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Sent: Fri 6/1/2007 7:22 AM
To: Burns, Lisa; Toni Washington
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Subject: Tech Memo

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QA:N/A

Toni and Kathryn,

Since I will be out of the office next week, I went ahead and made the changes last night to the Tech Memo.

Please let me know if this is what you needed and if the updates make since.

Thanks

Lisa

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Technical Memorandum
For Inclusion into Section 4.14: Waste and Hazardous Materials
Yucca Mountain Rail Alignment EIS

1.0 INTRODUCTION

This Technical Memorandum will address both the requirements for implementing an Environmental Management System and a Pollution Prevention/Waste Minimization Program during the planning, construction, and operational phases of the Nevada Rail Project. It will also provide a discussion of potential opportunities for meeting these requirements. The Department of Energy (DOE) is required, as a federal entity, to implement sound environmental stewardship practices that are protective of the air, water, land, and other natural and cultural resources and to fully investigate and implement waste reducing, energy saving opportunities if they are cost effective. Realizing that the Nevada Rail Project will be constructed and operated in remote locations across Nevada, implementing feasible and cost saving recycling opportunities may be difficult due to market availability and transportation costs. This document will strive to provide an overview of what should be considered and opportunities to fulfill these mandates.

Section 4.14, *Waste and Hazardous Materials*, of the Yucca Mountain Rail Alignment EIS addresses the potential impacts of the Proposed Action and the Shared Alternative from wastes and hazardous materials. This section should also include a discussion of the aggressive evaluation of alternatives to eliminate, reduce, or minimize the amounts of hazardous materials used and wastes generated. Investigating the purchase and use of materials with recycled content and/or are bio based products is also an excellent approach to meet Federal requirements and demonstrate to stakeholders that the YMP is a good environmental steward who will reduce environmental impacts to the greatest degree possible.

The Hazardous Materials Summary Table provided to Shaw Environmental lists the potential materials and wastes that may be used and generated during the life-cycle of the project. Understanding that during more detailed design and planning phases, additional materials and wastes may be anticipated and forecasted. Fuels were included as a potential material to be used, but energy in the form of electricity and/or natural gas, nor water usage, was included as a potential material. These aspects might be addressed in other parts of the EIS, but might also be mentioned in this section due to the direct

relationship of energy and water conservation to the Executive Orders and DOE Orders mentioned below. The Summary Table also did not include post-operations activities such as deconstruction, if appropriate. The proposed Summary Table was used to develop the following discussion.

2.0 REQUIREMENTS

The OCRWM Nevada Rail Project and its contractors are required to meet the requirements of the following Federal environmental regulations: Resource Conservation and Recovery Act (RCRA), the Pollution Prevention Act, Clean Air Act, Clean Water Act, Energy Policy Act, and the Emergency Planning and Community Right-to-Know Act.

Pollution Prevention, Affirmative Procurement, and Environmental Management were further promoted through a series of Executive Orders. The following Executive Order requirements must also be evaluated and incorporated into the planning and operations of the Nevada Rail Project.

2.1 EO 13148, *"Greening the Government through Leadership in Environmental Management"*

This Order requires Federal agencies to integrate environmental accountability into daily planning and decision making in all of their activities. To achieve this, an Environmental Management System (EMS) must be implemented that provides for the systematic planning, integrated execution, and evaluation of programs for pollution prevention.

The Order includes the following goals:

- Develop and implement an EMS;
- Environmental compliance;
- Timely planning and reporting under the Emergency Planning and Community Right-to-Know Act (EPCRA);
- Reduce reported Toxic Release Inventory releases and off-site transfers of toxic chemicals;
- Reduce use of selected toxic chemicals, hazardous substances, other pollutants, or generation of hazard and radioactive waste types;
- Reductions in ozone-depleting substances;

2.2 EO 13101, *"Greening the Government through Waste Prevention, Recycling, and Federal Acquisition"*

This Order expands the Federal government's commitment to recycling and buying recycled content and environmentally preferable products, including bio based products. The Order also stipulates that executive agencies must incorporate waste prevention and recycling into daily operations. Three prevention methods listed, in order of preference, are source reduction, recycling, and treatment in an environmentally safe manner.

