



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION I
475 ALLENDALE ROAD
KING OF PRUSSIA, PENNSYLVANIA 19406-1415

January 31, 2006

Docket No. 04008980

License No. SMB-1541

Edele Hovnanian
Sr. Executive Vice President
Hovnanian Industries
4000 Route 66
Tinton Falls, NJ 07753

SUBJECT: INSPECTION 04008980/2004001, HERITAGE MINERALS, INC (HMI),
MANCHESTER TOWNSHIP, NEW JERSEY

Dear Ms. Hovnanian:

Between November 29, 2004, and December 30, 2005, Craig Gordon and Marjorie McLaughlin of this office conducted a safety inspection at the Heritage Minerals Site, Manchester Township, New Jersey of decommissioning activities authorized by the above listed NRC license. The inspection was an examination of your licensed activities as they relate to radiation safety and to compliance with the Commission's regulations and the license conditions. The inspection consisted of observations by the inspectors, interviews with personnel, and a selected examination of representative records. Also, an NRC confirmatory survey and formal dose assessment were conducted to determine HMI's readiness for license termination. The findings of the inspection and the final dose assessment results were discussed with you on January 30, 2006. The enclosed report presents the results of this inspection. In addition, we have enclosed a copy of the final NRC staff dose assessment, and the NRC staff responses to your comments regarding this assessment that we received on October 25, 2005.

Within the scope of this inspection, no violations were identified. The results of the licensee's final survey and of the NRC confirmatory survey indicate that Heritage Minerals, Inc. has completed all decommissioning activities described in the approved Decommissioning Plan. The NRC staff dose assessment of the licensed area, however, indicated that the resultant dose would exceed the 25 mrem/yr dose criterion of the License Termination Rule (LTR). Since the dose exceeds this criteria, Commission approval must be granted to terminate HMI's license.

Current NRC regulations are included on the NRC's website at www.nrc.gov; select **Nuclear Materials; Medical, Industrial, and Academic Uses of Nuclear Material**; then **Toolkit Index Page**. The current NRC Enforcement Policy is included on the NRC's website at www.nrc.gov; select **What We Do, Enforcement**, then **Enforcement Policy**. Or you may obtain these documents by contacting the Government Printing Office (GPO) toll-free at 1-888-293-6498. The GPO is open from 7:00 a.m. to 9:00 p.m. EST, Monday through Friday (except Federal holidays).

E. Hovnanian
Hovnanian Industries

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No reply to this letter is required. Your cooperation with us is appreciated.

Sincerely,

Original signed by Marie Miller

Marie Miller, Chief
Decommissioning Branch
Division of Nuclear Materials Safety

Enclosures:

1. Inspection Report No. 04008980/2004001
2. NRC Staff Dose Assessment of the
Heritage Minerals Site (ADAMS ML060060003)
3. NRC Staff Response to Comments on
Dose Assessment (ADAMS ML060050634)

cc w/enclosures:

Michael Fressola, Mayor, Manchester Township, NJ
Patricia Gardner, NJDEP
Jill Lipoti, NJDEP
Paul Giardina, US EPA
John Lord, Heritage Minerals, Inc.
Anthony Thompson, Esquire
Kent Tosch, NJDEP
Gerald Williams, ENERCON Services

E. Hovnanian
Hovnanian Industries

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bcc:

D. Gillen, NMSS
D. Orlando, NMSS
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SISP Review Complete: M McLaughlin

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U.S. NUCLEAR REGULATORY COMMISSION
REGION I

INSPECTION REPORT

Inspection No. 04008980/2004001
Docket No. 04008980
License No. SMB-1541
Licensee: Heritage Minerals, Inc.
Address: One Hovchild Plaza
4000 Route 66
Tinton Falls, NJ 07753
Locations Inspected: Route 70, Mile Marker 41
Lakehurst, NJ
Inspection Dates: November 29, 2004 - December 30, 2005

Inspectors:	Original signed by Craig Gordon	January 31, 2006
	_____ Craig Z. Gordon Senior Health Physicist	_____ Date
Approved By:	Original signed by Marforie McLaughlin	January 31, 2006
	_____ Marjorie M. McLaughlin Health Physicist	_____ Date
	Original signed by Marie Miller	January 31, 2006
	_____ Marie T. Miller, Chief Decommissioning Branch Division of Nuclear Materials Safety	_____ Date

EXECUTIVE SUMMARY

Heritage Minerals, Inc.
NRC Inspection Report No. 04008980/2004001

Between November 29, 2004, and December 30, 2005, an inspection was conducted of final decommissioning activities performed at the Heritage Minerals, Inc. (HMI), Lakehurst, New Jersey facility. Areas inspected included radiation controls during removal of contaminated soil, security and control of stored radioactive material, packaging and transportation of contaminated soil, and review of the Final Status Survey performed by HMI's decommissioning contractor. Soil samples were collected by NRC following remediation of contaminated soil and analyzed by the Oak Ridge Institute for Science and Education (ORISE). A confirmatory walk-over survey and formal dose assessment were conducted by NRC staff to determine HMI's readiness for license termination.

