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September 27, 1990

Mr. John D. Kinneman, Chief
United States Nuclear Regulatory Commission
Region I, Nuclear Material Section B
475 Allendale Road
King of Prussia, Pennsylvania 19406

Dear Mr. Kinneman:

As you know, on August 24, 1990, Heritage Minerals Inc. ceased processing and recovery operations at its site near Lakehurst, New Jersey. As a result of this cessation, we have been forced to re-evaluate our plans for decontaminating the site and for transferring or disposing of the monazite. We are writing to let you know of our current plans in that regard.

I also want to thank you for your understanding and flexibility in supporting our decision to begin immediate decontamination of the plant buildings and equipment. Decontamination is currently proceeding smoothly.

Prior to our decision to cease operations at the site, you and I spoke by telephone on August 3, 1990. At that time, you suggested that we prepare a proposed "scheme" for licensing the site in a manner that will be acceptable to both NRC and Heritage. You also requested that we provide you with a brief discussion of our view of the [illegible] tional issues that affect

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NRC's authority over various materials and waste streams which are present at the site. Both discussions follow. We have first presented our view of the legal and jurisdictional issues at the site, which we believe, in turn, justify our proposed licensing and decontamination plans, which follow thereafter.

At the outset, we also want to note our recognition and appreciation for NRC's concerns regarding health and safety issues at the site. It is our hope that these concerns can be fully satisfied without Heritage being forced to relinquish any of its legal rights. Moreover, we recognize and in no way dispute, NRC's right and responsibility to license and regulate certain activities at the site which directly involve the possession, use and transfer of source material.

I. LEGAL AND JURISDICTIONAL ISSUES

As we have noted in our previous telephone conversations, we believe that NRC authority at the Heritage site properly applies to those areas where until recently source material was being generated and processed at the site, i.e., the dry mill, portions of the wet mill and, of course, the monazite storage area. Our view is that other areas of the site cannot properly be considered as within the scope of NRC authority. Our reasons for this conclusion are set forth more fully below

As you know, the primary NRC enabling statute, the Atomic Energy Act, 42 U.S.C. 2071-2112, as amended, grants NRC jurisdiction over "source, special nuclear and by-product material." Special nuclear material is not present at the site so no regulatory requirements relating to its possession and control are applicable. More importantly, NRC controls related to by-product material, although potentially more relevant, are equally inapplicable.

The statutory definition of by-product material is "tailings or wastes produced by the extraction or concentration of uranium or thorium from any ore processed primarily for its source material content." AEA 11(e)(2), 42 U.S.C. 2014(e)(2) (emphasis added). This same definition is repeated verbatim at 10 C.F.R. 40.4 which, by its own terms, "establish[es] procedures and criteria for the issuance of licenses to receive title to, receive, possess, use transfer or deliver source and by-product material as defined in this part."

The statutory definition of by-product material was enacted by Congress in order to alleviate NRC concerns regarding the scope of its jurisdiction over final disposal of mill tailings at formerly licensed inactive uranium milling sites. See Kerr McGee Corp v. U.S. NRC, Case no. 87-1254 (D.C. Cir. 1990), 1990 U.S. App. Lexis 6437 at p. 5 (stating that "as early as 1960,

the AEC had concluded that because these mill tailings generally could not be classified as source material (their source material content being below the 0.05% by weight stipulated by NRC regulations, 10 CFR 40.4(h)), they lay outside the AEC's statutory licensing authority and therefore beyond its regulatory reach." Id.) See also Final EIS for Uranium Milling NUREG 0706 at p. 13-1,2. Given that NRC's jurisdiction was admittedly limited with regard to wastes from nuclear fuel cycle facilities such as uranium mills, it follows that wastes from a non-nuclear fuel cycle facility that do not result from a process designed to recover source material for its source material content, cannot meet the definition of by-product material and therefore lie outside the scope of NRC's regulatory authority.

While there is source material currently present at the Heritage site, no ores at the site were ever processed by Heritage or its predecessors "primarily for their source material content." Instead, source material was incidentally generated through physical concentration of the naturally occurring monazite as a side effect of the recovery of zircon and titanium. Therefore, it is apparent that no by-product material is present at the site. Given this fact, it logically (and inevitably) follows that NRC regulation of the Heritage is limited to those areas of the site where source material was

possessed, used, processed or transferred. These areas would include the dry mill, portions of the wet mill and the monazite pile.

We recognize that because, at some time during earlier processing activities, monazite waste at source material concentrations was re-combined with other materials and placed in the area marked in blue on the site map, NRC might view the entire area as subject to NRC jurisdiction. We believe such an interpretation would be both unjust and incorrect as a matter of law.