DOE amended the DOE Acquisition Regulation (48 CFR 923, 936 and 970, Acquisition Regulation: Acquisition of Products Containing Recovered Materials) to require that management contractor subcontracts include the affirmative procurement requirements of EO 13101 and flow down those requirements in circumstances involving EPA-designated products. The acquisition regulation was also amended to require management contractors to comply with the fuel efficiency goals and requirements of EO 13149, *"Greening the Government through Federal Fleet and Transportation Efficiency."*

2.3 EO 13149, *"Greening the Government through Federal Fleet and Transportation Efficiency"*

This Order requires the Federal Government to be a leader in the reduction of petroleum consumption through improvements in fleet fuel efficiency and the use of alternative fuel vehicles and alternative fuels. The Order is required to be met by all agencies operating 20 or more motor vehicles within the United States and includes reducing the entire fleet annual petroleum consumption.

2.4 EO 13123, *"Greening the Government, Efficient Energy Management"*

This Order requires the federal government to promote energy efficiency, water conservation, and the use of renewable energy products.

2.5 EO 13134, *"Developing and Promoting Bio-Based Products and Bio-energy"*

This Order develops a comprehensive national strategy, including research, development, and private sector incentives, to stimulate the creation and early adoption of technologies needed to make bio based products and bio energy cost-competitive in large national and international markets.

Pollution Prevention (P2), EMS, and Affirmative Procurement was promoted through the above series of Executive Orders and DOE then created the following specific DOE Orders to implement these directives.

2.6 DOE Order 450.1 *"Environmental Protection Program"*

This Order requires that DOE and its contractors implement sound environmental stewardship practices to protect air, water, land and other natural and cultural resources that are impacted by DOE operations. This objective is to be accomplished by implementing an EMS consistent with Executive Order 13148. The EMS's at DOE facilities must be part of the Integrated Safety Management Systems (ISMSs). The EMS must provide for the planning, execution, and evaluation of departmental programs to reduce or eliminate the generation of waste, the release of pollutants to the environment, and the use of Class I ODS through good business practices such as source reduction, reuse, and recycling, and by procuring recycled-content materials and environmentally preferable products and services.

DOE Order 450.1 also compliments the affirmative procurement requirements in RCRA Section 6002 and EO 13101 with P2 provisions for the specification and procurement of departmental supplies to maximize the procurement of recycled-content materials and other environmentally preferable products.

DOE Order 450.1 requires that **ALL** DOE-direct contractors must have a functioning EMS in place and must flow down these requirements in the Contractor Requirements Document) to subcontractors at any tier. This will ensure that all work is performed in an environmentally responsible manner.

2.7 DOE Order 430.2A – *"Departmental Energy and Utility Management"*

This Order sets forth goals for Federal facilities to reduce energy consumption, purchase electricity from renewable energy sources, increase the purchase of energy from less greenhouse gas-intensive sources, and reduce greenhouse gas emissions.

3.0 OPPORTUNITIES

The proposed DOE Nevada Rail Project will comply with all Federal, state, and local environmental regulations. Per Executive Order 13148 and DOE Order 450.1, DOE contractors working on the Rail Project must have an approved EMS in place. The following discussion provides general opportunities for incorporating P2 and waste

minimization into the proposed Nevada Rail Project. More detailed opportunities are provided in the attached Table 3-1: *Proposed Waste Minimization Opportunities for Potential Wastes Generated during the Nevada Rail Project.*

3.1 Project Planning

The Nevada Rail Project will incorporate P2, waste minimization, and sustainable design principles into project plans and procedures with the intent of using the most environmentally friendly products and materials and generating the least amount of secondary waste from construction and operations. Planning will include reviews of forecasted hazardous material purchases and use and the investigation of less-hazardous, cost-effective, and feasible substitutes. Anticipated wastes will also be identified and reviewed for source reduction and recycle/reuse opportunities.

3.2 Energy and Water Conservation

Per Executive Order 13123 and DOE Order 430.2A, the Nevada Rail Project will evaluate using alternatively fueled vehicles for personnel transportation during construction activities and operations. Alternative fueled vehicles might include electric, bio fuel such as bio diesel, compressed natural gas, or duel-fuel vehicles instead of petroleum based fueled vehicles. The proximity of fueling stations may be limited causing this opportunity to be cost prohibitive.

Solar power will be used (as needed) as an alternative power source for various diesel-powered or conventional equipment needs during railroad construction and operations due to the remote location of the rail line and the advantage of solar-power as a functional, reliable, virtually maintenance-free power source.

Examples of potential solar-powered equipment that can be used during construction and operations include various lighting, radios, and wireless chargers.

