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March 10, 2003

United States Nuclear Regulatory Commission
Region I
Division of Nuclear Materials Safety
Attn: Mr. George Pangburn
475 Allendale Road
King of Prussia, PA 19406-1415

SUBJECT: HERITAGE MINERALS, INC. RESPONSE TO JANUARY 8, 2003 PRE-DECISIONAL ENFORCEMENT CONFERENCE SUMMARY LETTER

Dear Mr. Pangburn:

This letter is intended as Heritage Minerals, Inc.'s ("HMI's") response to the January 8, 2003 letter from the Nuclear Regulatory Commission's ("NRC's") Region I office which summarized discussions from a pre-decisional enforcement conference (the "Conference") between HMI and NRC Region I representatives regarding final decommissioning and decontamination ("D&D") activities at the HMI site located in Lakehurst, NJ.

In the January 8th letter, NRC Region I officials requested that HMI submit a plan and schedule addressing three (3) remaining issues at the HMI site related to final D&D activities within sixty (60) days. As will be described below, HMI has prepared a D&D plan and schedule that addresses each of these issues. HMI understands that no further NRC approval is necessary under its existing license to remove *licensable* source material from the site. Due to the time-sensitive nature of this proposal and the eagerness of both HMI and NRC to complete final D&D activities at the HMI site, HMI respectfully requests that, should it find HMI's proposed D&D plan and schedule for the mill buildings acceptable, NRC, as soon as possible, provide HMI with *verbal* notice indicating that it may commence final D&D activities on the mill buildings. HMI believes that its proposed plan and schedule will allow for final D&D activities at the HMI site to be performed on an expedited basis yet in a manner consistent with the protection of public health and safety. Moreover, HMI respectfully requests that NRC

not impose any enforcement penalties or sanctions against HMI based on the proposed plan and schedule and the expeditious nature of HMI's proposed plan and schedule.

The first issue addressed by NRC Region I at the Conference was a proposal to remove "pockets" of *licensable* source material remaining at the HMI site, and the submission of a plan and schedule to effectuate such removal. To assist in the removal of the remaining *licensable* source material "pockets," HMI has retained the services of SENES Consultants, Limited ("SENES") to provide expert technical assistance. HMI has also retained EC/DC, the transportation contractor that managed the transportation of HMI's NRC-licensed monazite pile off-site, to transport the remaining *licensable* source material "pockets" to International Uranium (USA) Corporation's ("IUC's") White Mesa Mill in Blanding, Utah, for uranium recovery. HMI is attaching a proposed plan and schedule composed by SENES to this letter which describes how the excavation, packaging, and transportation of this source material will be conducted, as well as a procedure for surveying the areas surrounding the excavated "pockets" to ensure that all remaining *licensable* source material has been removed.

Before proceeding to discuss the other issues raised by NRC at the Conference, HMI wishes to state clearly, on the record, its position regarding removal of the "pockets" of *licensable* source material which have been identified by NRC's verification contractor, the Oak Ridge Institute for Science and Education ("ORISE") and, later, by HMI's contractor Radiation Science, Inc. ("RSI").[1] As indicated at the Conference, the potential for contamination levels up to *licensable* source material levels near the dry mill building was not appreciated until HMI's in-depth review of the site process history ("Process History")[2] was completed. The Process History indicates that *prior* to NRC licensing of portions of the HMI site, mining and milling activities, which were not licensed by NRC, led to varying levels of naturally occurring radionuclides in the soils near the dry mill building. Given the time periods during which each prior site operator/owner utilized the site and the corresponding volumes of materials handled, it seems an inescapable conclusion that much, if not most of, the contamination in question occurred prior to HMI's site operations. In any case, it occurred prior to NRC's licensing action at the HMI site and, as a result, any contamination below *licensable* source material levels has the same regulatory status as the so-called "Blue" and "Gray" Areas. That is, those levels of contamination below *licensable* source material levels are not subject to NRC's jurisdiction.

With that said, as owner of the site, HMI will accept responsibility, reserving its right to pursue actions against the responsible parties, for removal of the *licensable* source material "pockets," as noted above, for transport to IUC's uranium mill for uranium recovery and disposal. HMI will not be attempting to clean-up the areas around the dry mill building, including the area within the former monazite pile storage area, to

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[1] *See* Radiation Science, Inc., *Characterization Survey for Heritage Minerals, Inc.*, (November, 2002).

[2] *See* Letter to Ronald R. Bellamy, Decommissioning Laboratory Branch, Division of Nuclear Materials Safety, NRC Region I, from Anthony J. Thompson, Esq., Counsel to HMI, & Enclosed Attachments, (November 22, 2002).

the NRC D&D standard of 10 pCi/g uranium and thorium. As noted at the Conference, the *licensed source material* in the former NRC-licensed monazite pile already has been removed and transported off-site. Given that it is now apparent from the Process History that the soils near the dry mill building are contaminated at varying levels in excess of 10 pCi/g and that only soils at *licensable* source material levels are subject to NRC jurisdiction, the NRC D&D standard is not relevant. In any event, given that HMI intends to develop the site, soil contamination in all of the areas "affected" by site mineral processing operations will have to meet New Jersey Department of Environmental Protection ("NJDEP") standards in N.J.A.C. 7:28-12.1 entitled *Remediation Standards for Radioactive Materials* so that adequate regulatory oversight necessary to protect public health and safety will be assured.

Second, NRC Region I officials requested that HMI submit a plan and schedule to complete the final D&D of HMI's wet and dry mill buildings using NRC-accepted methodology for measurement of surface contamination prior to clearance of scrap materials for release and recycling. HMI is attaching a copy of SENES' proposed plan and schedule to D&D the wet and dry mill buildings, including the name of HMI's demolition contractor, guidelines for a *radiological* health and safety protocol to be developed for demolition workers participating in on-site D&D activities,[3] and the parameters for the equipment and methodology to be used for measuring surface contamination on structures and equipment.

Given that the majority of the "affected" areas and machinery in both the wet and dry mill buildings has been cleaned twice and were deemed releasable pursuant to RSI's *alpha* scanning methodology, and the primary defect in RSI's scanning methodology was the failure to scan for *beta/gamma*, SENES proposes to utilize beta/gamma scanning processes during demolition and decontamination of such areas and machinery. Given RSI's failure to utilize beta/gamma scanning in its D&D sampling, utilizing such scanning methodology should assuage NRC's concerns about alpha *masking* due to dirt, oil, etc. and, at the same time, greatly simplify the clearance of scrap materials for release and recycling. Timing of mill demolition is critical to the demolition contractor HMI has selected both because of other commitments and for public safety reasons associated with heavy, unauthorized use of the HMI site during the summer months. It is not satisfactory to HMI or the demolition contractor to have large amounts of demolished scrap metal, some of which may not have completed decontamination procedures, laying around as a potential hazard to potential trespassers. With rapid NRC concurrence, HMI and its demolition contractor believe that the demolition, decontamination and clearance of releasable scrap may be completed, barring unanticipated delays, within 10 weeks of the authorization to proceed.

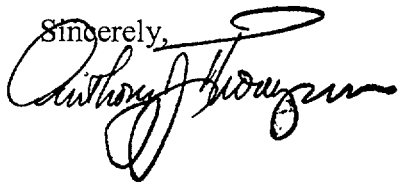
Third, NRC Region I officials requested that HMI provide NRC Region I with information on negotiations with ASARCO, Inc. ("ASARCO") regarding its potential liability for site D&D activities. On February 10, 2003, HMI provided Mr. Craig Gordon, HMI's NRC Region I Project Manager, with a copy of a letter which was sent to

[3] HMI's demolition contractor will be responsible for instructing its workers regarding general occupational health and safety procedures not relating to radiological exposures scenarios.

