facility will serve member states of the Southwestern Low-Level Radioactive Waste Disposal Compact. The firm identified a proposed site in the Mojave Desert of southeastern California in March of 1988. The site, in the Ward Valley near Interstate 40, meets US Ecology's criteria of a technically superior location enjoying strong local public support.

Following proposed site selection, US Ecology has initiated field work and related studies required to prepare an environmental impact assessment and license application for the project. The licensing agency is the California Department of Health Services, which is also lead agency for the California Environmental Quality Act review of the project. Federal environmental reviews will be undertaken by the U.S. Bureau of Land Management.

Extensive pre-licensing consultation between US Ecology and California officials, as well as independent technical review of key licensing and environmental issues has been utilized to help ensure a complete and adequate licensing submittal. Efforts have been undertaken to obtain local citizen input on facility design and operation plans. The company's objective is to submit a proposal that adequately mitigates all significant project impacts.

US Ecology plans to submit its proponents environmental assessment in April 1989, and the license application during the summer of 1989. The project schedule anticipates license approval in late 1990, followed by facility construction and initial receipt of waste in mid-1991, well in advance of the Low-Level Radioactive Waste Policy Act's milestone for management of waste within compact boundaries.

INTRODUCTION AND BACKGROUND

California law requires that a low-level radioactive waste disposal facility be established within the State to meet California's responsibilities under the federal Low-Level Radioactive Waste Policy Amendments Act. The law provides for selection of a private license designee to establish the disposal facility, subject to regulatory approval by the State Department of Health Services (DHS). US Ecology, Inc., accepted license designee status in December 1985 by posting the required \$1 million performance bond. The disposal site will serve waste producers in member states of the Southwestern Low-Level Radioactive Waste Disposal Compact, (Public Law 100-712), signed into law in November of 1988. California and Arizona are currently members, and North and South Dakota are eligible to join the Compact.

US Ecology initiated the site selection process in early 1986. Based on the results of a statewide screening study completed in 1984 by DHS, and early US Ecology work, the firm identified eighteen topographically closed desert basins in southeastern California as the focus for study. Site screening studies were then undertaken to narrow down to three candidate sites. This process integrated technical, environmental and land use study results with input received from an independent Citizens Advisory Committee (CAC), three rounds of public meetings, and consultations with Native Americans. The three candidate sites, located in the Panamint Valley in Inyo County, and the

Silurian and Ward Valleys of San Bernardino County were identified in February, 1987.

Ecological and archaeological studies, geophysics investigations, and surface water studies were undertaken at each of the sites. Exploratory borings, well drilling, and meteorologic testing station installation followed. Local Advisory Committees were also formed for each site to help evaluate local citizen concerns and socio-economic impacts. Native Americans participated in field visits to assess cultural impacts. The CAC, which was involved in selection of the three candidate sites, then helped US Ecology compare and contrast the sites. In November 1987 the siting choice was narrowed to the Ward and Silurian sites.

PROPOSED SITE SELECTION DECISION

Both the Ward and Silurian Valley sites initially satisfied US Ecology's criteria of a technically superior site, supported by the local community. Both sites are considered licensable, both offer good transportation access, and both are remote from nearby residents. Neither site appears to overlie potable groundwater, and neither contains significant cultural resources. Both sites are managed by the U. S. Bureau of Land Management (BLM), and are eligible to be transferred to state ownership. No known mineral resources are present at either site and neither site is subject to mining claims. From the standpoint of technical factors related to licensing, Ward Valley is considered the better location. Contributing factors include superior surface water and erosion control conditions, greater distance to known active and potentially active earthquake faults, and superior soil stability and infiltration resistance characteristics. From a biological standpoint, however,

development of the Ward Valley site would involve a greater environmental impact due to its location in crucial desert tortoise habitat and in an area of greater overall biological diversity. The desert tortoise is proposed for listing as a threatened species in California, and is under consideration for endangered status at the federal level. The Citizens Advisory Committee was unable to reach a consensus on which factors should receive the greatest weight in selecting a preferred site, splitting almost evenly on the two candidate sites.

