HALLIBURTON SERVICES

GOVERNMENT REGULATIONS DEPARTMENT
R.L. BECHTEL
Manager
R.A. LEONARDI, JR.
Radiation Safety Officer

Writer's Direct Dial Number
(405) 251-3565

DRAWER 1431, DUNCAN, OKLAHOMA 73536-0100

Senior Environmental Engineers
S.A. BURFORD
R.E. HOUSER
Environmental Engineers
J.W. PRESGROVE
J.R. SANDERS, JR.

May 7, 1987

Mr. Jack Whitten
U. S. Nuclear Regulatory Commission
Region IV
611 Ryan Plaza Drive
Suite 1000
Arlington, Texas 76011

MAY 12 1987

Re: License Amendment Request, NRC License 35-00502-03

Dear Mr. Whitten:

Halliburton Services wishes to amend NRC License Number 35-00502-03 to authorize the following activities to be conducted at our North-40 Osage Road, Duncan, Oklahoma location and the addition of an additional person as Assistant Radiation Safety Officer.

We are requesting that Johnny R. Sanders, Jr. be added as Assistant Radiation Safety Officer. Attached for your consideration is a resume' of Mr. Sanders qualifications.

Additional activities requested are as follows:

A. The decontamination and/or disposal of facilities and equipment.

B. The removal and/or storage of contaminants and/or contaminated soil at specified locations.

C. To conduct all related operations connected with the A. and B. above.

In support of the above amendment request, the following answers are submitted in response to your questions:

Q1. Please submit a complete set of operating and safety procedures for the North-40 clean-up operation.

Please find enclosed a complete set of Operating and Safety Procedures addressing radiation safety. These procedures were derived from the license application and supporting data relative to the issuance of

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35-00502-05. The decontamination procedures listed in Part VII narrate the efforts made to remedy the contamination problem at the North-40 site.

Q2. Please submit a physical characterization of the radioactive waste/contaminants.

The physical characteristics of the radioactive contaminants associated with the original rod rack cutting operation and the subsequent decontamination efforts at the North-40 location are derived from 1) Isotopic Analysis by Ft. Calhoun Station Nebraska and 2) Gamma Spectral Analysis on samples representative of the North-40 Rod Rack Cutting Facility and the two burn pits in question. Additionally, surface soil samples from the Rod Rack Cutting Compound have been sent to Teledyne for Gamma Spectral Analysis to verify clean-up efforts over the past six (6) months. A summary of the physical characteristics of the contaminants in question are as follows:

Area Radiation Levels: All areas have been surveyed with Ludlum Model 14C equipped with Ludlum Model 44-2 GM probe. All area radiation levels are less than or equal to 0.1 mR/hr.

Radionuclides Present:

Co-60
Co-58
Cs-137
Cs-134
Mn-54

Physical & Chemical Form:

We believe radionuclides exist as solid metallic oxides. The above radionuclides are associated with pieces of stainless steel rod rack, metal slag, or as fine pieces of contaminated metal mixed in with aggregate clay in the soil. Our clean-up efforts indicate the contamination is limited to metallic oxides and discrete pieces of metal physically attached to clay particles.

Solubility:

The solubility performed by our personnel indicate the radionuclides are not soluble in water and only slightly soluble in 15% and 31.5% hydrochloric acid. These solubility tests were run under static conditions at ambient temperature for seventy-two (72) hours. Additionally, Teledyne is also conducting solubility tests on contaminated soil samples recently submitted. Test results are not yet available from Teledyne.

Q3. Please give estimation of the total anticipated volume of generated rad waste.

Halliburton's soil decontamination efforts indicate approximately 651 cubic feet of rad waste contained in the following containers.

(3) 6' X 4' X 4'	=	288 ft^3
(2) 4' X 4' X 4'	=	128 ft^3
(1) 10' X 4' X 4'	=	160 ft^3
(10) 55 Gallon Drums	=	75 ft^3
		651 ft^3 Total

An estimation of the final volume of rad waste generated at the completion of our decontamination/clean-up activities is difficult to determine at this time due to insufficient information as to the extent of decontamination required for NRC acceptance.

Q4. Please estimate the total activity in the above generated rad waste. Please address any airborne problems associated with the clean-up activity.

Based on the rod rack smear surveys that were originally submitted by Ft. Calhoun on removable contamination and the Teledyne soil sample results to date, a conservative estimate of 15 mCi is associated with metallic oxides on numerous discrete pieces of stainless steel metal. The use of fugitive dust monitoring on fences surrounding the cutting area and the use of personnel air sampling pumps on clean-up personnel has indicated no airborne radioactivity is present.