ASARCO by HMI's counsel informing ASARCO of its opportunity to inspect the HMI site to evaluate existing on-site conditions, to review available records pertaining to site operations and conditions, and to preserve evidence which final D&D activities likely will remove. To the best of HMI's knowledge, ASARCO has not yet availed itself of this opportunity. However, ASARCO has agreed, in principle, to a tolling agreement allowing for the final determination of responsibility for D&D costs at the HMI site without regard to the applicable statute of limitations, although, the final language of this tolling agreement has not yet been finalized. HMI will inform NRC Region I when this tolling agreement has been finalized.

Notwithstanding whether or not HMI can achieve it goal of completing final D&D activities within ten (10) weeks of authorization, HMI expects that all final D&D activities described under its proposed plan and schedule should be completed well before the December 31, 2003, date set by NRC at the Conference. In order to effectuate the expeditious completion of final D&D activities at the HMI site, HMI respectfully requests that NRC Region I provide HMI with *verbal* notice of its approval of the mill D&D plan and schedule as soon as possible. Pursuant to the telephone conference on March 4th, we understand that NRC will provide HMI with a status report by March 14th. HMI respectfully requests that NRC not impose any enforcement penalties or sanctions against HMI based on the proposed plan and schedule and the expeditious nature in which final D&D activities at the HMI site will be conducted. If you have any questions or concerns regarding these submissions, please feel free to contact me at (202) 496-0780. Thank you for your time and cooperation in this matter.

Sincerely,



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10 March 2003

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1225 19th Street, N.W.
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USA

Re: Overview of Radiological Procedures Concerning the Decommissioning and Decontamination (D&D) of the Heritage Minerals Inc. (HMI) Lakehurst, NJ Site

Dear Mr. Thompson:

On Friday, 7 February 2003, I met with you and Ms. Edele Hovnanian at the HMI site in Lakehurst, New Jersey. At that time, we also met with Mr. Dominic Mazza, the demolition/salvage contractor for HMI and Mr. Craig Gordon, the Nuclear Regulatory Commission (NRC) Region I Project Manager for the HMI site.

In addition to general discussions concerning the history of the HMI mill site and previous efforts to decommission the mill, we also had general discussions concerning the need to proceed expeditiously with the decommissioning of the mill buildings and any equipment that had been used to process the heavy mineral feeds. We also had a "walking tour" of the wet mill and dry mill. Finally, in addition to discussing potential approaches to completing the mill decommissioning, we also briefly discussed the need to remove "pockets" of soil identified through the November 2002 "*Characterization Survey for Heritage Minerals, Inc.*" (Radiation Science, Inc. (RSI) 2002) as soils containing *licensable* source material.

Subsequent to our "walking tour" of the mill buildings, SENES was retained on 18 February 2003 to provide radiological advice to HMI in support of D&D activities at the HMI site. In particular, SENES was asked to develop a plan for carrying out radiological surveys in support of mill demolition/salvage and removal of the remaining soils identified to contain *licensable* levels of source material. This letter report provides a description of our proposed approach for the radiological surveys.

BACKGROUND

Previous Site Surveys and Characterization

Significant work has already been done on the HMI site regarding the degree and extent of radiological characterization of the site. This work includes the RSI surveys documented in the RSI Final Status Survey Plan (FSSP) (December 2002 and reported in the Final Site Survey), and the verification confirmatory survey conducted by ORISE (2002). In addition to the FSSP, the Final Site Survey (FSS) and the ORISE report, we have also reviewed a detailed operational history of the site (Thompson 2002) and various plans and photographs of the mills that were provided to us by Mr. John Lord of HMI. (Appendix A is a catalogue of photographs of the mill taken in February 2003.) These photographs illustrate the complexity of the mill decommissioning and the need for a practical approach to decommissioning and supporting radiological surveys.

Figure 1 is a plan of the site showing the location of the mills and other site features (from Thompson 2002). Figure 2 shows the results of the radiological characterization survey carried out for HMI, showing the location of the soils containing *licensable* source material levels (RSI, November 2002).

The following key observations arising from our review of the available information and from discussions with NRC provide some background to our proposed radiological survey plan described in the following sections of this letter report.

We also had the opportunity to participate in two (2) followup telephone discussions with NRC staff in which outstanding issues and potential alternatives for moving forward were discussed.

(1) "Time is of the essence" Both NRC and HMI want the mill buildings (and contents) decommissioned as soon as practicable and, certainly, by the end of 2003.

Trespassers, according to HMI, frequent the lakes created through the mining of the heavy minerals. Given the potential concerns of trespassers during the summer months, it seems desirable, if possible, to demolish the mill buildings and decontaminate the site prior to the summer vacation period, if NRC approval of the proposed procedures is granted expeditiously.

(2) Beta/Gamma Scan As we understand the issue, RSI relied primarily on alpha contamination survey methodologies for the FSS. Since alpha radiation can be masked by oil, dirt, rust etc., ORISE, in their verification survey, relied on beta/gamma survey to identify areas exceeding NRC criteria for unrestricted release.

There appears to be an issue concerning the sensitivity of the beta/gamma survey instruments used by ORISE as part of their verification survey to low energy gamma radiation. In our opinion, the beta/gamma survey meters are more sensitive to low energy gamma than is currently acknowledged by the NRC. However, beta/gamma surveys of surface contamination can be carried out more rapidly than alpha contamination surveys and, therefore, we are proposing beta/gamma scans as the survey method for scanning material arising from mill demolition and assessing compliance with NRC's criteria for unrestricted release.

(3) Materials Failing to Meet NRC's Unrestricted Release Criteria Based on past experience, it is anticipated that some portion of the materials arising from the demolition of the mill and salvage of equipment in the mill may not be easily decontaminated to NRC criteria. One possible example is rubber-lined equipment. In such cases, we have assumed that it is HMI's option to pursue more aggressive decontamination procedures or to send such materials off-site for disposal at an approved facility.

(4) Soils Containing Licensable Source Materials As noted above, some "pockets" of *licensable* source material remain in areas south and east of the dry mill building. These materials will be excavated and transported off-site for processing and disposal at an appropriate facility.

We understand from our discussions that the soils containing more than 500 ppm (0.05% by weight) of uranium and/or thorium are to be removed, and our proposed survey plan has been based on proposed radiological characterization to this level.

(5) Nature of Contamination In developing the proposed radiological survey plan, it is important to understand that the source of the radiation/radioactivity are uranium and thorium decay chain radionuclides naturally occurring in the heavy minerals processed at the HMI site. The heavy mineral sands were "mined" by dredging operations, which created the existing lakes. The heavy minerals were then separated from the sands in which they occurred by physical processes including gravity separation, electrostatic and electromagnetic methods. This leads to two important observations:

i) the heavy mineral sands have never been chemically processed and can reasonably be assumed to be in secular-equilibrium; and

ii) the uranium and thorium series radionuclides in the heavy minerals are naturally occurring and are indistinguishable in type from those present in natural background, the only distinction being the level of the radioactivity. Thus, some confounding from natural background levels of uranium and thorium series radionuclides can be expected.

A. Issue Addressed in Procedure

Based on our previous discussions, the following topics are addressed in this plan:

- Radiological Health and Safety Manual.
- Laydown and washdown areas.
- Milling equipment survey and demolition waste management.
- Mill metal structures, stairways, mezzanines and conduits surveys and demolition waste management.
- Laboratory metal structures surveys and demolition waste management.
- Mill and laboratory masonary walls and concrete floors waste management.
- Exterior soils in licensed areas, (i.e., 10 metres around wet and dry mill buildings and monazite pile survey and waste management).
- Miscellaneous wood and furniture, fixtures, etc., surveys, demolition and waste management.
- Post-demolition documentation and reporting requirements for NRC.

The proposed procedures are outlined in Section B below. Figure 3 is a flow chart illustrating the various activities currently anticipated in the mill decommissioning. Our proposed radiological survey plan is developed with this flow of activities in mind.