Licensee oversight and management involvement adequately supported the planned decommissioning activities. Decommissioning and remediation of the HMI site met regulatory requirements for radiation protection, security and control of radioactive materials, and licensee involvement and contractor support. The NRC determined that the radioactive waste shipments made during the final phase of decommissioning at HMI were performed in accordance with applicable Department of Transportation (DOT) and NRC regulations. Storage of radioactive material was secured and properly controlled.

HMI has met the final decommissioning requirements specified in the approved Decommissioning Plan and completed the remediation. In accordance with SECY-92-106, NRC performed an assessment of the resultant exposure from the residual contamination remaining in the NRC licensed portions of the site. In the most likely exposure scenario (suburban resident use), the resultant dose is greater than the 25 mrem per year limit described in the License Termination Rule (LTR). As directed by SRM-SECY-04-0024, NRC staff must request the Commission's approval for termination of HMI's license.

REPORT DETAILS

I. Decommissioning and Remediation Activities

a. Inspection Scope

Observed excavation activities related to completing the final remediation of outdoor areas in preparation for the licensee's final status survey (FSS) and NRC confirmatory survey. Observed security and control of excavated and stockpiled radioactive material prior to shipping. Reviewed licensee's surveys of the dump truck and excavator.

b. Observations and Findings

On November 29, 2004, the inspectors performed a walk-down of the NRC-licensed area, noting the locations of the pockets of material still to be removed. Nine pockets of contaminated soil had been identified by the 2003 NRC confirmatory survey in excess of unrestricted release guidelines. The licensee's decommissioning contractor identified the locations with a portable Global Positioning Survey (GPS) unit, and the locations were recorded. In addition, prior to beginning excavation, the remediated area was re-surveyed by the contractor to determine if migration of the contaminated soil had occurred. The inspectors also observed the condition of the stockpiled material awaiting shipment. This soil was staged on a tarp for migration control.

The inspectors returned to Heritage Minerals, Inc. (HMI) the week of December 13, 2004, to observe excavation and shipping activities. The inspectors verified that the site had been re-surveyed and that the excavation sites were clearly identified and marked. Contaminated soil pockets greater than the licensable quantity of 116 pCi/g were excavated using hand tools or heavy equipment, based upon the size of the applicable area. At all locations, the inspectors observed the removal of soil from the identified locations, the placement of the excavated soil into a small dump truck, and the transportation of the soil to the stockpile. Each excavated location was scanned by the licensee using a rate meter to determine the release criteria had been met. One location (ORISE 9) was submerged, as the pond it borders had flooded. The site was dredged, and the removed soil similarly scanned.

The inspectors verified that the rate meters being used by the licensee were operating and calibrated. The excavated and stockpiled soils were covered with tarps to prevent migration of the material by the wind and weather. Postings around the site met regulatory requirements. Good radiation safety practices were maintained during all observed activities.

Close licensee oversight was evident during all activities observed by the inspectors. The decommissioning contractor provided direct oversight of the primary decommissioning activities, and coordinated well with the HMI site manager and site supervisor, who was observed as being present when decommissioning activities were occurring. Licensee management was involved in all decisions related to contractor work. No safety concerns were identified.

c. Conclusions

Decommissioning and remediation activities at HMI met regulatory requirements for radiation protection, security and control of radioactive materials, and licensee involvement and contractor support.

II. Transportation of Contaminated Soil

a. Inspection Scope

Observed radioactive material shipments and reviewed shipping manifests and survey records to determine that NRC and Department of Transportation (DOT) requirements for placarding and marking, shipping paper documentation, and radiation exposure limits were met.

b. Observations and Findings

The inspectors observed shipment of approximately 540 tons of contaminated soil from the HMI Site to International Uranium Corporation in White Mesa, Utah. The shipments were prepared and overseen by a contractor, Environmental Rail Solutions. Before shipments were dispatched offsite, the inspectors observed that the shipments were prepared, labeled, and controlled in accordance with regulations.