Q5. Please address procedures for packaging the rad waste in compliance with 10 CFR Part 61 and 10 CFR Part 71.

Packaging of generated rad waste will be in accordance with the disposal site criteria of either U. S. Ecology, Inc. or Chem-Nuclear Systems, Inc., which incorporates the requirements of 10 CFR Part 61 and 10 CFR Part 71.

Q6. Please specify the arrangements that have or will be made for final disposal of rad waste at a low level waste site.

Permanent disposal of low level rad waste will be either in accordance with the requirements of Chem-Nuclear Systems, Inc. or U. S. Ecology, Inc. or the low level radioactive waste disposal yet to be established in the Central Low Level Radioactive Waste Compact Region. Additionally, on-site storage in lieu of permanent disposal is to be considered as a viable option based upon economics and construction requirements of a storage facility.

Q7. Please specify a time frame for the ultimate final disposal of the generated rad waste.

The time frame for permanent disposal will be as expeditiously as possible with exactness determined by the substance and length of our negotiations, and the lead time required by the disposal company if that is the option selected.

Q8. Please specify the short term arrangements for the storage of the generated rad waste.

The generated rad waste is containerized in appropriate containers with adequate closures in fenced compounds for holding until final disposition

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is arranged. The fenced compounds allow the rad waste to be stored in secure and controlled areas with only authorized access.

Q9. Please specify Halliburton's decontamination limits for equipment, facilities, and soil.

Halliburton's decontamination limits for facilities and/or equipment are consistent with NRC recommendations and are as follows:

Facilities/Equipment - 1000 dpm/100 cm^2
Beta/Gamma Removable

0.2 mR/hr @ 1 cm
Fixed

Soil Contamination Limits - Contaminated soil limits will be as follows:

(1) if designated as an unrestricted area, the soil contamination limits will be greater than the limits specified in 10 CFR, Part 20, Appendix B, Table II, Column 2 by a factor of 10 with the units changed from µCi/ml to µCi/gm and

(2) if designated as a restricted area, the soil contamination limits will be greater than the limits specified in 10 CFR, Part 20, Appendix B, Table I, Column 2 by a factor of 100, with the units changed from µCi/ml to µCi/gm.

Q10. Please submit area sketch and description of the North-40 area in question including burn pits and rod rack fenced compound.

Please find enclosed Figure 1, depicting the layout of the North-40 project area as requested.

Figure 1: Sketch of the entire North-40 delineating property lines, and the location of the Rod Rack Cutting Area Fenced Compound and the two Burn Pits as well as the smaller fenced storage compound just South of the Burn Pits.

Q11. Please submit copies of all soil sample analysis results.

Please find enclosed a copy of Teledyne Isotopes' "Report of Analysis" dated February 19, 1987 covering the analysis of core soil samples taken in the two burn pits in question. Sampling locations are indicated on the enclosed Figure 1 for the burn pits and the area surrounding the Rod Rack Cutting Compound.

* Sample #1 - Surface soil sample taken in two dug drainage ditches used as water run-off from Rod Rack Cutting containment tent.

* Sample #2 - Surface soil sample taken in large five foot diameter drainage ditch just South of the Rod Rack Cutting Compound.

* Sample #3 - Water sample taken in a small water discharge ditch that receives the missile compound water run-off.

* Sample #4 - Soil sample taken on bottom of the ditch mentioned in Sample #3 above.

* Sample #5 - Water sample taken from the large ditch evaporation pond just Southeast of the Rod Rack Cutting Compound.

* These sample location and subsequent analysis were requested by Mr. Ricketson during his investigation in December 1986 as a result of allegation received by the NRC prior to his visit in December.

  Samples E-3, E-7, and E-10 - Composite core samples taken near the South, and North ends and midpoint of the excavated portion of the East Burn Pit at depths of 3 feet, 7 feet, and 10 feet respectively.

  Samples W-3, W-7, and W-10 - Composite core samples taken near the South, and North ends and midpoint of the excavated portion of the West Burn Pit at depths of 3 feet, 7 feet, and 10 feet respectively.

Points marked S-1 thru S-11 denote soil samples of approximately one pint each taken after extensive clean-up effort which should represent areas of the highest contamination. Currently we are awaiting results of the gamma spectral analysis by Teledyne, Inc.

Hopefully this request will meet all your requirements as outlined by Chuck Cain to Richard Leonardi, Jr. If you have questions or need clarification please contact Richard Leonardi, Jr. at 214/983-1821 or the Department of Government Regulations.

Sincerely,

R. L. Bechtel

RLB/RAL/cdo
Enclosures

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