B. Procedures

B.1 Health and Safety Manual

A manual on procedures for worker health and safety and contamination control will be prepared for the radioactive aspects of the demolition process by the contracted radiation surveyor. The manual will follow Federal Regulations and Policies concerning protection of worker health in dealing with radioactive materials (e.g. 10CFR20 and other applicable standards) with respect to the nature of the radioactive materials and concentrations that are associated with the HMI decommissioning project. It is anticipated that the existing worker change building would be incorporated in the proposed program. A short introduction (1 hour) to potential radiological hazards would be provided to all site workers.

The worker health and safety procedures for the straight demolition work are those that would be anticipated in any construction project of this nature and are carried in the demolition contractor's mandate.

B.2 CLEAN AND CONTAMINATED LAYDOWN AREAS

B.2.1 Clean Equipment and Building Structure Laydown Area

The clean equipment and building structure laydown area will be utilized for storage of equipment and building metal components deemed suitable for unrestricted release. All clean equipment and building material pieces will be appropriately identified as such before removal from the demolition site to the clean area.

B.2.2 Contaminated Equipment and Building Structure Laydown Area

The contaminated equipment and building structure laydown area is designed for storage of equipment and building material deemed as not being economical to decontaminate beyond the power washing effort described below or equipment and building material requiring detailed evaluation before further decontamination efforts are attempted. All contaminated equipment and building material pieces will be identified with an appropriate tag (or alternative method acceptable to the NRC) before being removed to the contaminated laydown area. All equipment and building materials deemed uneconomical to decontaminate will be appropriately packaged and shipped to an appropriate site for disposal.

B.3.0 EQUIPMENT AND BUILDING MATERIAL DECONTAMINATION WASHDOWN AREA

It is proposed that the existing floors of the dry and wet mill buildings will be utilized as decontamination washdown areas. The existing sump in the wet mill building and a sump-equivalent in the dry mill building will be utilized to retain runoff and sediments. Sump pump liquid discharge will be retained in holding tanks and analyzed for radioactive species before off-site discharge. Sediment will be retained in rolloff type containers and treated as waste until appropriate analyses determine whether it is suitable for unrestricted release.

An area around the sump and sump-equivalent will be designated for washdown with appropriate bulkheads to contain and direct runoff.

B.4.0 SURVEY PROTOCOLS

B.4.1 Equipment and Building Materials

Equipment and building material survey protocols will be based on NUREG-5849 (NRC 1992) procedures and generally use the beta scans and beta surface activity measurements technique documented therein. Equipment comparable to that used by ORISE (e.g. beta/gamma pancake detectors, gas proportional counters) with the capability/sensitivity to assess compliance with the NRC criteria for surface contamination levels (NRC Reg. Guide 1.86) will be employed. The specific equipment to be used (manufacturer, model) will be specified by an experienced radiation survey subcontractor (not yet determined) who will be engaged by HMI to undertake this work. A survey manual documenting the equipment to be used, calibration procedures,

conversion factors, background allowances and protocols for surface scanning and surface activity measurements etc. will be prepared prior to undertaking the demolition of the equipment and building materials deemed affected.

In consideration of this plan, it is important to note that according to our understanding, attempts have already been made to decontaminate mill surfaces and equipment and, in some cases, failed the ORISE verification survey. Thus, it seems very likely that power washing will not remove all of the remaining contamination. Therefore, it would be expected that parts of a unit may pass the beta evaluation while other parts would not pass. From an operations point of view, it may be desirable to let the demolition contractor shear the materials and use beta/gamma scan for each <18" x 5' piece (piece sizing proposed by demolition contractor). That way some pieces of equipment will pass and others pieces will have to be subjected to more aggressive decontamination or discarded as waste. Subject to safety issues, it appears that the beta/gamma survey for the sheared pieces of equipment units, stairways, catwalks, mezzanines etc. can be carried out within the shelter of mill buildings considerations. It is clear that the beta/gamma of the building metal structural components and sheathing will be carried out in the open.

We understand from discussions with Mr. Gordon that NRC has found that some portions of the mill buildings are clean or unaffected. Thus, we propose that such elements be identified as such jointly by the radiological survey contractor to HMI and NRC and that NRC allow expedited removal of such equipment without further need for decontamination or surveys.

B.4.2 Procedure for Removal of Soils Containing Licensable Source Material

The D&D of the site under NRC guidelines requires the removal of NRC-*licensable* source material that has already been identified in previous surveys (i.e. soils exceeding a concentration of 0.05% (500 ppm) of combined uranium and thorium). (We understand that further characterization may be needed to satisfy State requirements once the NRC license is terminated.) Materials containing uranium and thorium, including naturally occurring soils, emit gamma radiation in proportion to the concentrations of uranium and thorium. The proposed procedure will entail the excavation of the NRC-*licensable* source material down to gamma exposure levels that will ensure that no soils exceeding *licensable* concentrations will remain.

Based on the approximate relationships for soils of 0.6 μR/h at 1 m distance per ppm of natural uranium and 0.3 μR/h per ppm of natural thorium (with each decay series in radioactive equilibrium; e.g., *see* NCRP (1987), Report No. 94), 500 ppm soil concentrations correspond to exposure rates of approximately 300 μR/h and 150 μR/h for uranium and thorium, respectively. Exposure rates for smaller quantities of soil at these concentrations would vary depending on the geometry (source-detector relationship) of the situation. However, the exposure rates corresponding to the 0.05% *licensable* limit are substantially above background exposure rates of 3 to 7 μR/h, or general site exposure rates of 15 to 30 μR/h (ORISE 2002). Therefore, excavation and removal of soils at the locations where *licensable* quantities have been identified down to a near-contact total exposure rate of 60 μR/h or less (twice the ORISE site background), would indicate that soils above *licensable* concentrations have likely been removed. NaI-based

survey meters (or equivalent) that are sensitive to μR/h exposure rates would be used for this purpose. Alternatively, portable gamma spectroscopy meters that measure soil concentrations of uranium and thorium directly in units of ppm (when placed in contact with the soil) will be used in the field for this purpose.

To verify that compliance with the 0.05% (500 ppm) limit has been met using this procedure, soil samples from the excavated areas will be obtained and subsequently analyzed in the laboratory for total uranium and thorium. Locations showing residual concentrations exceeding 0.05% (500 ppm) (U + Th) will be further excavated until supplementary soil sampling and analyses confirm that the 0.05% (500 ppm) limit has been met.

B.5.0 Demolition Procedure for Equipment and Mill Building and Laboratory Structure

For present purposes, it is assumed that the demolition of the wet and dry mill buildings and equipment will proceed in the following manner.

B.5.1 Mill Equipment

i) With NRC input, equipment in and around both mills that has been determined from previous surveys to be unaffected with respect to radioactivity will be appropriately identified and marked. Following this, the unaffected equipment will be sheared into the size fraction (<18" x 5') proposed by the demolition contractor and moved to the clean laydown area.

ii) In a systematic manner and according to its demolition safety plan, the demolition contractor will proceed to remove the affected equipment from both mills. The equipment will be sheared into the size fraction noted above (<18" x 5') and the entire surface of each piece beta scanned using the survey procedures described above. Where anomalous readings that could indicate exceedence of average and/or maximum activity limits are obtained, the piece will be tagged and set aside for detailed survey. Pieces passing the beta scan will be so identified and moved to the clean area. Depending on the economics, the pieces not passing the detailed survey will either be moved to the power wash area for further decontamination and a further detailed survey and/or moved to the waste laydown area for disposal as radioactive waste. Those pieces receiving further decontamination and passing the survey procedure will be sent to the clean area.

A flow chart of the process is attached (Figure 3).

B.5.2 Building Structures and Service Conduits

Once the equipment is removed, the mill buildings will be dismantled according to the contractor's structure demolition plan. The metal structural members, exterior cladding, stairways, piping, conduits etc. from these facilities will be removed and sheared into the size

fraction noted above, surveyed for radioactivity, sorted as to clean or radioactive waste identified as such and moved to the appropriate laydown area for final off-site removal.

