71-9363

J.L. Shepherd & Associates

1010 Arroyo St.
San Fernando, CA 91340
818-898-2361

August 22, 2011

Ms. Jennie Rankin
U.S. Nuclear Regulatory Commission
Mail Stop EBB-3D-02M
Rockville, MD 20852

Re: Pre-Application Presentation to NRC

Jennie:

Attached are the Affidavit of Diana Shepherd attesting to the inclusion of Intellectual and Proprietary Information, and a forty-eight page proposed slide presentation highlighting the features of the J.L. Shepherd & Associates Model BU650B Type B Radioactive Materials Transport Package.

Please review the attachments and provide your input regarding the provision of proprietary information prior to scheduling a meeting with the staff. If necessary, revisions can be made in order to provide the public sufficient information without compromise of JLS&A's design work and effort.

Should you find the information acceptable as is, JLS&A would request a late September / early October meeting date (9-28, 10-5, or 10-12-2011).

Best regards,

W.H. (Bill) Brown
BU650B Project Manager

NMSS01

J.L. SHEPHERD & ASSOCIATES
1010 ARROYO AVE., SAN FERNANDO, CALIFORNIA 91340-1822
818-898-2361 FAX 818-361-8095

August 22, 2011

Attn: Document Control Desk
Director, Spent Fuel Project Office
Office of Nuclear Material Safety and Safeguards
U.S. Nuclear Regulatory Commission
11555 Rockville Pike
Rockville, MD 20852-2738

AFFIDAVIT OF CONFIDENTIAL INTELLECTUAL PROPERTY AND PROPRIETARY INFORMATION CONTAINED IN J.L. SHEPHERD & ASSOCIATES BU650B DESIGN PROPOSAL FOR TYPE B (U) RADIOACTIVE MATERIALS TRANSPORT PACKAGE SLIDE SHOW PRESENTATION

This Affidavit, prepared by Diana C. Shepherd, Vice President, J.L. Shepherd & Associates, 1010 Arroyo Avenue, San Fernando, California 91340, is to provide the U.S. Nuclear Regulatory Commission's Document Control Desk that pages 15 through 48 (inclusive) of the J.L. Shepherd & Associates BU650B Design Proposal for Type B(U) Radioactive Materials Transport Package Slide Show Presentation contains the confidential intellectual property and proprietary information of J.L. Shepherd & Associates, in accordance with 10CFR 2.930 and 10CFR71.1(a).

The confidential intellectual property and proprietary information, as included in pages 15-46 (inclusive) of the above referenced slide show presentation, has been specifically developed by or for J.L. Shepherd & Associates, which is not generally known to others and is of a non-public nature. The confidential intellectual property and proprietary information has been developed or obtained by J.L. Shepherd & Associates by the investment of significant time, effort, and expense and that such information provides significant competitive advantages in business.

Diana C. Shepherd
Vice President
J.L. Shepherd & Associates

Jurat

State of California
County of Los Angeles } ss.

Subscribed and sworn to (or affirmed) before me on this 22nd day of August, 20 11 by Diana C Shepherd

personally known to me or proved to me on the basis of satisfactory evidence to be the person(s) who appeared before me.

Amie Richards
Notary Public Signature

AMIE RICHARDS
Commission # 1820063
Notary Public - California
Los Angeles County
My Comm. Expires Nov 6, 2012

(notary seal)

OPTIONAL INFORMATION

DESCRIPTION OF THE ATTACHED DOCUMENT

Affidavit of Conf. Int.
(Title or description of attached document)

Prop & Proprietary Info
(Title or description of attached document continued)

Number of Pages 1 + 48 pg attachment Document Date 8/22/11

(Additional information)

INSTRUCTIONS FOR COMPLETING THIS FORM

Any Jurat completed in California must contain verbiage that indicates the notary public either personally knew the document signer (affiant) or that the identity was satisfactorily proven to the notary with acceptable identification in accordance with California notary law. Any jurat completed in California which does not have such verbiage must have add the wording either with a jurat stamp or with a jurat form which does include proper wording. There are no exceptions to this law for any jurat performed in California. In addition, the notary must require an oath or affirmation from the document signer regarding the truthfulness of the contents of the document. The document must be signed AFTER the oath or affirmation. If the document was previously signed, it must be re-signed in front of the notary public during the jurat process.

