USA Comments

This document will serve as the comments to the pilot project named Unusually Sensitive Areas (USA), performed by the US Department of Transportation (DoT). The comments listed below are from the California portion of the project only. We intend to comment on both the data and the model itself. We appreciate US DoT's approach in involving members of each state in the pilot

The comments were written and compiled by Mike Byrne, GIS Manager from the University of California Davis Information Center for the Environment, with input from Jim Quinn, Professor of Ecology University of California Davis, Graham Fogg, Professor of Hydrogeology University of California Davis, Eric Senter Geologist California Department of Water Resources, and Leah Walker Source Water Assessment Program Coordinator, California Department of Health Services.

We approached these comments based on the information supplied at the USA pilot briefing April 27-28 2000. We basically examined the data inputs, model logic, and model decision process. It should be noted, we took the approach that the USA rule is a model, which can be re-run given new data input. Moreover, there are significant Federal, State and Local environmental rules in place, which help protect critical resources. This rule helps US DoT define areas where pipeline operators may be required to perform risk assessments and inspections on a more frequent basis.

Those providing input in California seemed to feel, after looking at the final USA maps provided in the briefing summary, that the maps generally understate the unusually sensitive drinking water resources in the state. We feel that the comments listed below will probably increase the areas defined as USA's adequately.

We would like to note at this point that we understand the critical nature, timeline and outcome of the mode. In particular we appreciate the concept that US DoT is looking at proactive approaches to water and ecological resource protection, which for the most part already have local, state or federal regulations and protection in place. Therefore, in general, given the nature of the model, and the task at hand, the logic is sound but a more conclusive strategy would make the model more useful in California. We have broken our enhancement comments into two categories, data inputs and model decisions.

1. Data Inputs

California State wide data for critical water resources is poor, at best. No single coverage of sound scientific background at a reasonable scale exists for surface geology, well locations, or Well Head Protection Areas. The data the DoT used in this process, while the 'best' available for statewide manipulation, contains serious faults. While DoT is aware of these limitations, we feel it is imperative that we reiterate these limitations. The primary areas of concern in data input are poor GIS input data, hydrographic backbone, and influence of existing abandoned and monitoring wells.

The most significant limitation is the well data used by US DoT. There are two significant problems with the well data. First the well locations have no qualifier as to the positional accuracy of the data. Some well location data was created by georeferencing Township Range Sections numbers from the California well permit number to a Public Land Survey grid for California. This methodology puts the spatial accuracy of the wells within 0.7 miles of the potential real location of the well. Some wells have been rectified using other methodologies, and are accepted to be in a reasonably accurate position. Due to new MTBE legislation in California, all wells will be rectified by professional judgment on 1:24 000 Digital Raster Graphics images by August 2000. Second, no depth information exists as attributes on the California Well data. The well depth information is critical in assigning Pettyjohn classifications. Since there is no well depth data, US DoT implemented a system by which wells in California are integrated with surface geology, and given Pettyjohn classifications. We feel this method presents the weakest link in the model. We realize that this classification scheme is primarily due to the lack of data. It is our feeling that US DoT came up with a 'reasonable' first cut set of rules for assigning Pettyjohn based on well locations and surface geology alone. However, these rules can present significant problems when looking at individual locations in local areas, and require further review and testing.

We would like to see the use of the National Hydrographic Data set as the backbone hydrographic data for the model. We realize that this data is not available in all states, but we also think this data provides a more solid hydrographic structure for the model. 1:100 000 NHD data is available in California and it is our opinion that this data be used here. Since US DoT does not use the same well data from state to state, why should the model restrict itself to a single national hydrographic data set? Why not use a hydrographic data where routing, center lining and spatial accuracy are enhanced since DLG-E? The potential for using NHD in California allows US DoT to search upstream and downstream 5 miles on surface waters, rather than a blanket 5-mile buffer. The blanket 5-mile buffer on surface waters seems to generic, and can overestimate the resource, when the buffer spills out of a watershed. A second alternative to NHD would be to incorporate US EPA Hydrologic Units as a constrictor for the buffer on surface waters. In other words, continue to use a 5-mile buffer for surface waters, but only include those surface waters inside the same US EPA Hydrologic Unit. In California there is a single comprehensive 1:24 000 scale watershed GIS data set, which would provide more resolution than the US EPA Hydrologic Unit data set.

One data input that is lacking and does provide additional ground water movement is the existence of abandoned and monitoring wells. We also realize that there is no consistent available data set for this in California, yet, but would like this aspect to be a consideration in future model runs.

2. Model Decisions

How the model decides which USA candidates become USA's seems to be a critical step, and we would like to address potential problems we see. We have broken down our

comments on the model decisions into three categories: buffer distance on wells, Pettyjohn classifications, and adequate alternative sources.

We suggest a more liberal buffering distance in well locations. Due to the potential for fractured rock to contain very long fractures, contaminants can travel much farther than the blanket 2000 feet the model suggests. We suggest a 5000-foot buffer for wells in fractured rock areas. Moreover we would like the buffer distance in alluvium areas increased to 3700 feet. The California Department of Health Services uses these figures in Source Water Assessment Program.

Currently, the US DoT model uses anything in Pettyjohn class I and those in class II (a) as a candidate for a USA. One of the experts providing input in California suggested that all wells in class I and all wells in class II become candidates.

Finally, adequate alternative source provided much discussion. It seemed to us generally that if there is no information about an adequate alternative source, the default assumption should be there is NO adequate alternative source, rather than the current method that there is one.