B.5.3 Concrete, Masonry Work and Miscellaneous Items

It is proposed that all concrete floor slabs, masonary walls and the like will be broken into appropriate size fractions for crushing. The crushing will be accomplished on-site through a mobile crushing unit. The crushed material produced can be utilized for roadway sub-base. Wood materials, furniture and fixtures will be surveyed for radioactivity and sorted as to clean or radioactive, moved to the appropriate laydown area for ultimate disposal.

B.6.0 Post-Demolition Reporting

Documentation demonstrating that NRC requirements have been satisfied and that are acceptable to NRC will be provided.

Yours very truly,

SENES CONSULTANTS LIMITED

Douglas B. Chambers, Ph.D.
Principal

REFERENCES

Oak Ridge Institute for Science and Education (ORISE) 2002. *Confirmatory Survey of Portions of the Heritage Minerals Incorporated Facility Lakehurst, New Jersey (Docket No. 040-08980: RFTA No. 01-012).* Prepared for the U.S. Nuclear Regulatory Commission, Region I Office, March.

Radiation Science, Inc. (RSI) 2002. *Characterization Survey for Heritage Minerals, Inc.* November.

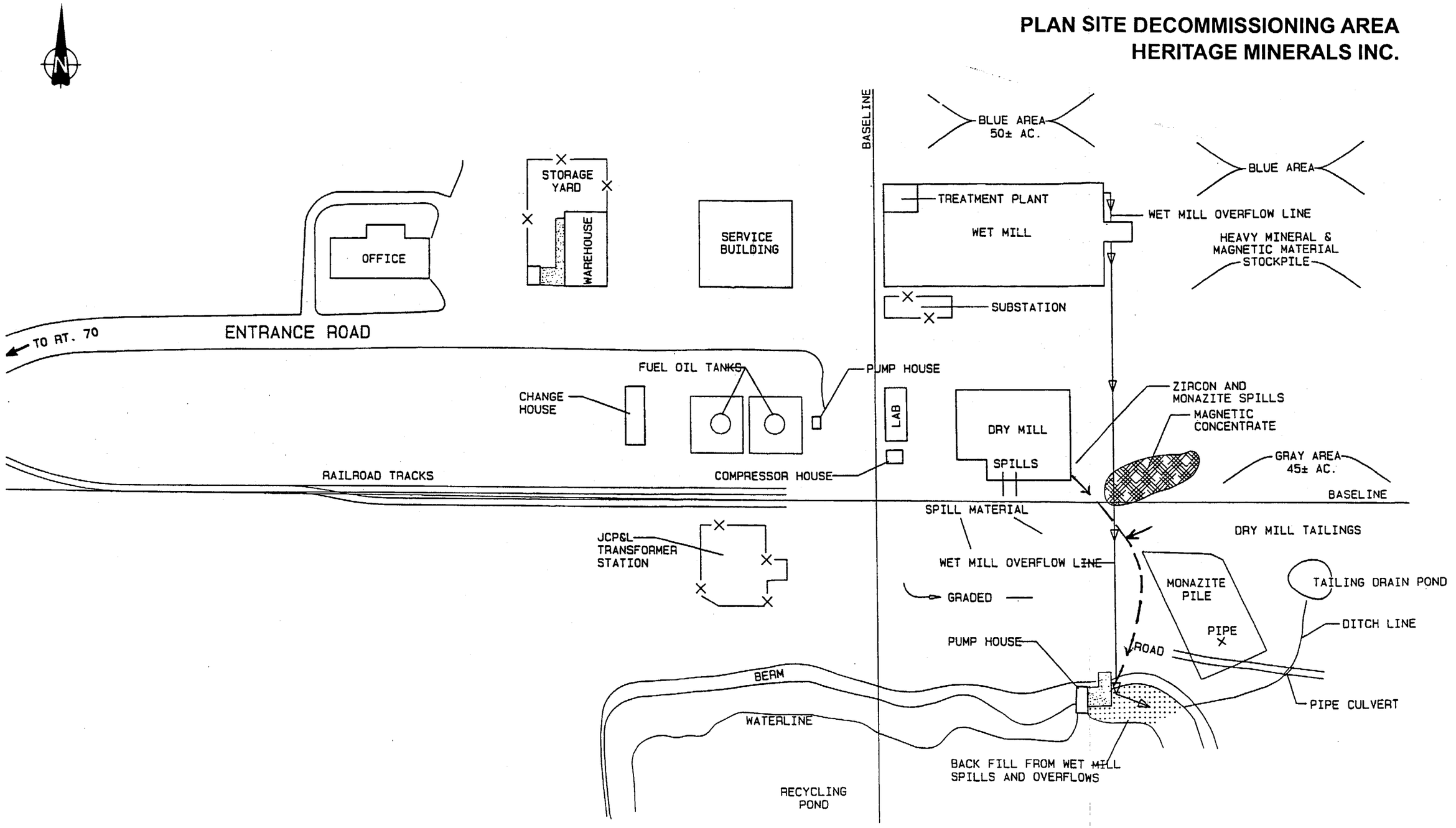
Thompson, A.J. 2002. *Heritage Minerals Inc. Process History.* Attached to 22 November 2002 letter to Mr. R. Bellamy, NRC.

United States National Council on Radiation Protection and Measurements (NCRP) 1987. *Exposure of the Population in the United States and Canada from Natural Background Radiation.* NCRP Report No. 94.

United States Nuclear Regulatory Commission (NRC) 1992. *Manual for Conducting Radiological Surveys in Support of License Termination.* NUREG/CR-5849, Washington, D.C.

FIGURE 1

PLAN SITE DECOMMISSIONING AREA
HERITAGE MINERALS INC.