- State and County information must be the State and County where the document signer(s) personally appeared before the notary public.
- Date of notarization must be the date that the signer(s) personally appeared which must also be the same date the jurat process is completed.
- Print the name(s) of document signer(s) who personally appear at the time of notarization.
- Signature of the notary public must match the signature on file with the office of the county clerk.
- The notary seal impression must be clear and photographically reproducible. Impression must not cover text or lines. If seal impression smudges, re-seal if a sufficient area permits, otherwise complete a different jurat form.
  - ❖ Additional information is not required but could help to ensure this jurat is not misused or attached to a different document.
  - ❖ Indicate title or type of attached document, number of pages and date.
- Securely attach this document to the signed document

J.L. Shepherd & Associates

BU650B

Design Review

Type B(U)

Radioactive Materials Transport Package

J.L. SHEPHERD & ASSOCIATES BU650B TYPE B(U) RADIOACTIVE MATERIALS TRANSPORT PACKAGE

AGENDA

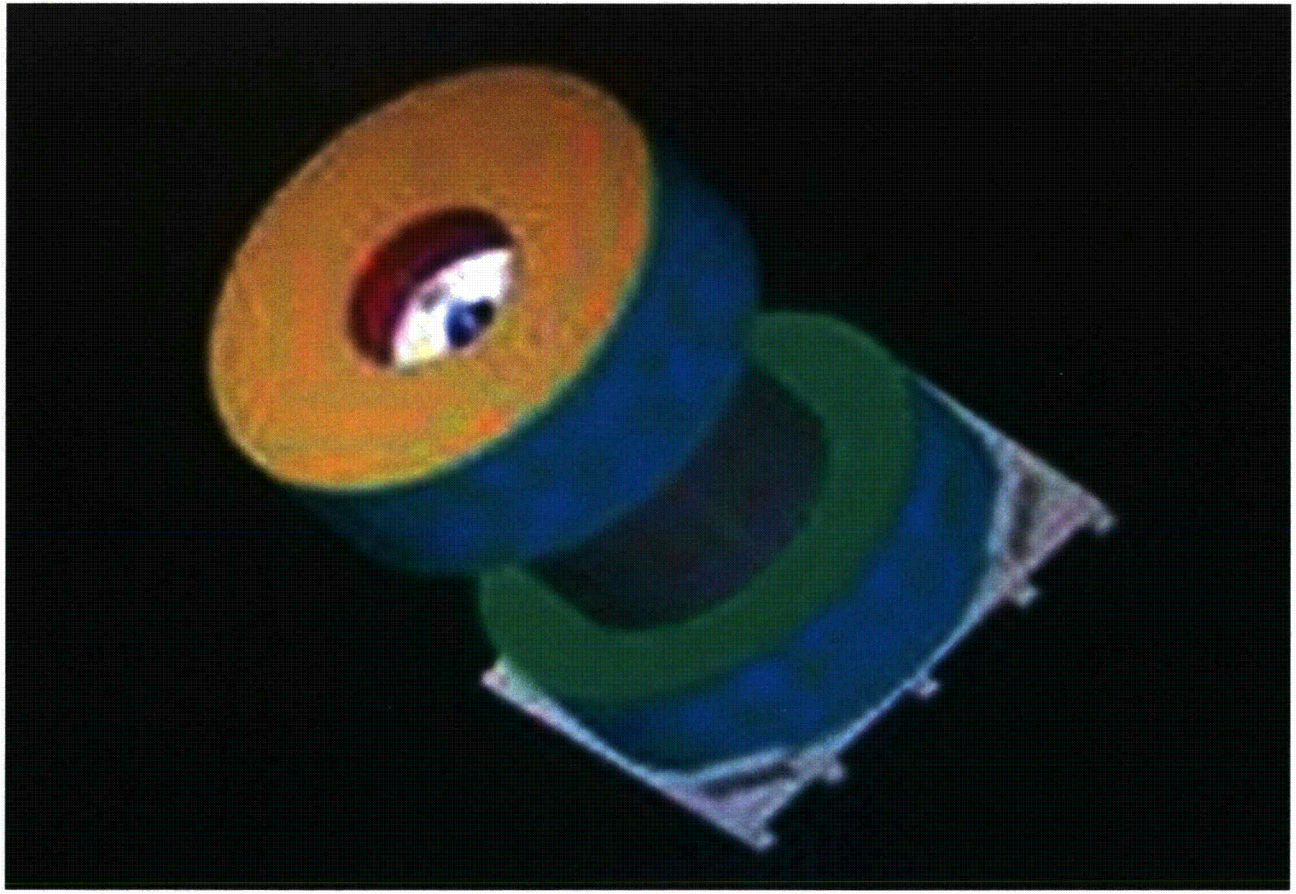
Introductions: 15 min.

