Enclosure 1

Response to NRC Request for Additional Information Dated April 23, 2004

ENCLOSURE 1
Sequoyah Fuels Corporation
Response to Request for Additional Information
Amendment Request for Raffinate Sludge Dewatering

1. What is the thickness of the concrete pad that the dewatered raffinate sludge will be temporarily stored on?

RESPONSE:

The Yellowcake Storage Pad is six (6) inch thick concrete, reinforced with number 4 (1/2 inch) rebar.

2. Provide details and descriptions, including thickness, of the material to be used as liners and covers for the temporary cells.

RESPONSE:

The material to be used as liners and covers for the temporary cells is PERMALON® Ply X-210®. This material is a 20 mil, high density, cross-laminated polyethylene, and is UV stabilized to withstand prolonged exposure to sunlight. The material is not prone to environmental stress-cracking.

SFC purchased this material in 1999, and has an adequate amount for this project. The material is new, and is still stored in the original shipping containers, which protect the material from sunlight and precipitation. The manufacturer was contacted and has informed SFC that the liner material stored in the original shipping containers will last indefinitely without degradation.

Copies of the specification sheets for the Ply X-210® are included as Attachment 1.

3. In Section 1.3.1.4, of your January 7, 2004, submittal, it is stated that the concrete pad includes a "clay" base. Provide the analysis which led to the determination that the soil beneath the pad can be classified as clay.

RESPONSE:

Section 1.3.1.4 of our January 7, 2004 submittal refers to the processing pad which is being constructed for this project, and states that the pad includes a clay base with a sealed asphalt surface. No concrete is proposed for this area.

No specific analysis was performed to classify the soil as clay. The statement that the pad includes a clay base was based on physical observation of the material during preparation of the area, as well as information related to the types of soil on site. (See Site Characterization Report, Section 3.3.2.)

4. Provide details on the bags that will be used to temporarily store the dewatered raffinate. The concern is to provide assurance that the bags will not tear during placement or while temporarily stored. Is there a specification of the maximum weight of material that can be put into a bag, and if so, how was that determined? Is there a specification on how much weight can be placed on top of a filled bag (i.e., how many bags can be stacked vertically) and if so, how was that determined?

RESPONSE:

The bag is a woven polypropylene flexible intermediate bulk container (FIBC) for shipping, handling, and storing.

Details (description of bag)

The bag intended for use for storage and shipment of dewatered raffinate sludge has the following specifications:

- Bag type: Four panel polypropylene with glued hems on all side seams.
- Weight capacity: 2200 pounds
- Volume: 35 ft3
- Diameter (filled): 45"
- Height (filled): 38"
- Type of strap: Standard (4 straps of 2" width and 10" length)
- Type of material: Woven 100% uncoated polypropylene treated for ultraviolet resistance.
- Fabric weight: 6.5 ounce
- Color: White
- Fill: Full open duffel top
- Fill closure: Web tie
- Discharge: None
- Discharge closure: Not applicable
- Bottom: Flat
- Liner: None
- Special construction:
    - Certifications: UN Packing Group II
      UN13H1 / Y / {month & year manufactured} / {test country} / {ID of test facility} / 5400 /1000/
    - Sift resistant: Filler cord in side seams, top and bottom settings.
    - Reinforcement around top: Webbing sewn around the top perimeter of the bag for added strength.

Maximum weight load in bag

The bag chosen for use by SFC has a specified weight load of 2200 pounds. The bag is constructed to an engineered design dependent on the desired performance requirements.

The fabric type, fabric weight, and special construction are each considered in the design and construction of the bag.

The bag that SFC intends to use is designed and tested to satisfy the requirements of a UN Packing Group II packaging (49 CFR 178, Subpart N – IBC Performance Oriented Standards, and 49 CFR 178.710 Standards for flexible IBCs). The bag has been tested against a top lift test. The top lift test was performed at six times the maximum net mass. The top lift test was completed in accordance with 49 CFR 178 Subpart O – Testing of IBCs, and 49 CFR 178.812 Top lift test. The criteria for passing the test include there be no permanent deformation which renders the bag unsafe for transportation and no loss of contents.