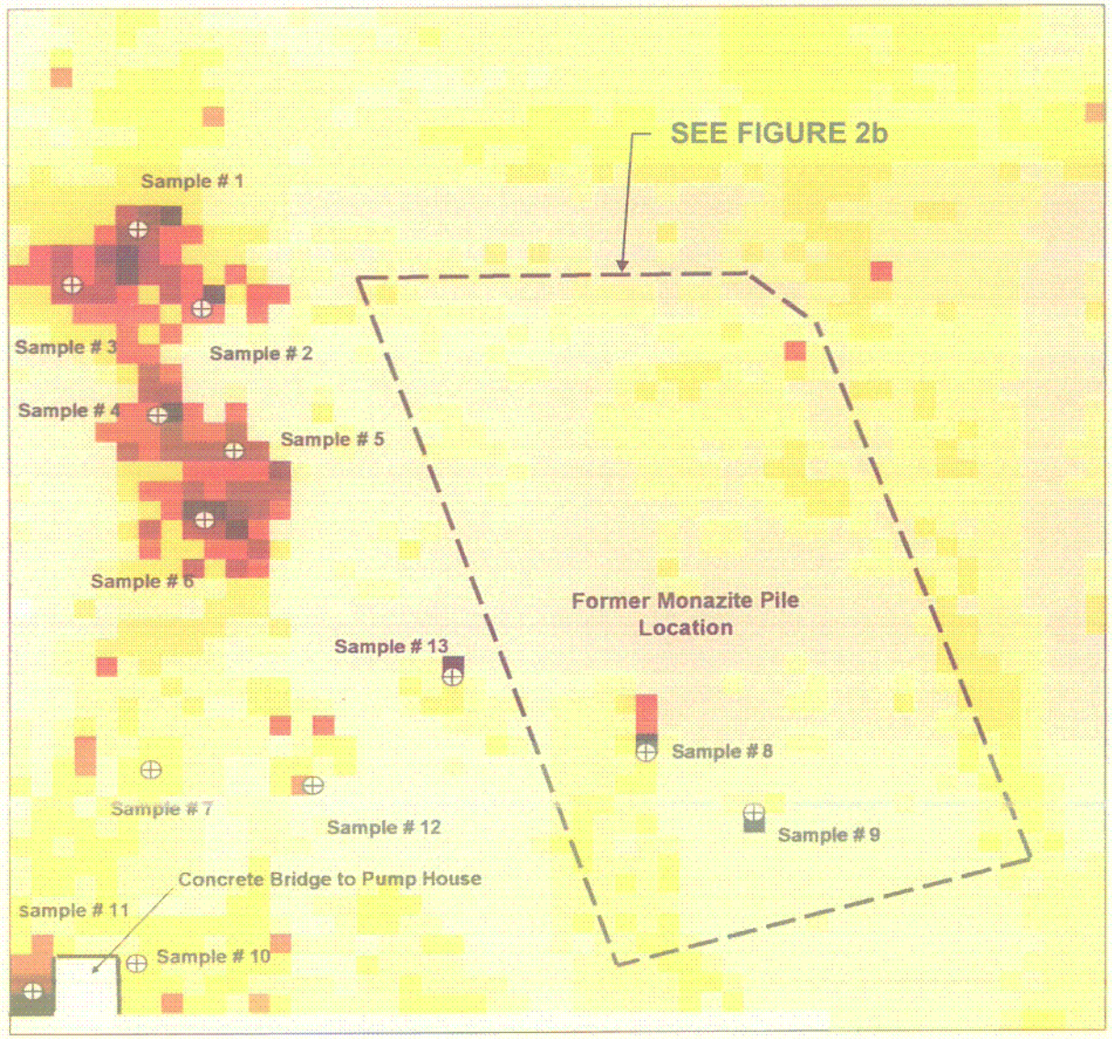


SCALE: 1" = 100' (+/-)

SOURCE: HERITAGE MINERALS INC., 2002

FIGURE 2a

GAMMA FLUX MAP



LEGEND:

Direct surface count rate, cpm

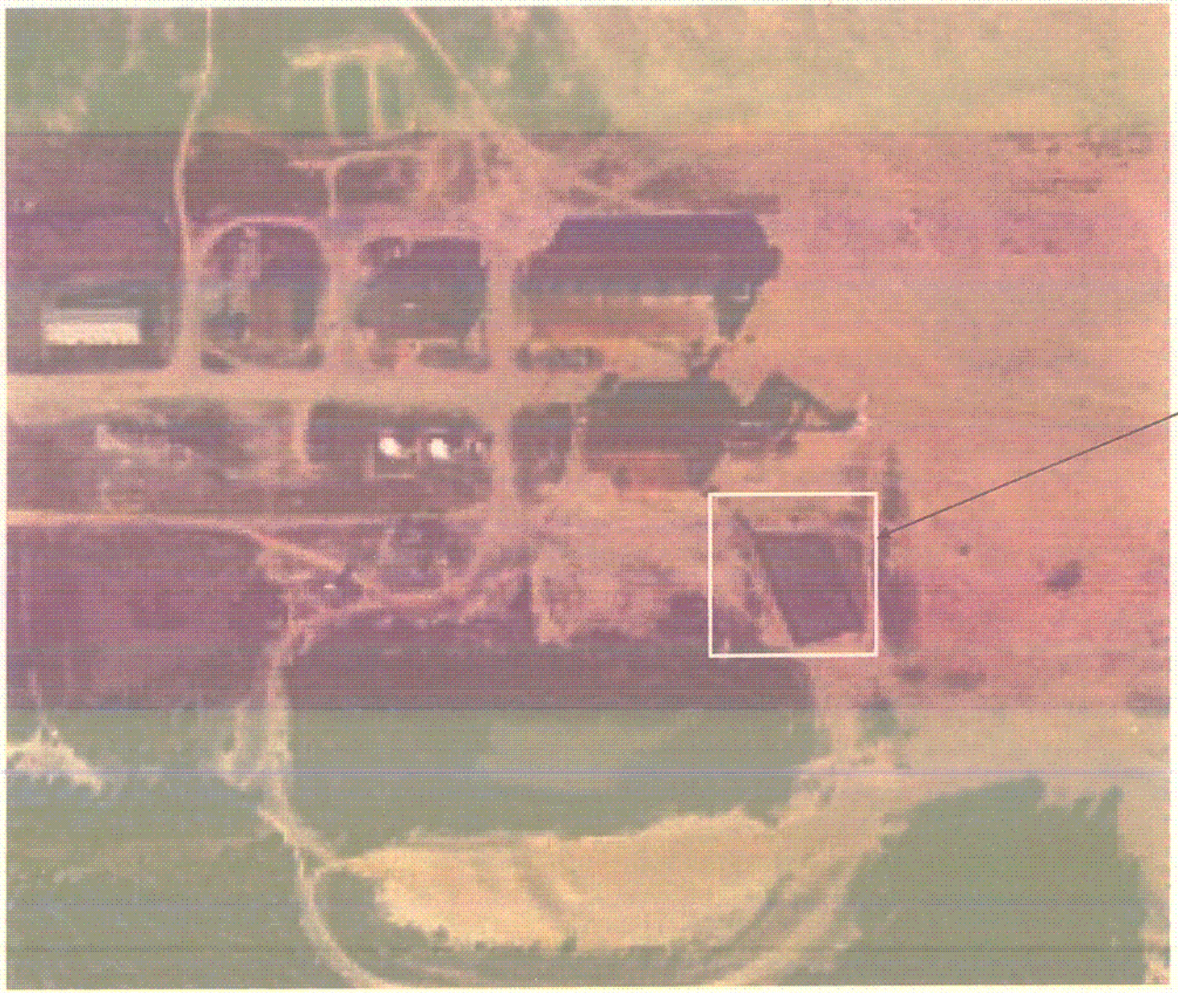
- 0 to 10,000
- 10,000 to 20,000
- 20,000 to 40,000
- 40,000 to 60,000
- 60,000 to 80,000
- 80,000 to 100,000
- above 100,000