Presentation of BU650B: 60 min.

Questions and Answers: 30 min

Conclusion: 15 min.

J.L. SHEPHERD & ASSOCIATES BU650B TYPE B(U) RADIOACTIVE MATERIALS TRANSPORT PACKAGE



J.L. SHEPHERD & ASSOCIATES BU650B TYPE B(U) RADIOACTIVE MATERIALS TRANSPORT PACKAGE

Design Basis (71.107)

- Provide a package capable of transporting SEALED SOURCES in various load configurations.
  - All payloads made from same materials and methods of construction
    - May have different shapes/sizes
    - Fall within a maximum payload criteria
    - Representative Computer-aided Modeling of payload variations performed to substantiate purpose.
      - » Modeling based upon extreme mass of each payload configuration.

J.L. SHEPHERD & ASSOCIATES BU650B TYPE B(U) RADIOACTIVE MATERIALS TRANSPORT PACKAGE

PACKAGE DESCRIPTION (71.33)

- Maximum Gross Weight: 12,500 pounds
- Useful Load: 6,500 pounds
- Transportation of "Sealed Sources" Only
  - 450 Watts (Decay Heat)
    - 29,250 Ci Co-60
    - 96,750 Ci Cs-137
- Shielding is obtained through use of Shielded Liners, made from same materials and methods, of various sizes and configurations up to a maximum of 6,500 pounds.
- Not intended for use of fissile materials
- No need for criticality control features
- Not intended for transport of gasses, liquids, or waste in any form.

J.L. SHEPHERD & ASSOCIATES BU650B TYPE B(U) RADIOACTIVE MATERIALS TRANSPORT PACKAGE

Design and Intended Use allows for:

- Rugged Construction
  - Stainless steel walls, per ASTM Standard
  - Stainless steel ends and lid, per ASTM Standard
  - Fully welded, per ASME Section IX
  - Easily installed/removed Impact Limiters (4 stainless steel pins & clips)

- Ease of use.
  - Bolt closure (Stainless Steel Hardware)
  - No operational seals (Sources are sealed)
  - Stainless Steel Pin and clip retention of Impact Limiters
  - Standardized cribbing/retaining media (if required)

J.L. SHEPHERD & ASSOCIATES BU650B TYPE B(U) RADIOACTIVE MATERIALS TRANSPORT PACKAGE

Design and intended use allows for:

- Ease of Maintenance
  - 2 basic sub-assemblies
- Easy to follow routine inspection regimen
- Only 4 circumferential welds on Lower Package Assembly. Seam welds of inner and outer packages are not aligned. (Other components are sacrificial).
- Closure hardware easily obtainable. (Catalog parts carried by QA-approved, Nation-wide hardware distributors).