US Ecology requested guidance from the California DHS before designating the proposed site. The DHS advised US Ecology that technical factors relating to licensing should receive greatest consideration in the company's decision. On this basis, the Ward Valley site was designated as the proposed facility site in March 1988.

The proposed Ward Valley site is located 22.5 miles west of Needles, California, and one-half mile south of Interstate-40. The legal description is Section 34, Township 9 North, Range 19 East, San Bernardino Baseline and Meridian. The site is west of Homer Wash, an ephemeral drainage running north to south through the valley and sloping gently to the west at a grade of about 2.5%. An electrical substation adjacent to the freeway exit provides a power source for the site, which is located within a designated utility corridor now traversed by 230 KV electric transmission lines, and a telephone line. The Ward Valley itself is approximately 7.5 miles wide at the site, and is bounded by the Piute Mountains to the west, and the Sacramento Mountains to the east.

DEVELOPING A LICENSE APPLICATION AND ENVIRONMENTAL ASSESSMENT

As the project developer, US Ecology is required to develop a License Application and Proponents Environmental Assessment (PEA). The License Application, expected to be submitted to the DHS in the summer of 1989, must demonstrate that the requirements for land disposal of radioactive waste are satisfied. The PEA to be published in April 1989 will provide the basis for an independent Environmental Impact Report to be prepared by the DHS. The DHS will serve as the lead agency under the California Environmental Quality Act, and will invite and consider comments from affected government agencies on a Draft Environmental Impact Report prior to completing its review. The U. S. Bureau of Land Management will also use the PEA as a basis for assessing the environmental impacts of the project as they relate to California's request to transfer the Ward Valley site from federal to state ownership.

US Ecology's objectives are to develop the disposal project proposal in a manner that will fully satisfy the licensing requirements and mitigate all significant environmental impacts. This will help ensure that both the licensing and environmental review will proceed in timely fashion, consistent with a schedule allowing construction of the disposal facility in early 1991, and receipt of waste shipments by the middle of that year. To accomplish these objectives, a variety

of early and continuing consultation mechanisms have been utilized, as discussed below.

Licensing

The DHS guidance and review of key intermediate work products developed by US Ecology will help ensure that key aspects of the license application are complete and adequate. To date, the DHS and its support contractors have reviewed US Ecology's Quality Assurance Program Plan and related contractor Quality Assurance Plans, Site Characterization Plans, Environmental Monitoring Plans, and various procedures and analytical models to implement the above plans. The Department has also conducted field audits of the environmental monitoring program and reviewed data. A detailed Vadose Zone Study Plan was also reviewed. This analysis will be particularly important to the license application, due to the significant depth to groundwater (700 feet) at the site.

The DHS also issued guidance on enhancements to shallow land burial which are to be reflected in the license application. This guidance was based on a study of disposal enhancements suitable for desert disposal environment. US Ecology has translated this guidance into engineering design plans. The disposal facility design is based on the following concepts:

- Shallow land burial, using a continuously excavated trench. This will minimize the amount of exposed waste.
- Use of separate trenches for Class A, Class B and Class C waste to maintain maximum separation of stable and unstable waste containers and to avoid use of a large trench for all waste that would remain open over a long time period.
- Placement of a surcharge on filled trench areas during operations to enhance settlement of waste, particularly the unstable Class A packages.
- A minimum five-meter cover between buried waste and the original grade to ensure that all waste is placed below the maximum scour depth of the probable maximum flood, and to minimize the potential for problems due to burrowing animals or plant root penetration.
- No mixed waste disposal unit is planned, pending completion of waste stream characterization studies by the DHS and resolution of regulatory uncertainties at the state and federal level.

Peer review has played a significant role in focusing pre-licensing discussion topics. EnviroSphere Company conducted the background study supporting the DHS disposal technology guidance work on enhanced technology. The DHS has also utilized the services of Roy F. Weston Consultants on licensing matters, and both Weston and EBASCO for quality assurance. Additional peer input has been contributed by the U.S. Geological Survey under a U.S. Department of Energy grant, and EG&G Idaho, Inc. The DHS has also involved the U.S. Nuclear Regulatory

Commission staff in the evaluation of various regulatory questions.

