

U.S NUCLEAR REGULATORY COMMISSION
DOCKET NO: N/A
February 22, 2007
Revised March 22, 2007

SAFETY EVALUATION REPORT

REVIEW OF THE LETOURNEAU INC. PROPOSAL TO TRANSFER UNSTABILIZED K061 WASTE TO US ECOLOGY OF IDAHO FOR TREATMENT AND DISPOSAL (NOTE: NEITHER LETOURNEAU INC. NOR US ECOLOGY OF IDAHO ARE NRC LICENSEES)

1.0 BACKGROUND

LeTourneau, Inc. (LeTourneau) has requested a review and appropriate approvals on the part of both the U.S. Nuclear Regulatory Commission (NRC) and the Texas Department of State Health Services (DSHS) necessary to allow the transportation and alternative disposal of cesium contaminated emission control dust (EPA listed hazardous waste, K061) and other contaminated materials from the melting of a 18.5 Gbq (500mCi) Cs-137 source into the air pollution control system at its electric arc furnace steel mill near Longview, Tx., which occurred on or about July 20, 2006. Earth Tech., a Texas licensee, is managing the waste in accordance with its Texas radioactive materials license (#L05449).

Specifically, LeTourneau requested, in a letter dated October 27, 2007 (letter request), an exemption per 10 CFR Part 30.11 to allow subsequent disposition of the material without NRC licensing authority. Subsequent to the LeTourneau request, DSHS requested, in a letter dated November 14, 2006, that the U.S. Nuclear Regulatory Commission make a determination as to whether or not these wastes may be disposed of at the Resource Conservation and Recovery Act (RCRA) facility managed by US Ecology of Idaho. DSHS has stated that it will approve the removal of the wastes from the LeTourneau site for transportation and disposal "(i)f the NRC determines that disposal can occur."

2. TECHNICAL EVALUATION

The staff has reviewed the analysis provided by LeTourneau in its letter request and has found that the potential doses to members of the public, either through proximity to the waste as it is transported or via exposures to a worker at the US Ecology of Idaho facility, or to a current or future resident around the facility, are less than "a few millirem" and consistent with the NRC's policy which would be applicable to NRC licensees regarding 10 CFR 20.2002 approvals. (While the policy is relevant as a regulatory benchmark reference, 10 CFR 20.2002 does not directly apply because no persons associated with this action are NRC licensees or applicants.) Overall, NRC agrees that the proposed action is consistent with our Staff Technical Position for emission control dust and other incident related material.

2.1 SOURCE TERM

The emission control dust has been contaminated from the melt of an approximately 18.5 Gbq (500mCi) Cs-137 source into the air pollution control system at an electric arc furnace steel mill. LeTourneau estimates that approximately 250 tons of wastes were generated.

Volumetric concentrations of the waste material in each of eleven roll-off containers is .925 Bq/g (25 pCi/g) or less.

2.2 EXPOSURE SCENARIOS

In 1997, the NRC published in the Federal Register, a Final Staff Technical Position on the subject of disposing of contaminated emission control dust and related material in RCRA facilities (Disposition of Cesium-137 Contaminated Emission Control Dust and Other Incident Related Material; Final Staff Technical Position. Federal Register: March 19, 1997 (Vol. 62, Number 53)). The Final Staff Technical Position allows for KO61 waste to be disposed at RCRA facilities as long as the pretreatment concentrations are less than 3.7 Bq/g (100 pCi/g) and the facility has received less than 37 GBq (1 Curie) of waste from all sources. The technical position assumes that the waste is treated by a licensed waste processor.

In this case, the situation meets most of the criteria in the staff position, except for the stabilization of the waste. DSHS has stated, in a February 1, 2007 letter of clarification to the NRC, that it would allow the removal of the waste per Title 25, Texas Administrative Code § 289.252(cc)(2)(E) from the LeTourneau site, notwithstanding the provisions of Title 25, Texas Administrative Code § 289.202(ff)(20(A) related to waste stabilization. LeTourneau is proposing to dispose of waste that averages less than approximately 0.925 Bq/g (25 pCi/g). US Ecology of Idaho has previously received Cs-137 contaminated KO61 but has ample margin to allow the additional inventory. The LeTourneau waste is currently in railcars and has not been stabilized. LeTourneau proposes to have US Ecology of Idaho process and stabilize the KO61 waste at the Idaho facility. NRC does not license or otherwise regulate the US Ecology of Idaho facility.