As you know, Mineral Recovery Inc., (and therefore Heritage Minerals Inc. as well) sought and obtained a determination from NRC that the processing at the site did not generate source material. Mineral Recovery Inc. and Heritage Minerals Inc. relied to their detriment, at significant financial risk, upon NRC's determination, which they sought prior to beginning operations. Had they been informed of a different interpretation, they might have altered their process or even declined to begin processing. NRC, not Heritage, made the determination that no source material existed at the site and NRC is bound by its prior interpretation.

In fact, parallels between the issue of NRC jurisdiction over the Blue area wastes and that of NRC's jurisdiction over

uranium mill tailings prior to the amendment of the definition of by product material argue persuasively that NRC does not have jurisdiction over the Blue area wastes even if it had not previously rendered the above noted determination. Given that NRC's position in 1960 was that it lacked jurisdiction over wastes from a licensed nuclear fuel cycle facility's prior operations in which source material was processed for its source material content but that no longer contained source material concentrations, it seems apparent that NRC would similarly lack jurisdiction over waste from past operations in which source material was not processed for source material content and which no longer contains source material concentrations.

Nevertheless, we recognize NRC's concerns regarding the health and safety questions raised by the radium levels in the Blue and Gray areas, even though they do not contain source material. We plan on working with the NRC, in conjunction with the appropriate state authorities, to address these concerns. However, it is clear from statements of NRC itself that radium levels by themselves do not afford NRC a basis for jurisdiction over areas of the site where source (or by-product) material does not appear. See Memorandum of Howard K. Shapar, Assistant General Counsel, to John H. Mcbride, Division of Materials Licensing dated 9/22/65 stating that: "...radium is not

itself within the jurisdiction of the Commission..." Id. at p. 2. See also Naturally Occurring and Accelerator Produced Radioactive Materials, (NARM), 1987 review, NUREG 1310 (March 1988) at pp. 17, 24, 26, 37.

In this regard, it is also helpful to note that the Branch Technical Position Paper Regarding Disposal or Onsite Storage of Uranium Wastes From Past Operations, 42. Fed. Reg. 52061 (October 23, 1981), while an extremely useful guide regarding options for controlling radium concentrations and radon emissions from NRC licensable materials and activities, is not a binding regulation and in any event cannot be considered controlling with regard to materials outside NRC's authority. In fact, as you know, the Branch Technical Position is actually directed primarily toward decommissioning activities at uranium mill tailings sites and not toward sites where source material is generated only incidentally. Nevertheless, we believe the Branch Technical Position paper can be useful in serving as a guideline for Heritage to recover and reclaim the areas of the site not subject to NRC jurisdiction in a manner that will adequately protect public health and safety.

Finally, with regard to the overall issue of NRC jurisdiction, it is important to keep in mind that there are many mining activities which could potentially be the subject

to NRC jurisdiction under a broad interpretation of the scope of NRC's authority based solely on the incidental and undesired appearance of source material at some point in the mining process. Not only would NRC lack jurisdiction, technical expertise and administrative resources sufficient to deal with such activities, NRC would also inevitably encounter very substantial resistance from affected mining operations. In essence, NRC set the 0.05% level defining source material to limit the scope of its regulatory involvement for precisely such reasons. Therefore, as a policy matter of overarching concern, NRC should accept the limits on its jurisdiction, at both the Heritage site and other similar sites, to deal solely with source, special nuclear and by product material as those terms are defined by statute and NRC regulation.

II. PROPOSED LICENSING AND DECONTAMINATION SCHEME

In light of the foregoing discussion and Heritage's decision to close the plant, we have evaluated our alternatives for decontaminating the site and decommissioning the plant. The following discussion addresses our proposed scheme for achieving this result in a manner that we believe will satisfy Heritage's, NRC's and the States' concerns about long-term protection of public health. In particular, it discusses, in turn, our plans for disposing or transferring any source

material present at the site and for addressing the remaining areas of the site where elevated radium concentrations are present.

A. The Monazite Pile/Source Material

Four primary alternatives currently exist for disposing of the monazite pile. These are:

1) to transfer the monazite to another NRC licensee for processing;
2) to dispose of the monazite at sea;
3) to bury the monazite on-site; and
4) to dispose of the monazite at a licensed disposal facility in the western United States.

These alternatives vary considerably, both in their cost and ultimate environmental impact. Each alternative is discussed more fully below.

