PDR 40-8625

energy fuels nuclear, inc.
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March 3, 1980

Mr. LeRoy Persons
U.S. Nuclear Regulatory Commission
7915 Eastern Avenue
Silver Springs, MD 20910

Dear LeRoy:

Enclosed is a report on the estimated costs of the decommissioning program for the Hanksville Ore Buying Station. This information should satisfy your request made at our January 31, 1980, meeting. Total decommissioning and reclamation costs are estimated at Sixty Thousand Nine Hundred Dollars (60,900.00) in 1979 costs. The Energy Fuels bond in the amount of One Hundred Five Thousand Dollars ($105,000.00) should sufficiently take care of the decommissioning costs even after applying a reasonable escalation for inflation.

If you have any questions with regard to the breakdown of costs, please give me a call.

Sincerely,

George E. Glasier

George E. Glasier

GEG/jm

Enclosure

cc: C. E. Baker

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CONSULTING ENGINEERS, INC.

February 29, 1980

Project No. RM78-682B

Mr. C.E. Baker
Energy Fuels Nuclear, Inc.
Suite 900
Three Park Central
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Denver, Colorado 80202

MAR 3 REC'D

Letter Report
Hanksville Ore Buying Station
Decommissioning Program
Hanksville, Utah

Dear Ed:

As requested by you, a decommissioning program for the Hanksville Ore Buying Station (OBS) has been developed including estimated costs. The details of the program basis, specific program tasks, and associated costs are discussed below.

PROGRAM BASIS

Cleanup Criteria

The program is based on meeting the U.S. NRC target criteria of:

- Gamma dose-rate of 5 microroentgens per hour (above background level measured one meter above the ground surface),
- Radon-222 flux of 0.006 working levels (above background).

These criteria are from the NRC Staff Technical Position Paper entitled "Interim Land Cleanup Criteria for Decommissioning Uranium Mill Sites", May 1978. Meeting these criteria will permit unrestricted use of the OBS area.

Unit Prices

The unit prices used in estimating this program are the same as used for the White Mesa mill decommissioning program presented in our letter dated February 14, 1980, and our letter dated June 25, 1979 discussing the tailings area reclamation. These unit prices are:

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BECKLEY, WV CHESTERTON, IN CHICAGO, IL HOUSTON, TX LAGUNA NIGUEL, CA
PITTSBURGH, PA WILMINGTON, NC BRUSSELS, BELGIUM TEHERAN, IRAN

- Soil gamma survey - $1000 per person-day,
- Topsoil excavation hauling and spreading - $1.10 per cubic yard,
- Revegetation including final grading, seeding and fertilizing - $600 per acre.

In addition to these values, a unit price for hauling contaminated soil from the OBS to the tailings facility was determined. This price is based on information from local haulers' budget-type estimates and the unit price for hauling from the Environmental Impact Appraisal (EIA) of the Hanksville OBS, August 1979. Based on these sources a unit price for hauling the contaminated soil of $0.10 per ton-mile was determined.

All the unit prices given above are mid-1979 prices. Based on the discussion presented in our letter dated February 14, 1980, the inflation factor applicable to these prices is seven percent per year.

Design Criteria

The decommissioning program was designed on the following criteria:

- All facilities and stockpiled ore will be removed from the OBS prior to the decommissioning phase. The OBS is presently non-operational and most of the facilities have already been transferred to the White Mesa mill site. It is anticipated that the remaining items will be treated similarly.
- Contaminated soil beneath the ore stockpile will be removed with the ore. Care will be exercised to insure that no ore is lost and that all uranium bearing material is recovered and processed to maximize recovery.
- The brief operational life of the OBS (since January 1977) will minimize the possibility of contamination outside the immediate area of the stockpile and each facility within the OBS.
- The total area enclosed by the OBS fence and the access road from the highway is 10 acres.
- The total plan area of the ore stockpile, as of February 1980, is 2 acres. This will be the maximum area covered since the OBS is no longer receiving ore.
- No topsoil was stripped and stockpile prior to construction of the OBS.

DECOMMISSIONING PROGRAM

Summary

The decommissioning program for the Hanksville Ore Buying Station is composed of the following four main tasks and associated estimated costs:

	ESTIMATED COST
o Soil gamma survey of the OBS area and adjacent areas to detect contaminated soil not meeting the target criteria,	$ 6,000
o Removal of contaminated soil detected during the first task,	40,000
o Retopsoiling of all necessary areas,	6,200
o Revegetation of all retopsoiled and disturbed areas.	8,700
TOTAL	$60,900

A detailed discussion of each of these tasks and costs is given in the following paragraphs.