The shipments were transported in open trucks, that were covered with tarpaulin enclosures for dust control after being filled. The inspectors examined shipping papers and activity calculations, verified package marking and labeling, and spoke with the shipper and with truck drivers about requirements and emergency procedures. The inspectors also performed dose rate measurements of the trucks, that verified compliance with 49 CFR 173.441 dose limits. No safety concerns were identified.

c. Conclusions

The NRC determined that the radioactive waste shipments made during the final phase of decommissioning at HMI were performed in accordance with applicable DOT and NRC regulations. Storage of radioactive material was secured and properly controlled.

III. Final Status Survey and NRC Confirmatory Survey

a. Inspection Scope

Reviewed the HMI FSS and conducted independent surveys of remediated areas. Obtained side-by-side biased post-remediation samples of contaminated soil pockets located outside of licensed areas to provide further verification that all licensed material had been removed from these locations. Compared the results of both surveys to determine compliance with the decommissioning criteria specified in the approved Decommissioning Plan (DP).

b. Observations and Findings

Final Remediation Activities

On September 8-10, 2003, NRC's contractor, the Oak Ridge Institute for Science and Education (ORISE) performed a second confirmatory survey of the HMI site. Results indicated that residual contamination above the release criteria in the approved DP remained in the monazite pile and trench areas. Additionally, elevated concentrations of source material were found in locations outside the footprint of the monazite pile, and away from mill buildings (fugitive material). The results of this survey were communicated in Inspection Report 04008980/2003001, along with the notification that additional soil remediation would be necessary to complete site decommissioning. Confirmatory surveys of the mill pads indicated that residual contamination levels of these structures met the approved release criteria in the DP.

In a letter dated June 30, 2004, HMI stated that the ORISE soil sample locations had been marked and then scanned with a sodium iodide detector attached to a portable global positioning system (GPS) unit. The remaining pockets of material showing elevated exposure rates were identified and recorded in this manner. HMI identified nine pockets containing source material required for possible remediation. A map showing the approximate locations of these pockets relative to the ORISE measurements was included in the letter. A plan to remediate stockpiled sand that had been removed during demolition of the wet and dry mill buildings was also provided.

HMI proposed a boundary encompassing the licensed areas of the site, which included the pockets of material showing the elevated scan readings. This boundary delineated the outermost locations where licensable source material, i.e., which required remediation to below 10pCi/g, could have been concentrated from licensed activities. HMI committed to remediate any material which exceeded 116 pCi/g total thorium identified within the bounded area. HMI also requested approval to dispose of the soil stockpiled from demolition of the wet and dry mill buildings as non-licensed material, because the concentration of source material in these sands fell below 0.05%.

Region I staff submitted a Technical Assistance Request (TAR) to the Decommissioning Directorate, NMSS, to evaluate the licensee's proposed boundary and the request for disposition of the stockpiled material. In assessing the licensee's proposal, NRC staff concluded that the unimportant quantity limit of 10 CFR 40.13 (a), calculated at 116 pCi/g thorium for the HMI site, was to be used as the threshold for determining what material should be included in HMI's final remediation. Fugitive material outside the monazite footprint away from mill buildings found in concentrations exceeding 116 pCi/g thorium was required to be remediated to below 10 pCi/g for thorium and uranium.

The TAR response also provided a determination on the disposition of the stockpiled soil. Although this material fell below the 10 CFR Part 40 definition of source material, the soil had been removed from the wet and dry mill equipment, which were part of the NRC license. Because this material had originated from licensed activities, the staff determined it should be considered contaminated and disposed as licensed material.

On November 17, 2004, the staff provided HMI its response to their requests from the June 30, 2004 letter. NRC approved the proposed boundary and informed HMI that all licensable material identified within this boundary must be remediated to below 10 pCi/g total thorium and uranium. Material within the bounded area that was under 116 pCi/g total thorium was considered an unimportant quantity of source material (remediation not required). This was based on the NRC review of HMI's Process History, submitted on November 22, 2002. In this submittal, HMI explained how processed sand was stored and graded around the mill buildings during pre-licensed activities. This process resulted in elevated, but not licensable, concentrations of thorium and uranium in these areas. HMI emphasized there was no chemical treatment of the material. It remained in its natural state except for separation of the heavy mineral fraction from the dredged material. NRC determined that a license amendment was not required for approval of the boundary because the boundary did not change HMI's remediation commitments made in the DP.