J.L. SHEPHERD & ASSOCIATES BU650B TYPE B(U) RADIOACTIVE MATERIALS TRANSPORT PACKAGE

General Standards for All Packages (71.43)

Materials and methods of construction provide excellent safety factors. Preliminary LS-Dyna Modeling Calculations show that from a 30' drop, the

- Impact Limiter Assembly
  - Absorbs shock on impact
    - Top Drop
    - Bottom Drop
    - Corner Drops
    - Top Corner Drops (angular)
    - Bottom Corner Drops (angular)

J.L. SHEPHERD & ASSOCIATES BU650B TYPE B(U) RADIOACTIVE MATERIALS TRANSPORT PACKAGE

Lifting and Tie-Down Mechanisms (71.25)

- TIE-DOWN Mechanism (Handling Only)
  - Package may be transported in covered van or via flatbed trailer
  - Package is secured to conveyance by blocking bars or chains extending through a spider frame which interfaces with the top of the Impact Limiter
    - Secondary security is provided by a set of chain chocks located at the base of the package pallet assembly. (Package nests on a specially made stainless steel pallet designed for lifting and securing the package during transport).
- LIFTING (Handling Only)
  - A specially designed pallet is used for lifting purposes.
  - Lifting occurs by utilizing a forklift.

J.L. SHEPHERD & ASSOCIATES BU650B TYPE B(U) RADIOACTIVE MATERIALS TRANSPORT PACKAGE

Subpart G (Part 71.89)

- Opening
  - Requires removal of the top Impact Limiter, bolts and lid
  - Payload is lowered into the package by lifting means (crane, forklift, chain fall, etc)
  - Shoring or cribbing as needed to restrict movement
    - NO THERMAL MODERATION OR EXTERNAL CAGING REQUIRED
- Closure
  - Replacement of lid assembly
  - Installation of 24 bolts properly torqued
  - Re-installation of Impact Limiter

J.L. SHEPHERD & ASSOCIATES BU650B TYPE B(U) RADIOACTIVE MATERIALS TRANSPORT PACKAGE

Hypothetical Accident Conditions (71.73)

Safety Factors Obtained from preliminary LS Dyna Model Calculations:
(assumes maximum payload of 6,500 pounds in all calculations)

CG over Bottom/Top Corner Drop (41 deg) = 3.6

Direct End Drop (Top) = 17.3 (at sealed source)

Side Drop = 4.3

Closure Mechanism = Less than 20% strain applied to bolt closure

J.L. SHEPHERD & ASSOCIATES BU650B TYPE B(U) RADIOACTIVE MATERIALS TRANSPORT PACKAGE

Hypothetical Accident Conditions (71.73)

Preliminary Puncture Test models reveal excellent puncture resistance, in any configuration.

- Corner of Peg

  Most damaging peg configuration requires removal of Impact Limiter(s).

  - Edge of Peg

    Concentration of energy into a small surface area

    Adequate deflection

    Some plastic deformation of Outer Shell (minor)

    Thermal Barrier and Inner Shell remain intact

J.L. SHEPHERD & ASSOCIATES BU650B TYPE B(U) RADIOACTIVE MATERIALS TRANSPORT PACKAGE

Hypothetical Accident Conditions (71.73)

Preliminary Thermal Test Calculations reveal excellent heat transfer / heat dissipation characteristics.

- Interior Package temperature rises only 128.4°C when package is immersed in 800° C Thermal Bath for 30 minutes.
- Static Package interior temperature with 450 Watt payload is 108°C
- Combined thermal effect of test: 236.4°C or 457.5°F; nearly 170°F BELOW the melting point of lead shielding, if the lead shielding were to become exposed as a consequence of accident.