

PILOT STUDY TO EVALUATE THE USEFULNESS OF A NEW TOOL FOR ASSESSING ROUTE CONDITIONS ALONG ALTERNATE ROUTES, AND STATE-LOCAL EMERGENCY RESPONSE CAPABILITIES AND NEEDS

Introduction

WIEB is considering a pilot test of a new tool (IRRIS, by GeoSystems) for assessing route conditions along potential alternate nuclear waste shipment routes and for assessing state-local emergency response capabilities and needs. Many have called for route assessments that are detailed, “featured,” updatable, and packaged for effective use by state and local agencies for emergency response planning, assessing emergency response training and equipment needs, and evaluating routing options.

Despite the calls, such information has been produced only ad hoc, and for limited segments of selected routes. The major, very practical reason is that, using current methods, the development and maintenance of such information over thousands of miles of rail and highway routes crossing many states and local jurisdictions are daunting tasks—far exceeding current agency resources or prospective federal funds. Even if such information were available, there is no capability for distributing it in useful formats to those that have specific responsibilities along specific segments of a regional or national system.

Emerging tools offer the prospect of much more efficient and consistent assembly and maintenance of such information, and much more flexible, task-relevant distribution to those with particular responsibilities along particular route segments. The proposed pilot would evaluate the application of an emerging GIS-based tool (IRRIS) for these purposes. If states conclude that the results are promising, steps toward fuller development and distribution would be considered. The pilot phase would extend over the next 12 months.

Pilot Study: Summary

What: Obtain access to an emerging information management tool (IRRIS) to test its application and usefulness in evaluating conditions and affected environments along routes that might be used for SNF shipments.

Where: A route or set of routes will be selected for evaluating IRRIS application and usefulness. (This does not constitute selection of routes for SNF shipments, but rather an identification of generally available routes for the purpose of seeing how effectively IRRIS depicts various conditions of the route and its affected environment, and whether it may be useful too for discriminating among routes at some future time.)

When: The pilot project would begin in May, using FY 2008 WIEB funds that cannot be carried forward into FY 09. The project will likely extend into the 2009 fiscal year, but FY'09 expenditure will be limited.

How: WIEB will purchase a subscription for IRRIS from GeoSystems for the purpose of the pilot evaluation. WIEB will contract with a GIS expert who develop a strategy for the evaluation and test, invite interested committee members to participate and advise in process, and test the utility of IRRIS (current status and evolved) in “populating” templates intended for particular types of users and particular purposes regarding particular route segments. Templates will combine information on route conditions and environments

(“features,” capabilities) relevant to particular planning or operations tasks. With consultant support, WIEB will compile a report that (a) assesses the utility of IRRIS as a tool for evaluating conditions important for SNF shipments along routes and (b) assesses the utility of IRRIS as a tool for discriminating among routes based on important conditions.

Products Anticipated products include:

- a) Sample templates: template concepts and rationale; and IRRIS test results;
- b) Data adequacy findings (vis-à-vis intended state-local purposes); data improvement suggestions.
- c) Next steps: to improve the data, the templates, &/or template distribution & application;
- d) Next steps: to develop and extend the application, if warranted.

Background

The following provides additional detail on:

- Calls for detailed, “featured” assessment of route conditions, vulnerabilities, capabilities and needs.
- The question: If we are serious, how might it be done?
- Targeted information: a preliminary list
- Pilot study: tasks and approach

1. Detailed & Integrated Route Information Needed

Calls for more detailed, “featured” route information have come from several sources:

- **National Acad. of Science: “Going the Distance”**

Undertake detailed surveys of routes to identify potential hazards.

Take steps to avoid or mitigate such hazards through operational controls and restrictions

- **CA Energy Commission: “Nuclear Power in CA: 2007”**

The probability of extreme accidents can be reduced through route-specific analyses to identify and diminish potential hazards. Greater information sharing by DOE regarding spent fuel transport routes and plans is needed to allow state and local input and to gain public confidence in these shipments.