1. Transfer to Another Licensee

A preferred alternative, for both economic and environmental reasons, would be to transfer this material to another NRC licensee for processing and recovery of the monazite values. Although we are currently searching for a third party willing and able to accept such an arrangement, because this alternative depends upon both market conditions

and the agreement of a third party, it may not become available. In the event that such an alternative does present itself, we trust that NRC would be amenable to granting us the appropriate license.[1/] However, if no such opportunity presents itself, another disposal alternative, as discussed below, will need to be approved.

2. Disposal at Sea

In the event that no licensee is willing or able to accept the monazite for processing, we believe the next most appropriate disposal option would be to disperse the monazite sands at sea. Although we recognize that such a disposal method is somewhat unusual, we believe that it represents an environmentally safe and cost effective means of disposal.

There are a number of important reasons which support this conclusion. First of all, the monazite is itself a naturally occurring radioactive material present in the sand underlying the state of New Jersey. Therefore, to return it to the sea, in a means calculated to effect its dispersal, would simply be to return the material to its natural state.

[1/] In order to facilitate and expedite such a transfer -- especially given volatile market conditions -- we may request approval to transfer the source material at the site prior to obtaining full approval for site decontamination. We are aware that similar approvals have been previously granted in Region I.

Furthermore, monazite is highly insoluble in water and therefore, even in a relatively concentrated state, it poses no danger of radioactive contamination. In the relatively unconcentrated form it would necessarily take before it reached the bottom of sea, and given the relatively small amount of material involved, (approximately 1500 tons of material) it is highly improbable that this material would pose any risk to human health or the environment.

Moreover, this method of disposal would involve relatively little transportation of the monazite, especially in comparison to the transportation necessary to move the material, over public roads, to a disposal site in the western United States. Nor would any permanent radiation risk persist after disposal at sea--unlike disposal on land where the additional monazite would simply add to the permanent residual radiation risk present at the disposal site. For these reasons, we believe that disposal at sea would fully comply with NRC's stated principle of maintaining radiation exposure as low as reasonably achievable ("ALARA").

NRC's regulations at 10 C.F.R. part 20.302(b) specifically authorize NRC to approve of disposal at sea so long as the applicant can demonstrate that disposal at sea offers less harm to man and the environment than other practical methods of

disposal. Although NRC has stated that it will not routinely grant applications for disposal at sea (see 36 Fed. Reg. 23138 (December 4, 1971)), this policy is plainly directed toward disposal of high level radioactive wastes and low level liquid wastes, primarily from vessels and land based nuclear facilities. In fact, NRC has also stated that "[t]he adoption of this rule change does not mean that the commission considers sea disposal of radioactive waste an unsafe practice . . . [and] . . . the Atomic Energy Commission would consider, on a case-by-case basis, applications for disposal at sea." Id. Thus, it is clear that under the proper circumstances, disposal of radioactive waste at sea may present less risk to man and environment than other alternatives and thus be the most appropriate disposal option. We believe the Heritage situation to be exactly such a case. As you know, the Heritage site presents a relatively unique situation, whereby naturally occurring monazite sand was incidentally concentrated, through purely physical processes, to levels above the regulatory threshold. The risk posed by replacing this material in the sea is vanishingly small. While recognizing that disposal at sea is not a routine disposal option, we believe, for the reasons set forth above, that it represents a logical, environmentally sound and health protective option and thus meets the standard set forth at 10 CFR 20.302(b).

3. On-Site Burial

In the event that neither of the previous two alternatives become available, disposal of the monazite through on-site burial would be the most appropriate remaining disposal alternative. Heritage currently owns nearly seven thousand acres surrounding the Heritage Minerals plant site. Burial of the monazite in a relatively remote area, followed by deed restrictions on the relevant property and accompanied by the appropriate passive controls could be achieved in a health protective manner.

4. Disposal At A Licensed Disposal Facility

In the event that no licensee is available to accept the monazite for processing and disposal at sea is deemed inappropriate, Heritage is faced with an unacceptable alternative -- disposal of the material in a mill tailings facility such as the Envirocare facility in Utah or perhaps a licensed low-level radioactive waste site. Because the only presently available disposal sites are currently in the Western United States, such a disposal scenario will involve transportation of the monazite, over public roads, across the majority of the United States. This transportation, in turn, will entail increased risk of human exposure to the monazite, as well as an increased risk of accidents and spillage. Moreover, as noted above, once disposed of at the facility, the

monazite will simply add to the residual radiation present at the site. Nor does it make sense to utilize the very limited radioactive waste disposal capacity for material like the Heritage monazite sands, especially if other disposal options exist.