Water conservation practices will be reviewed and may include using gray water from work camps as a dust suppressant or other non-potable water uses such as urinals and toilets or rail car wash downs.

3.3 Material Purchases and Use

The Nevada Rail Project will be purchasing hazardous and non-hazardous products and materials during construction and operations. Per Executive order 13101 and DOE Order 450.1, the Rail Project intends to promote the use of environmentally preferable products

such as recovered materials (recycled-content products) and bio based products as much as possible. The purchase of materials and equipment designated as long life, energy efficient, and sustainable will be preferred if reasonably cost effective and available.

The amended DOE Acquisition Regulation also requires that management contractor subcontracts include the affirmative procurement requirements of EO 13101 and flow down those requirements in circumstances involving EPA-designated products.

Proposed hazardous and non-hazardous materials to be purchased for the Nevada Rail Project include numerous products that are included in the listing of available EPA-designated recycled-content products. Potential recycled-content and bio based products that will be evaluated for use, if cost effective, include:

- recycled content paper and paper products,
- re-refined lubricating oils for personnel vehicles,
- retread tires for vehicles,
- bio based grease and oils for switching gear,
- bio based penetrating lubricants for light lubrication and corrosion resistance,
- bio based hydraulic fluids for mobile equipment (tractors, end loaders, backhoes),
- bio-based diesel fuel additives,
- railroad grade crossing surfaces,
- consolidated and reprocessed latex paint, and
- transportation products such as channelizers, delineators, and barricades.

The Maintenance-of-Way, Fleet Management, and End-of-Line Facilities will store and manage the majority of hazardous materials. A Hazardous Material Management program will be utilized to review hazardous and toxic material requisitions and purchases to recommend cost effective and feasible non-hazardous, biodegradable, or less-toxic substitutes, such as non-hazardous solvents, paints, and cleaning materials. Surplus or excess chemicals will be recycled or reused when appropriate and cost-effective.

3.4 Waste Management

Per Executive Order 13101 and DOE Order 450.1, recycling and reuse of materials and wastes from the Nevada Rail Project construction and operations will be the first management choice. Due to the remote location of the Rail Corridor, the amount and type

of cost-saving recycling opportunities is limited. Logistical barriers exist due to the remote and far-reaching locations of the Rail Project and the markets for recyclables not being in the vicinity. One possible opportunity that may be investigated is to take advantage of regional opportunities and establish a regional recycling industry infrastructure. Most urban areas tend to build recycling programs around pre-existing recycling programs, the Nevada Rail Project may need to look outward to become part of a regional recycling industry and tap into other regional cities, towns, universities, park services, the BLM, and other industries or communities to make recycling viable. Combining like materials such as paper, cardboard, plastics, wood, tires, batteries, or glass with other community or industry collections may make transportation more reasonable. The use of dead-head loads from the hauling of day-to-day operational materials and equipment may be used for the back hauling of recyclables to larger markets at reduced transportation rates.

The following are specific opportunities for identified wastes expected to be generated from the Nevada Rail project (additional specific opportunities can be found in Table 3-1):

- Where possible and cost effective, wastes such as used oil, used and spent hydraulic fluid, spent fuel, or waste paint will either be reclaimed/recycled or sent for reuse/burning for energy (waste to energy). Wastes in high quantity, such as spent lube oil for switching gears and waste fuel oil will be examined for possible regeneration, purification and reuse.

- Used equipment and scrap metal from construction activities or rail operations will be segregated for potential recycle.

- Compressed gas cylinders will only be purchased from vendors with returnable or refillable canisters.

- Solid wastes such as cardboard, paper, and aluminum cans from construction camps, the Maintenance-of-Way and End-of-Line Facilities, and the Transportation Operations Center will be segregated for potential recycle if markets are available and it is cost effective.

NOTE: A large amount of solid waste from construction and operations activities could be potentially be shipped to the Las Vegas APEX municipal landfill. This landfill is currently plumbed for gas collection. In the next few years, the landfill will be constructing a waste-to-energy Power Plant for the conversion of the methane gas to electricity.

- The use of pesticides and herbicides will be used with the optimum combination of control methods including biological, , mechanical, physical and/or chemical to reduce pest populations to an economical acceptable level with as few harmful effects as possible on the environment and non target organisms.

The proposed DOE Nevada Rail Project will strive to perform all activities in an environmentally sound manner and will continually assess operations to identify optimal methods to achieve environmental compliance.