Sample Location, typical

SOURCE: Radiation Science Inc., 2002

FIGURE 2b

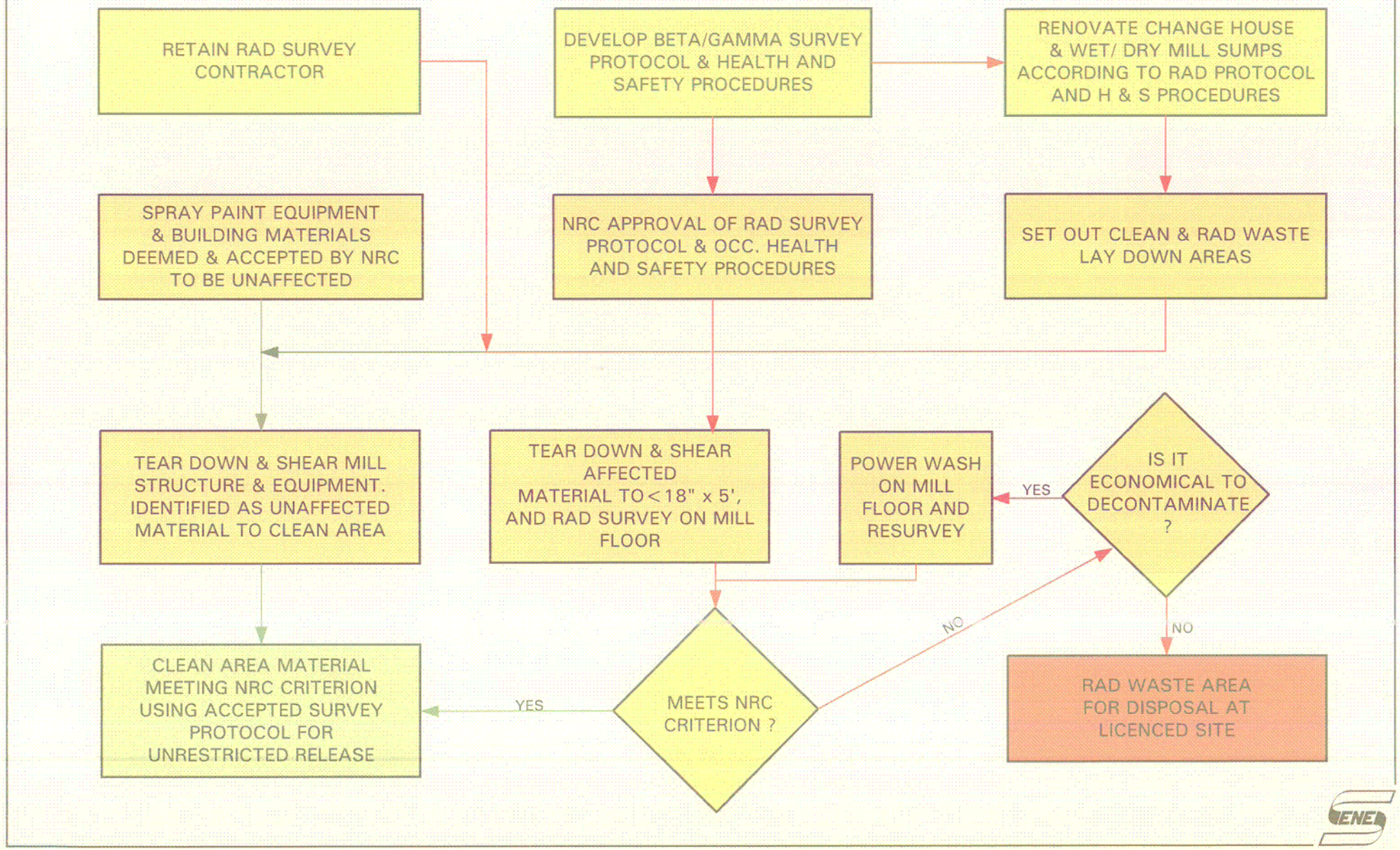
SURVEY AREA LOCATION MAP



SOURCE: Radiation Science Inc., 2002

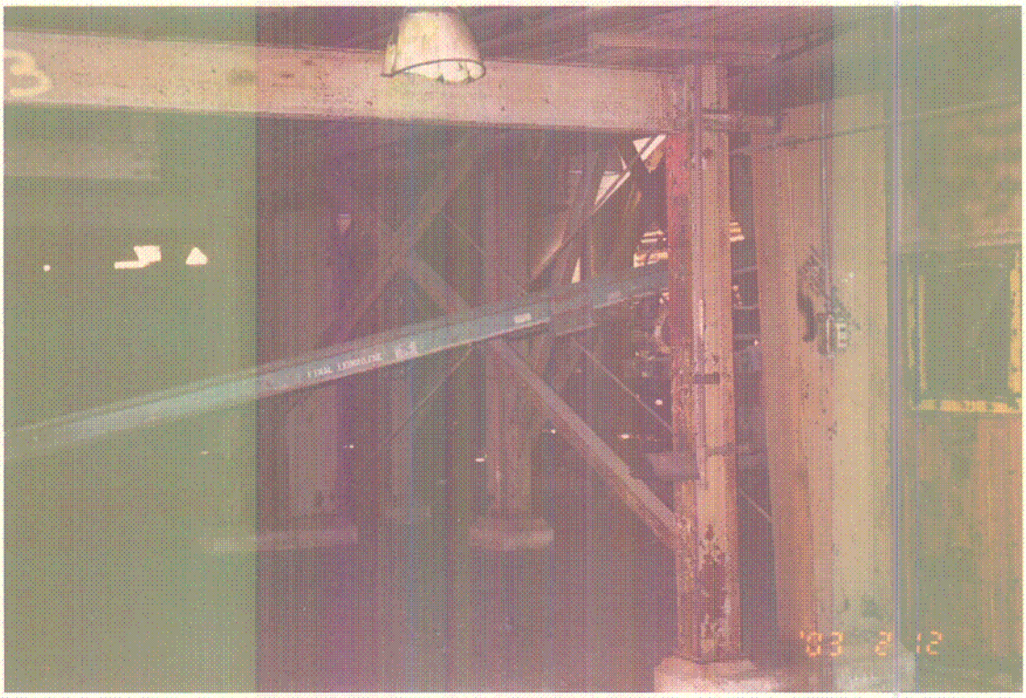
FIGURE 3

DECOMMISSIONING FLOW SHEET



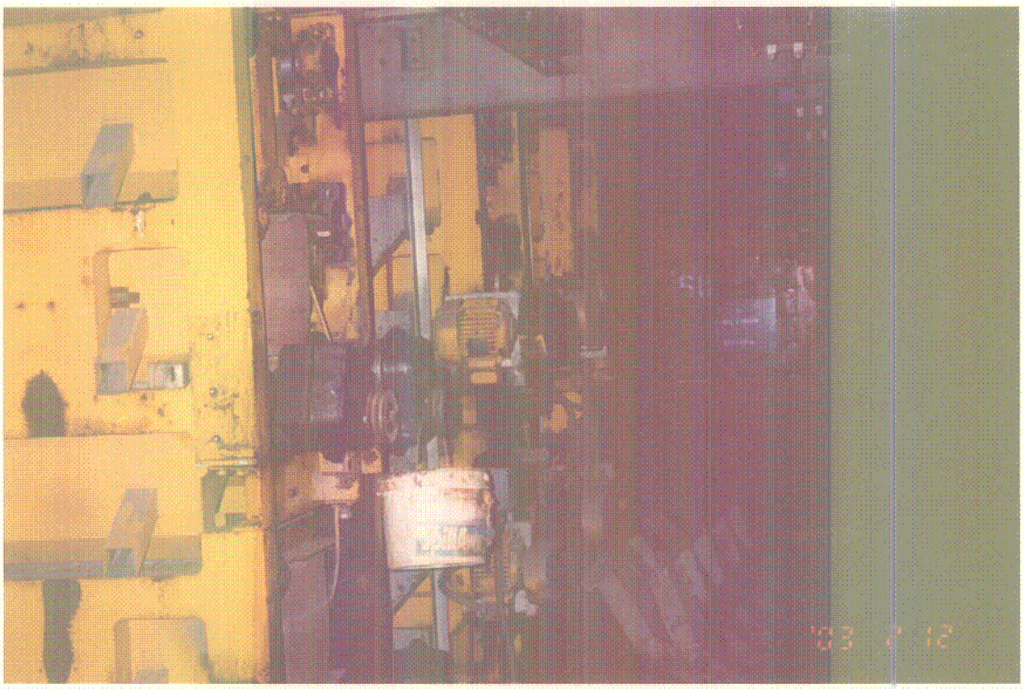
APPENDIX A

Mill Photographs – February 2003



Dry Mill - Small Bucket Elevator on Far Right