On December 13, 2004, HMI's decommissioning contractor initiated excavation of the pockets of material within the bounded area. The smaller pockets were excavated with small shovels, and the largest were excavated using an earth mover. The soil removed from the pockets was placed on top of the pile of stockpiled sands from the wet and dry mill buildings. NRC inspectors observed the excavation of several pockets and noted that the waste pile was covered with tarpaulins for contamination control. NRC inspectors also observed the licensee scans of the sides and bottoms of the excavations to ensure that all licensable material had been removed. The scans were performed by trained personnel using calibrated Ludlum 44-10 sodium iodide detectors.

On December 14-15, 2004, NRC and the licensee's decommissioning contractor performed side-by-side, biased soil sampling of the nine excavated soil locations. The soil samples were obtained to further verify that all licensed material had been removed from these locations. The number of samples obtained from each excavation site was determined by the size of the excavation, ranging from under 4 ft³ to greater than 1,000 ft³. At this time, a portion of the excavated and stockpiled soil remained on site, and could not be shipped for disposal until after January 1, 2005, due to availability of trucks. Since the area under the stockpile had not been accessible during previous NRC confirmatory surveys, the inspectors arranged to return to the site after the material was shipped to obtain samples of this soil. Thirteen (13) 1-kg soil samples were obtained by both NRC and HMI, as identified in the following table:

Table 1. Sample Identification Information

Excavation ID	Sample Number	Location Description
ORISE 1	04-01 A	Northeast of Wet Mill pad (west side of excavation)
	04-01 B	Northeast of Wet Mill pad (east side of excavation)
ORISE 2	04-02	North of Wet Mill pad (center of excavation)
ORISE 3	04-03	Northeast of Dry Mill pad (center of excavation)
ORISE 4	04-04	West of former monazite pile (center of excavation)
ORISE 5	04-05	West of former monazite pile (center of excavation)
ORISE 6	04-06 A	West of former monazite pile (west side of excavation)
	04-06 B	west of former monazite pile (east side of excavation)
ORISE 7	04-07	footprint of former monazite pile (center of excavation)
ORISE 8	04-08	footprint of former monazite pile (center of excavation)
ORISE 9	04-09 A	adjacent to pumphouse (east side of excavation)
	04-09 B	adjacent to pumphouse (west side of excavation)
	04-09 C	adjacent to pumphouse (north side of excavation)

NRC personnel determined to not have the NRC samples analyzed until the remaining stockpiled sand was shipped and the samples were obtained from the area beneath the pile. HMI had their thirteen samples analyzed, and determined that four locations which exceeded 10 pCi/g total thorium and uranium required additional excavation. In mid-January, the contractor completed the additional remediation, and shipped all excavated and remaining stockpiled soil. On January 20, 2005, NRC personnel returned to the Heritage Minerals site to obtain the samples from the area beneath the stockpile (identified as ORISE 10), and to obtain new samples from the locations that had been further remediated.

Ten samples were obtained by both HMI and the NRC, using the same sampling method. NRC inspectors also performed a gamma walkover survey of the area encompassed by the boundary identified in HMI's June 2004 letter to verify that no source material remained within this area. No readings were obtained that were greater than twice the background radiation level. Based on this walkover survey, NRC inspectors determined that all licensable source material within this bounded area had been removed. All NRC soil samples were shipped to ORISE for analysis by gamma spectroscopy. The additional NRC soil samples obtained on January 20, 2005, were:

Table 2. Sample Identification Information

Excavation ID	Sample Number	Location Description
ORISE 4	05-04	West of former monazite pile (center of excavation)
ORISE 5	05-05	West of former monazite pile (center of excavation)
ORISE 6	05-06	West of former monazite pile (west side of excavation)
ORISE 9	05-09 A	adjacent to pumphouse (east side of excavation)
	05-09 B	adjacent to pumphouse (west side of excavation)
	05-09 C	adjacent to pumphouse (north side of excavation)
ORISE 10	05-10 A	Stockpile area (northeast side)
	05-10 B	Stockpile area (southeast side)
	05-10 C	Stockpile area (northwest side)
	05-10 D	Stockpile area (southwest side)

The analysis of the samples obtained by HMI was provided to the NRC in the license termination request dated March 4, 2005. The analysis of the NRC samples was received from ORISE in a letter dated February 14, 2005. Comparison of the analysis results of the final excavations is listed below.