The bag that SFC intends to use has also been subjected to a drop test. The drop test was performed from a minimum of four feet. The drop test was completed in accordance with 49 CFR 178 Subpart O – Testing of IBCs, and 49 CFR 178.810 Drop test. The criteria for passing the test include there may be no loss of contents.

Maximum weight load on bag

The bag that SFC intends to use has been tested against a superimposed (stacked) load of 11880 pounds; this is equivalent to stacking more than five filled bags on top of one filled bag. The stacking test was completed in accordance with 49 CFR 178 Subpart O – Testing of IBCs, and 49 CFR 178.815 Stacking test. The criteria for passing the test are that there may be no deterioration which renders the bag unsafe for transportation and no loss of contents.

5. Provide a discussion of the potential for a tornado to damage a temporary storage cell and disperse the material. Discuss the probability of a tornado hitting this location during the period of temporary storage and the potential consequences.

RESPONSE:

The probability of any particular point in the county being hit by a tornado is 1.66×10^{-3} (the equivalent of once every 600 years.[1]

Records of tornadoes prior to about 1950 are considered unreliable, recording only 8 between 1875 and 1955 in Sequoyah County, Oklahoma. Since 1955 there have been 33 tornadoes recorded in Sequoyah County, with approximately 70% occurring in the months of April and May. Of these 33, one was not classified as to severity, 19 were classified as weak (F0 or F1 on the Fajita Scale), ten were classified as strong (F2 or F3), and three were classified as violent (F4). None of the tornadoes were classified as F5. (www.srh.noaa.gov/oun/cgi-bin/tornado.pl?county=sequoyah).

[1] NUREG-1157, Section 3.2.2, Environmental Assessment for renewal of Special Nuclear Material License No. SUB-1010, August 1985.

Tornadoes have the potential to cause damage to a temporary storage cell and cause dispersion of bagged material. The most likely consequences would be damage due to flying debris. A tornado could easily damage or remove the cover from the temporary storage cells, and flying debris could cause punctures of the Super Sacks. If this occurs, the dewatered sludge will most likely be contained on the Yellowcake Storage Pad, or will be washed down to the North or South Yellowcake Sump.

6. Provide the information previously requested regarding the effects of severe precipitation events. Note that the information provided by your submittal dated March 8, 2004, was not entirely responsive to our request. As discussed with your staff on March 16, 2004, you need to provide quantitative analysis to show how severe precipitation events will be accommodated by the drainage system. The analysis should specify the design event chosen, assumptions regarding blockage of drains, and values of parameters (such as roughness coefficients) used. If the design event is less severe than the probable maximum precipitation, you should justify its use and discuss potential impacts if it were to be exceeded.

RESPONSE:

Calculations were performed to determine the capacity of the processing pad and Yellowcake Storage Pad to accommodate a severe rainfall event (see Attachment 2). The rainfall event selected for the calculations was a storm of 100-year frequency, corresponding to 9.5 inches in a 24-hour period. The calculations assume a runoff coefficient of 99%.

Processing Pad

Due to the small size of the processing pad, in conjunction with the slope built into the pad, the rainfall event will drain to Clarifier 1A Basin with no appreciable buildup on the pad. The runoff from a rainfall event of 9.5 inches will raise the level in the basin by less than an additional 6 inches, for a total of 15.5 inches. This is above the freeboard of 12 inches currently maintained in the Clarifier Basins. The excess water from Clarifier Basin 1A will overflow into Clarifier Basins 2A, 3A and 4A, and will not overflow out of the Clarifier Basin berm.

Yellowcake Storage Pad

The storm event used in the calculation can be accommodated by the drainage system of the Yellowcake Storage Pad. The South Yellowcake Storage Pad Drain has been modified to reduce the possibility that debris will clog the drain. Additionally, the dewatered Raffinate Sludge is proposed to be stored on the north and east areas of the Yellowcake Storage Pad, and these areas are above the level at which water could build up on the pad.