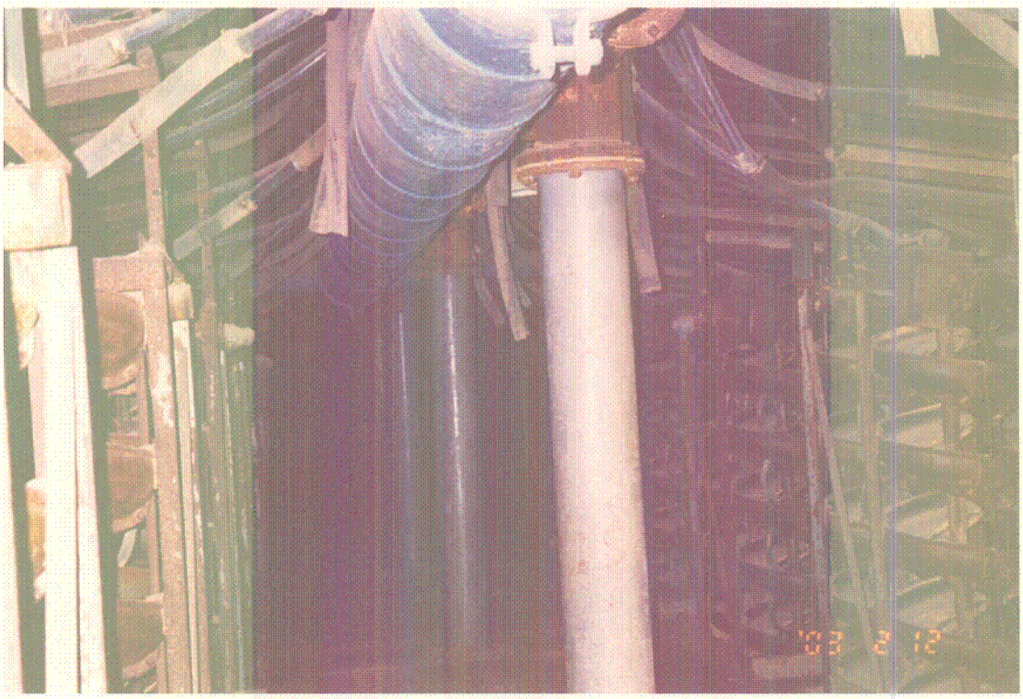
Dry Mill - Magnets



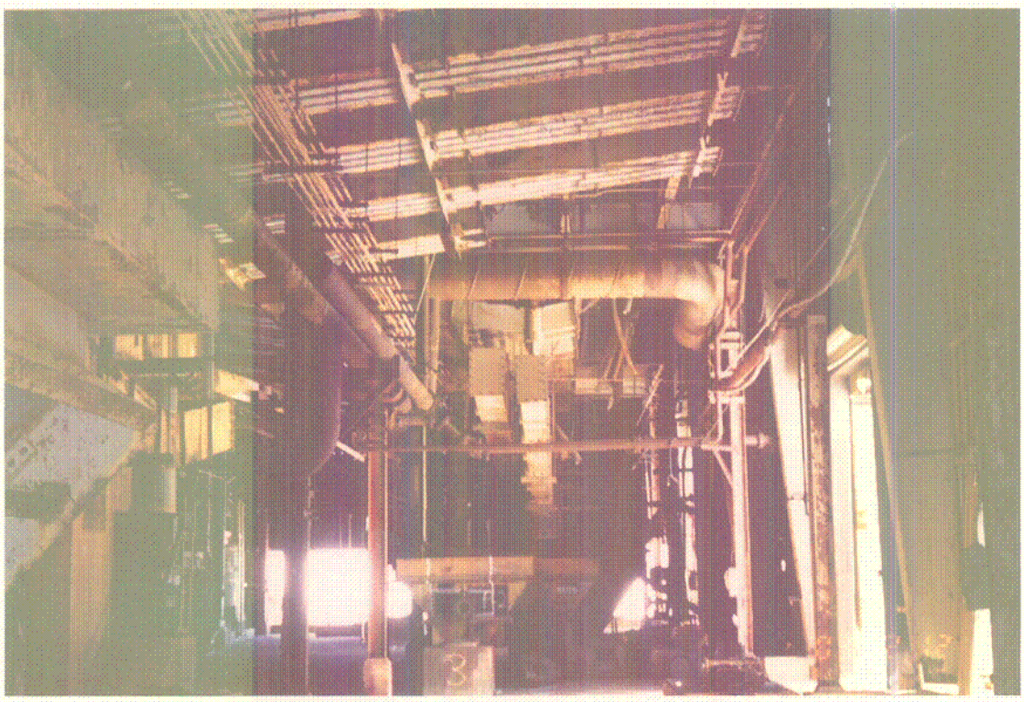
Dry Mill - Magnets Close Up

Dry Mill - Large 50 t/h Dryer Used Only by Asarco

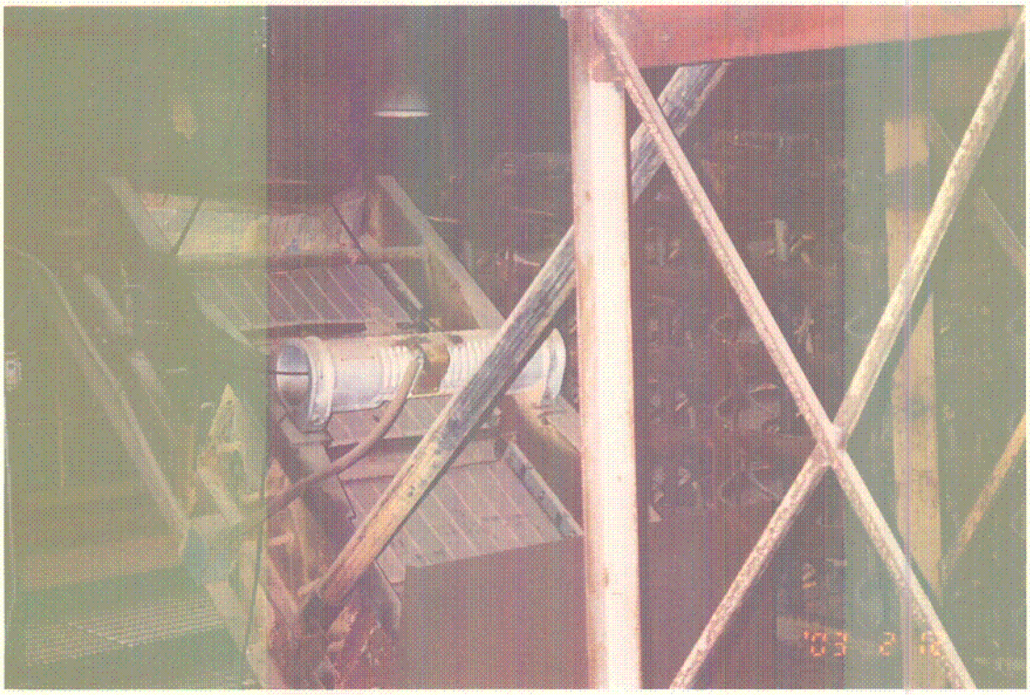
Dry Mill - Magnet Controls



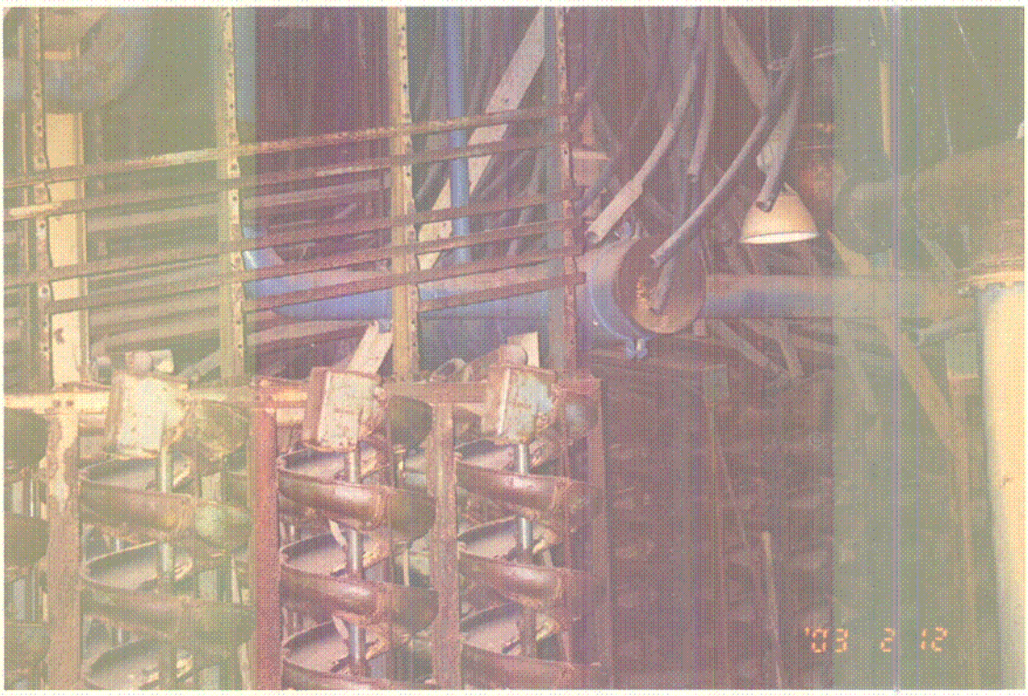
Wet Mill - Second deck, spiral feed hoses, iron vertical feed lines and horizontal manifold.