Table 3. Analysis Results

Sample Number	HMI Total Thorium (1)(2)	NRC Total Thorium (3)	HMI Total Uranium (2)(4)	NRC Total Uranium (5)
04-01A	1.18	2.83±0.21(6)	4.06	4.52±0.81
04-01B	1.09	2.63±0.19	6.26	3.35±0.66
04-02	0.06	4.84±0.30	ND (7)	3.08±0.86
04-03	0.89	4.58±0.29	0.34	5.29±0.78
05-04	ND (7)	0.46±0.09	6.24	0.4±0.41
05-05	0.37	0.30±0.07	3.84	0.36±0.4
05-06A	0.07	0.34±0.07	ND (7)	0.46±0.33
04-06B	1.79	5.87±0.39	7.62	3.7±1.1
04-07	2.00	12.39±0.69	ND (7)	4.2±1.1
04-08	6.59	5.74±0.39	5.37	2.5±1.3
05-09A	ND (7)	0.40±0.08	3.79	0.35±0.47
05-09B	0.40	0.41±0.08	6.74	0.61±0.37
05-09C	0.12	0.33±0.06	1.60	0.72±0.30
05-10A	0.59	0.98±0.1	5.08	1.11±0.41
05-10B	1.86	3.86±0.26	8.66	4.03±0.9
05-10C	0.70	4.19±0.3	5.16	4.37±0.96
05-10D	1.45	7.28±0.46	7.64	8.2±1.2

Notes:

1. Total thorium quantified by assuming secular equilibrium of Th-228 with Ra-228 daughter and Th-232 with Pb-212 daughter, then calculating total thorium
2. Reported values above the established site background of 0.48 pCi/g total thorium and 0.62 pCi/g total Uranium
3. Total thorium is the sum of Th-228 and Th-232
4. Total uranium quantified by assuming secular equilibrium of U-238 with U-238 daughter then calculating total uranium
5. Total uranium is calculated using (2*U-238) + U-235
6. Uncertainties represent the 95% confidence level, based on total propagated uncertainties
7. 'None Detected' values represent no detected radionuclides above the established site background values listed in Note (2).

The results from the HMI samples indicated that all pockets of licensable soil had been remediated to meet the release criteria of 10 pCi/g total thorium and uranium. One NRC sample, 04-07, exceeded the release criteria of # 10 pCi/g total thorium and uranium. The NRC and HMI samples were obtained as side-by-side measurements to provide reasonable verification of the results. Because the samples were not split samples, the staff expected some variability in the results. Based on the HMI sample results, and NRC staff review of the procedures and cross check data for the laboratory that analyzed the HMI samples, NRC staff did not require additional remediation of the 04-07 sample location.

One of the sample locations analyzed during the 2003 NRC confirmatory survey that indicated a licensable concentration of source material, was ORISE Sample #5. The approximate location of this sample as indicated on the map in the ORISE report was not reflected in the June 30, 2004, HMI letter. NRC evaluated this discrepancy, and determined that the HMI survey described in the June 30, 2004, letter was sufficient to identify remaining pockets of licensable material. The maps provided only approximations of sample and pocket locations, and were not to scale. NRC determined that the HMI survey, in conjunction with the January 20, 2005, post-remediation walk-over survey performed by NRC personnel, confirmed that licensable material was identified and remediated to satisfy the approved decommissioning criteria in the DP.

Review of HMI Request for License Termination

The HMI license termination request contains surveys of the mill pads, results of the soil sample analyses, and surveys of wet and dry mill equipment that had been dismantled and disposed. NRC staff prepared a draft Environmental Assessment and provided it to the New Jersey Department of Environmental Protection (NJDEP) for review and comment. One comment provided by NJDEP on July 12, 2005, was that the HMI termination request did not provide survey data on an underground pipe that NJDEP believed had been used to transport licensed material from the wet mill to the dry mill. The pipe is referred to in a letter from HMI to NRC dated November 30, 1998. NRC reviewed HMI records for details on the disposition of this pipe. The HMI Decommissioning Plan, dated November 10, 1997, describes proposed Survey Units (SUs) for the site. One such unit is SU-32, the "Dryer Filter Feed Sump," which is described as providing feed material from the wet mill to the dry mill. The November 30, 1998 letter also provides a table (Table A) with the location of equipment that had been moved. In this letter, SU-32 is described as being stored in the back of the wet mill, but what components were being stored is not specified. In the HMI Final Status Survey, dated November 25, 2001, SU-32 is described as not being found on site. However, the components on either process end of SU-32 (SU-31 "Hydro Classifier" and SU-33 "Dryer") were described in the FSS. These units were cleaned to remove built up sand. In the FSS, contamination surveys of these components indicated that they met the criteria for free release specified in Regulatory Guide 1.86, as listed in the approved DP.