Environmental Assessment

US Ecology established Local Advisory Committees (LACs) for each of the three candidate sites in the spring of 1987. Each committee was formed through independent, local nominations. The LAC for the Ward Valley site has continued to meet to advise the company on facility development matters, and was expanded to include additional community members. The League of Women Voters Southern California Regional Task Force convenes committee meetings under a US Ecology grant. The Committee is assisting US Ecology in identifying potential facility impacts, and resolving community concerns in a manner that will be locally acceptable. Key discussion areas have included public information needs, local economic development, local emergency response preparedness, and minimizing the facility's visual impacts. Committee members have also been extremely valuable sources of information on the project, and have recommended public forums for US Ecology to better share information locally.

Potential project impacts on the desert tortoise and Native American cultural values were considered sufficiently important to establish special impact assessment and mitigation planning work groups. The DHS established an Ad Hoc Desert Tortoise Work Group to review US Ecology's field biology studies and to recommend specific mitigation measures. The group included representatives from the U.S. Bureau of Land Management, the U.S. Fish and Wildlife Service, the Desert Tortoise Council, the California Department of Fish and Game, San Bernardino County, US Ecology and DHS. An independent tortoise expert assisted DHS through a U.S. Department of Energy grant.

The location of the Ward Valley site within the Fenner-Chemehuevi Valleys' desert tortoise habitat required a series of interrelated studies that were commented on by the work group. These included an intensive field survey of tortoises utilizing the project site, tortoise density surveys in the vicinity of the site with special emphasis on areas adjacent to Interstate-40, and a cumulative impacts assessment of all existing and planned impacts on the tortoise within the Fenner-Chemehuevi Valleys' habitat. The freeway-related studies provided the key to development of a mitigation package capable of off-setting the disposal facility's impacts. Studies to assess tortoise density indicate that the freeway is significantly depleting tortoise populations in adjacent areas; a problem that can be significantly reduced by fencing the freeway across Ward Valley. A tortoise-proof fence can be tied in to existing culverts, allowing

tortoises to pass beneath the freeway, promoting genetic continuity of the populations north and south of the freeway. While the full mitigation package is still to be finalized, other features recommended through the group's discussions include fencing of the disposal site and relocation of tortoises within their existing home range, education of site workers and the public on tortoise protection measures, off-set for the habitat loss represented by the site, and studies to assess the effectiveness of the above mitigation measures.

A working group was established by US Ecology to work with Native American groups that had expressed concern about impact to cultural values in relation to disposal site development in the Ward Valley. While no significant archaeological resources were found on the site, plants and animals used by Native Americans are present and the Ward Valley is within the traditional boundaries of the Mojave and Chemehuevi peoples. As such, development of the site would impact on the belief systems of these peoples. The Colorado River Indian Tribes and Chemehuevi Indian Tribe have appointed representatives to work with US Ecology on impact assessment and mitigation planning. (The Fort Mojave Indian Tribe has so far declined to participate.) US Ecology will propose mitigation based on the group's continuing discussion, and anticipates a mitigation effort that will preserve ethnographic information that may otherwise remain undocumented.

Several additional impact categories will also require specific measures to avoid a significant impact on the environment. Examples include facility design and operational measures to control dust and other particulates, building design features to reduce glare and minimize visual obtrusiveness, and training and possible equipment provision for local and county emergency response personnel.

CONCLUSION

US Ecology, Inc., is the State of California's license designee to establish a disposal site to serve the Southwestern Low-Level Radioactive Waste Disposal Compact. The company has selected a proposed site and is completing the required environmental assessment and licensing studies for an improved shallow land burial facility. No major obstacles to licensing have been identified and efforts to develop acceptable mitigation measures for environmental impacts are well underway. It is expected that the site will begin accepting waste in mid-1991, establishing what will likely be the first new commercial low-level radioactive waste disposal facility in the United States in nearly two decades.