Soil Gamma Survey

A gamma survey of the soils within and adjacent to the OBS is required to detect areas where the soil has been contaminated by uranium ore from the stockpiling operations, or by windblown or water-transported means. Based on the NRC staff position paper referenced in the second paragraph of this letter a gamma survey, detecting areas not meeting the gamma dose-rate targe criteria, will also identify all areas not meeting the radon-222 criteria. This relatio hip is valid unless the contamination is slighly buried. To determine if any areas with buried contamination occur it is necessary to lower the gamma probe down shallow holes thereby detecting contaminated horizons.

The soil gamma survey will consist of reconnaissance by a field team utilizing a hand-held scintillator. Traverses on a grid pattern across the OBS and adjacent areas will be made. At selected locations shallow holes (3-4 feet deep) will be excavated and surveyed to check for buried contamination. Areas exceeding the target criteria will be flagged. Due to the small area involved and the minimal contamination anticipated, the survey is estimated to require three days. The survey team is assumed to consist of two individuals, therefore, utilizing the unit price of $1000 per person-day, discussed in the previous section, the total estimated cost of the soil gamma survey is $6,000.

Removal of Contaminated Soil

Little contamination is anticipated at this site for reasons discussed above. However, for estimating purposes a contingency of three acres is assumed as being lightly contaminated. This total area consists of an area of two acres within the OBS which is contaminated from the various ore-handling operations and an area of one acre outside the OBS which is contaminated by windblown or water-transported sources. This three acre area is in addition to the stockpile area (2 acres) and is considered reasonable due to the small size of this facility and small volume of ore being stockpiled.

A six inch depth of soil is estimated to be removed from the contaminated area. Therefore, the total volume of contaminated soil is 2420 cubic yards and assuming a unit weight of 100 pounds per cubic foot, the total weight of contaminated soil is 3267 tons. Using the unit price of $0.10 per ton-mile, discussed in a previous section and the transport distance from the OBS to the White Mesa mill of 122 miles, the total cost of contaminated soil removal is $39,857. This value is rounded-up to $40,000 for estimating the total cost.

Retopsoiling

Some areas will have been disturbed by the OBS facilities and by the removal of contaminated soil and will require retopsoiling prior to revegetation. Based on the soil survey conducted at the site, two soil types occur in the immediate area. These two soil types and some specific data, as reported in the EIA, are:

- Neskahi-like fine sandy loam - This soil type is mapped in approximately the southern one-third of the OBS area and is suitable for use during reclamation to a depth of 40 inches.

- Rairdent-like fine-sandy loam - This soil type is mapped in approximately the northern two-thirds of the OBS area including the area of the stockpile, crusher building, and ore pad. This soil type is not considered suitable for use during reclamation.

Since no topsoil was stripped prior to construction of the OBS, all topsoil will need to be borrowed from suitable areas, i.e. Neskahi-like soil, adjacent to the OBS.

All of the area within the OBS in the Rairdent-like soil type (estimated 6 acres) will need to be retopsoiled. However, since this area includes the stockpile and major facilities it is assumed that all the lightly contaminated contingency area (2 acres) also falls within this area. Therefore, the total area within the OBS requiring retopsoiling is 6 acres. The rest of the area within the OBS is in Neskahi-like soil and since it is reported to be suitable for reclamation to a depth of 40

inches, it is assumed that this area may be reclaimed by working and grading, as necessary, and not placing additional topsoil.

The one acre contingency area outside the OBS assumed to be lightly contaminated, is further assumed to occur in Rairdent-like soil and therefore will require retopsoiling. Therefore, the total area requiring retopsoiling, within the OBS and outside it, is seven acres.

The thickness of topsoil required to be replaced is estimated to be six inches. The total volume of topsoil required is 5647 cubic yards and at the unit price of $1.10 per cubic yard the total cost is $6212. This value is rounded-off to $6200 for estimating purposes.

The topsoil is assumed to be borrowed from areas adjacent to the OBS and located in Neskahi-like soil. The depth of borrow is estimated to be twelve inches, therefore the topsoil borrow area will disturb 3.5 acres.

Revegetation

Areas disturbed by the OBS, removal of contaminated soil, or borrowing of topsoil will require revegetation. Based on the program discussed above the total area requiring revegetation is 14.5 acres (OBS = 10 ac., outside contaminated area = 1 ac., and borrow area = 3.5 ac.). Using the unit price of $600 per acre, discussed in a previous section, the total cost for revegetation is $8,700.

CLOSURE

The previous sections have presented the details of the decommissioning program for the Hanksville Ore Buying Station. The total estimated cost of this program is $60,900 (mid-1979 prices).

If you have any questions or require additional information do not hesitate to contact us.

Very truly yours,

Corwin E. Oldweiler

Corwin E. Oldweiler
Project Engineer

CEO:lm
CC: G.E. Glasier, Energy Fuels
D.K. Sparling, Energy Fuels, Blanding
H.R. Roberts, Energy Fuels, Blanding