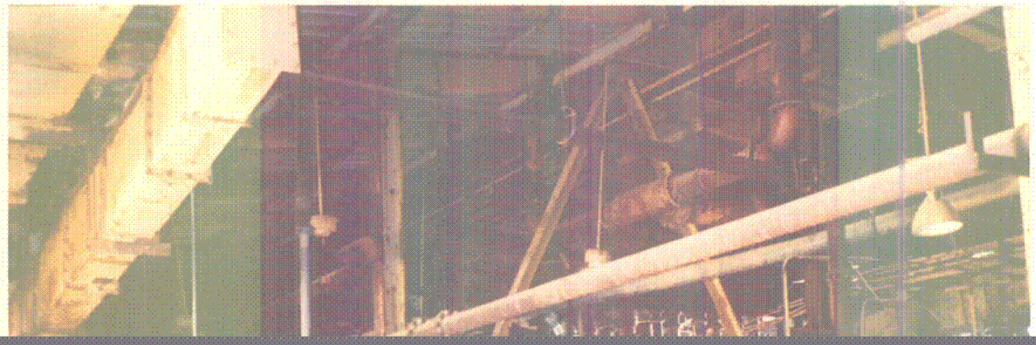
Wet Mill - Wide angle view of eastern half main decks. Mid-sized sumps have been cut open and cleaned. ORSE states uranium present with small amounts of high readings.

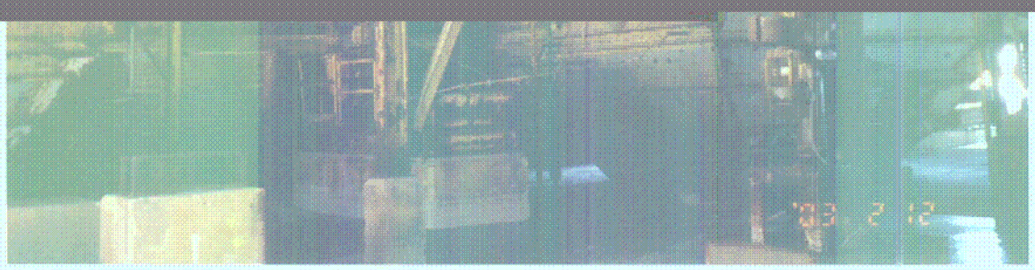


Wet Mill - One of six sets of screens



Wet Mill -Showing spirals. Distributor hoses have been cut Horizontal portion cut, cleaned, released and disposed.



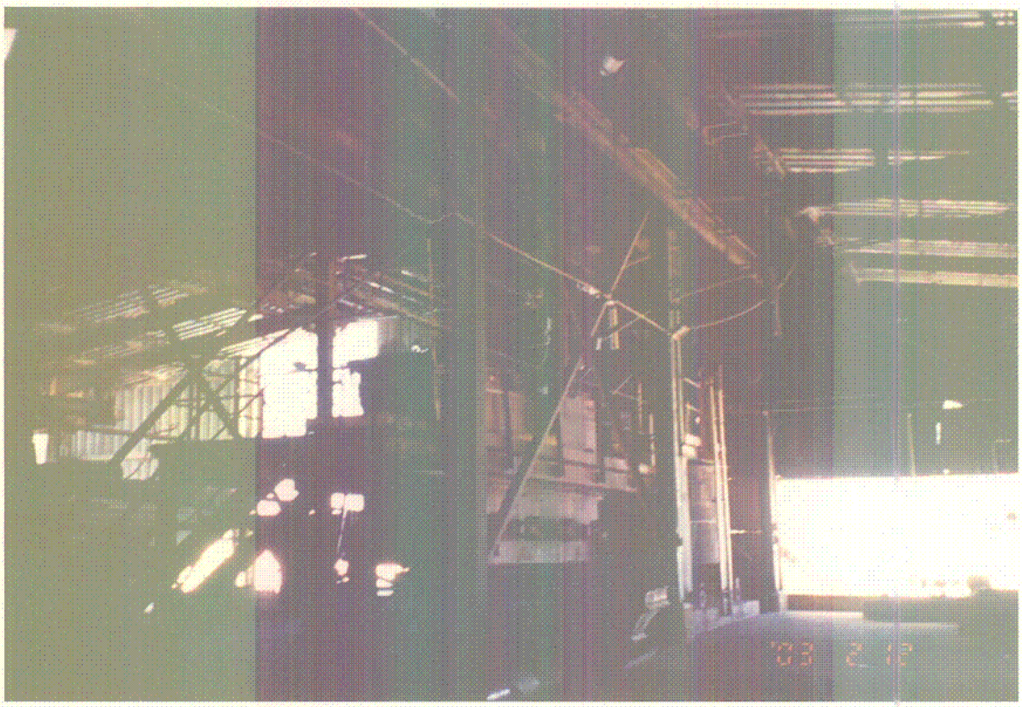


Wet Mill - Main deck sumps ~ 20'x20' and 10' to 12' high. Sheet metal used for flow and distribution control

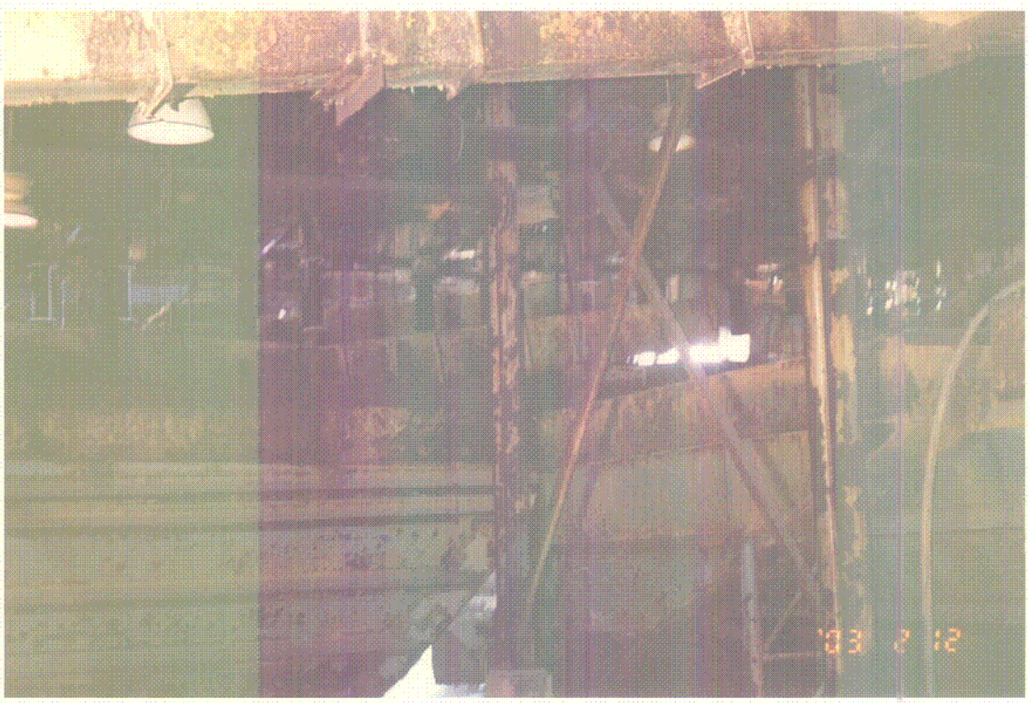
Wet Mill -Showing spirals on second deck and feed lines.

Wet Mill - Northeast corner of mill showing miscellaneous piping and small sumps.

Wet Mill -Showing spirals on second deck.



Wet Mill - Southeast corner of mill on main floor.



Wet Mill -Main deck showing large sumps and feed launders from spirals above.

Wet Mill - Piping and launders under spirals looking upward from main deck.