Finally, and of no small importance to Heritage, the cost of disposal at a western facility will be astronomical in comparison to the alternatives discussed above. Our current estimate is that this disposal method will cost approximately $3,000,000.[2] Compared with our current estimate of $250,000[3] for disposal at sea and even less if the monazite is transferred to another party, it is apparent that the expense of disposal in a licensed facility is wholly unjustified and impracticable.[4] Moreover, as discussed above, such disposal would run counter to the ALARA principle. For these reasons,

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[2] Based on an estimated cost of $2,000 per ton of material for loading, transportation and disposal fees.

[3] Based on informal cost quotes from local barge operations, plus loading and transportation.

[4] In order to place the $3,000,000 figure in perspective relative to the overall size of Heritage Minerals, it is roughly equivalent to the entirety of Heritage Mineral's profits obtained through operation of the mill between the years 1987 to 1990. Thus, an expenditure of this proportion, in order to dispose of a relatively small amount of incidentally generated material is an extremely significant, if not crippling, expenditure for Heritage.

we hope you will agree that this disposal option should be considered by Heritage only as a last resort.

B. Other Areas At The Site

As we have noted above, our current plan is to decontaminate the plant area and any other areas where source material is present at the site in accordance with applicable NRC regulations.[5/] However, based on the discussion above, we believe that several other areas of the site, in particular, the areas where there is no source material present but where elevated radium concentrations exist, although not within applicable NRC jurisdiction, are nevertheless a matter that must be considered. We have previously referred to these areas as the blue and the grey areas (see attached map), which, respectively, represent areas where either Heritage tailings or ASARCO tailings were placed.

We recognize and share NRC's concerns regarding the health and safety issues these areas present. We believe these concerns can be addressed by Heritage acting in concert with appropriate state authority and in consultation with NRC.

[5/] Our current estimate of the cost of decontaminating the plant area is approximately $332,500. This includes the cost of plant decommissioning, clean-up of surrounding areas and the process water pond.

1. The Blue Area

Because of clay "slimes" underlying the blue area, Heritage has been forced to recognize that it will not be physically or economically possible to remove and process the entirety of the material in the blue area. Recognition of this fact contributed to Heritage's decision to cease operations at the site.

Because of these circumstances, Heritage has also been forced to recognize that the blue area will remain permanently unsuitable for residential development. Therefore, Heritage plans, upon consultation and approval from the appropriate state authorities, to cover this area with approximately 4 feet of clean material and to then deed restrict the area for passive use--thereby insuring that no houses will ever be built on this area. Our current plan will be to make passive use of the land, probably as a golf course. A golf course would also likely entail a buffer zone of trees and shrubs.

This plan will result in the loss of at least 50 acres of the Heritage site previously planned for residential development within a golf course parcel. In addition, our estimate of the cost to cover this area is approximately $575,000.[6/] Taken together, the loss of acreage and the cost

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[6/] This estimate is computed on the basis of 2000 tons per acre per foot of coverage. To cover 50 acres with 4 feet of clean material will require 400,000 tons of material at approximately $1.00 per ton. This is followed by land reclamation and vegetation at the cost of $3,500 per acre.

of covering the area represent a very significant financial commitment by Heritage.

2. The Grey Area

Given that the blue area will need to be covered and deed restricted, we also contemplate covering and deed restricting the grey area as well. This would involve the loss of an additional 60 acres and cost an additional $690,000.[1/] Thus, the total cost of covering and deed restricting both the blue and the grey areas will be approximately $1,265,000 and will entail the loss of approximately 120 acres.

3. The Branch Technical Position

By covering material in both the blue and grey areas with four feet of clean material and deed restricting the area for passive use, Heritage's proposal will effectively comply with option 3 of the Branch Technical Position. The Heritage plan will also comply with the ALARA principle, since none of this huge amount of material will be removed or transported from the site over public roads. Therefore, as a practical matter, NRC's health concerns regarding the site should be fully satisfied. As noted previously, we plan on working with the

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[1/] Computed on the same basis as the previous figure. See preceding footnote.

appropriate state agency to achieve the results described above at some point in the future. At that time, we would welcome your consultation and advice as to how to best achieve the desired result.

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We plan on meeting with you soon in order to discuss this more fully. Until then, thank you again for your understanding and cooperation in this matter.

Sincerely,

Michael Thompson for

Anthony J. Thompson
Counsel for Heritage Minerals Inc.

cc: Robert Fonner, Esq.
U.S.N.R.C.

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