2.2.1 EXPOSURE TO US ECOLOGY WORKERS

Note: For purposes of this analysis, US Ecology site workers are considered members of the public, not radiation workers and exposure criteria are applied accordingly.

LeTourneau's proposal calculates the exposure to workers at the US Ecology of Idaho site while stabilizing the waste. The potential dose was calculated to be a fraction of a mrem due to the distance between the worker and the waste, the small concentration of Cs-137 in the waste, and the relatively short duration of the exposure. Cs-137 is primarily a hazard from external exposure for industrial exposures, therefore, the potential hazard from inhalation is minimal in this situation. NRC concurs that the stabilization process should not result in a significant dose and that the departure from the staff technical position, cited above, is acceptable for this situation.

2.2.2 EXPOSURE ASSOCIATED WITH TRANSPORTATION

The staff also considered the impact from waste being in a more dispersible form (versus the stabilized waste form assumed in the Staff Technical Position) during transportation of the waste from Texas to Idaho, which could result in additional risk in the case of an accident. However, the staff concludes that this situation should not result in a significant risk for the emission control dust and related waste for the following reasons: (1) the low concentrations across the entire shipment would result in a small dose even in the event of an accident; and (2) the shipment is by rail, a mode which has a very low rate of accidents. In the event of an accident, the clean-up workers would likely get doses similar in magnitude (i.e., a fraction of a

mrem) to the worker at the US Ecology of Idaho site. This again is because of the relatively small concentration of Cs-137 in the waste and the relatively short duration of the exposure. Any residual radioactivity remaining after clean-up would be to some degree diluted in the environment and even extremely conservative long-term analyses, i.e., assuming that the derailment occurred in a residential neighborhood, would suggest peak doses of around 1 mrem per year. For the resident scenario, the receptor is assumed to be exposed longer to residual cesium but at a lower concentration due to dilution from the clean-up activities or incidental contamination from a household garden. Given that the bounding conservative long-term analyses suggest negligible doses to either clean up workers or nearby residents from an accident, the NRC finds the departure from the stabilization requirement in the Staff Technical Position, cited above, acceptable for this situation.

2.2.3 POST CLOSURE

The NRC staff has reviewed the applicant's technical analysis based on hydrogeologic conditions at the US Ecology site and concurs with the conclusion that the contribution to post closure exposure associated with the waste source term herein is insignificant. Maximum calculated dose rate associated with the entire facility source term is estimated to be 0.1072 mSv/yr or 10.72 millirem/yr (LeTourneau letter request). That dose results from a radionuclide other than Cs-137.

2.2.4 SUMMARY OF TECHNICAL REVIEW OF EXPOSURE SCENARIOS

Based on this review, the staff finds the proposal by LeTourneau to be technically acceptable. The NRC will request the tonnage and concentration information from US Ecology of Idaho after receipt of the KO61 waste to update our files.

3.0 SUMMARY AND CONCLUSIONS

Based upon the above analysis, LeTourneau has demonstrated, and the NRC staff has confirmed that the proposed transfer of the material to an entity not licensed by the NRC for the purpose of disposal pursuant to its RCRA Subtitle C permit is expected to result in minimal risk to workers and the public. LeTourneau analyzed the dose to the transport operators, members of the public in the vicinity of a transportation routes, and US Ecology site workers and future residents. NRC staff verified minimal dose impacts associated with transportation accidents.

Further, in accordance with the provisions of 10 CFR 30.11 "(t)he Commission may, upon application of any interested person or upon its own initiative, grant such exemptions from the requirements of the regulations in this part....as it determines are authorized by law and will not endanger life or property or the common defense and security and are otherwise in the public interest." Based on the above analysis, transport and disposal of the subject material poses no danger to public health and safety, does not involve information or activities that could potentially impact the common defense and security of the United States, and it is in the public interest to dispose of the wastes in a controlled environment, such as that provided by a RCRA Subtitle C hazardous waste disposal facility. Therefore, with respect to the material that is the subject of this Safety Evaluation Report, the staff concludes that the operator of the site authorized for disposal, in accordance with the stipulations and limitations contained in a permit issued by others pursuant to RCRA, may be exempted from further NRC licensing requirements.