- **DOE Repository SEIS: Affected Environment Related to Transportation...**

An adequate description would include, not just estimated “populations,” but a systematic inventory of “features” (e.g. canyons and mountain passes, refineries and hazardous material industries, key infrastructure elements--e.g. bridges--and current conditions, hazardous materials flow, hospitals and nursing homes, stadiums and event centers, etc.), plus an inventory of state/local capabilities for addressing potential contingencies in various route segments. Some of these features and capabilities will be found beyond the half-mile buffer applied in the SEIS assessment. (WIEB comments.).

- **July 2007 Federal Register Notice on Section 180c:** Question 1(a): *Would \$200,000 be an appropriate amount for the assessment and planning grant to conduct an initial needs assessment...* States have varying planning and funding needs. (WIEB comment.)

- **December 2007 Federal Register Notice:** “Enhancing Rail Safety and Security for Hazardous Materials Shipments: Proposed Rule.” (DOT/PHMSA) The proposed rule requires rail carriers to: a) Compile annual data on specified shipments of hazardous materials; b) Use the data to analyze safety and security risks along transportation routes. c) Assess alternative routing options (based on risks assessed). d) Make routing decisions based on those assessments.

2. QUESTION: DO WE HAVE A CLUE HOW TO DO THIS?

- What do we mean by “detailed, featured” route-specific information?
- How can such be collected and maintained, efficiently and reliably? Over thousands of miles of highway and rail routes, crossing many jurisdiction and service area boundaries?
- Can such be assembled and delivered in forms useful to state-local agencies: e.g. task-specific; route segment-specific?

3. WIEB-DOE WORKPLAN: TASK #4. STATES’ CAPABILITIES & NEEDS

“SRG staff will assist member states in conducting preliminary assessments of their capabilities and needs for assuring safe routine transport and safe and effective response to incidents involving SNF/HLW shipments.....The capabilities and needs assessed could include those related to: emergency preparedness, emergency response, route assessment and designation, equipment, training, tracking, escorting and inspections, protection of information, and public information activities.

4. WHAT “DETAILED & INTEGRATED” INFORMATION IS TARGETED?

IRRIS “meta-data” will be reviewed to consider what is and is not included,¹ and to consider the sources, the level of detail, and reliability for intended purposes:

Route assessment:

- Road conditions (physical infrastructure);
- Key features (bridges, tunnels, over & underpasses);
- Traffic volume (service levels);
- Truck traffic (& accident rate);
- Hazmat flow (reported at statistically appropriate level);
- Safe parking & safe havens;
- Weather patterns (e.g. days closed due to snow/ice);
- Local events that spike traffic volumes.

Route environment:

- Distance from roadway (residential; commercial);
- Density of development (residential & commercial, in bands);
- Hazardous activities (e.g. refineries, etc.);
- Vulnerable activities (e.g. hospitals, nursing homes, schools, etc.)

State/local capabilities:

¹ **Shipment Information** (maybe second phase): a) Origin & destination; b) Near-site options (if applicable): barge, heavy-haul, shortline rail; c) Intermodal facility (if applicable); d) Cross-country mode: e.g. overweight truck; dedicated train; e) Route.....As designated from other processes; f) Operations agreements; g) Number & general schedule of shipment; h) Escort (& capabilities/roles); i) Inspections (& reciprocity agreements); j) Tracking/monitoring equipment/info sharing; k) Rolling stock (& shipment speed vs. other traffic).

- a) Fire & EMS (facilities; staffing; training level & status; access to route);
- b) Police/security (same);
- c) Radiological Specialist Capabilities;
- d) Command & control (plans, capabilities to implement plans).

5. WIEB PILOT STUDY: FY'08 & FY'09

Tasks include:

- Arrangements with GeoSystems; Sub-contract for technical support
- Add selected data not now included in IRRIS
- Identify routes for pilot assessment (SNF transfer? Additional WIPP routes?)
- Form an advisory/review committee to provide feedback/guidance during the pilot.
- Obtain and review IRRIS data dictionary
- Considering potential state/local applications, prepare “pilot” information templates
- “Populate” the templates (using available data)
- Review results with the A/R Committee
- Identify steps to improve the templates: a) more useful for particular applications, b) more detailed/reliable/current data; c) more efficient/effective data assembly processes.
- Identify “next steps” and funding.