There is no other specific mention of such a pipe in any other HMI records reviewed by NRC, including numerous detailed process descriptions. The plant manager was questioned about the existence of the pipe, and he did not recall an actual pipe used to transport material. He stated that there had been some hoses underground through

which water and solvents were transported. These had been removed and disposed during site remediation. NRC staff questioned the HMI plant manager, site owner, plant foreman, and decommissioning contractor about the existence of the pipe during a July 19, 2005 site visit. Again, no one had knowledge of such a pipe being used. The plant foreman and site owner stated that the ground between the dry mill and wet mill pads had been excavated about a month before to remove an underground oil storage tank. The foreman stated that roughly a twenty-foot deep hole had been dug parallel to the pads, and that no piping had been encountered during the dig. Based on the information provided by the licensee, NRC has determined that the pipe identified in the November 30, 1998 letter was most likely removed from the site.

Additional review of the documentation provided in the termination request identified that shipping papers had not been provided documenting the disposition of the excavated and stockpiled soil. NRC requested these documents. On April 20, 2005, HMI provided NRC copies of the shipping papers for all contaminated soil shipments, indicating their proper disposal.

HMI Dose Assessment

Because Heritage Minerals Inc. is a former Site Decommissioning Management Plan (SDMP) site, it is not required to comply with the dose requirements for unrestricted release in 10 CFR 20 Subpart E (License Termination Rule). When the License Termination Rule (LTR) was published in the Federal Register (62 FR 39088), former SDMP sites were "grandfathered" as long as their DPs were approved by the NRC before August 20, 1999 (extended for several sites, including Heritage). Instead, "grandfathered" sites may decommission to either the LTR criteria or to the contamination-based cleanup criteria specified in their approved DPs. In SECY-92-106, NRC staff was directed to evaluate the resultant dose impact of sites selecting the latter option, and compare this against the LTR. In the Staff Requirements Memorandum (SRM) to SECY-04-0024, NRC staff are directed to seek Commission approval prior to releasing former-SDMP sites when the dose from residual radioactivity after completing decommissioning exceeds the unrestricted release provision in the LTR. Based on this requirement, a dose assessment of the Heritage site is required prior to license termination.

On June 7, 2005, NRC region I staff submitted a TAR to the Division of Waste Management and Environmental Protection (DWMEP) for assessment of the dose from remaining licensed and unlicensed radiological material within the licensed portions of the site. The TAR response and dose assessment are listed in Enclosure 2. The assessment was performed using Final Status Survey results and soil sample results from the HMI survey performed in April 2003, the ORISE confirmatory survey performed in 2003, and the side-by-side sampling performed by NRC with HMI in 2004/2005. Sample results used in the dose assessment were taken from site locations that did not receive further remediation, and are representative of the as-left site conditions. The dose assessment evaluates the residual radiological dose remaining on the mill pads and within the footprint of the former monazite pile. The assessment was performed to determine the dose that would likely be received by a member of the critical group, using likely dose scenarios.

The dose from the residual contamination remaining on the wet mill and dry mill pads was evaluated using RESRAD Build v. 3.22. Input data was obtained from the FSS data provided in the March 2005 license termination request. The resultant maximum dose to an individual standing on or near either pad is 1.6 mrem in the first year after license termination. The dose from the residual contamination remaining within the footprint of the former monazite pile was evaluated using RESRAD v. 6.3. Based on licensee-stated intentions and evaluation of the most common land-use of the surrounding area, the suburban resident scenario was deemed the most likely and most appropriate. Such an individual is impacted by direct radiation from the soil, limited plant ingestion from a personal garden, and soil ingestion. Water pathways are not considered, because municipal water supply is assumed rather than well water. For completeness, and to provide a bounding dose, the resultant dose using a resident farmer scenario was also evaluated. A resident farmer is impacted like the suburban resident, but has additional contributions from increased site-grown food, site-raised animal products, and on-site drinking water. The highest resultant dose to a suburban resident living within the evaluated area is 40 mrem/year, which exceeds the 25 mrem/yr limit of the LTR. The highest resultant dose to a resident farmer within the same area is 83 mrem/year. A draft of the NRC staff dose assessment was provided to HMI and NJDEP for comment on September 29, 2005. Comments received from both parties were considered in the final NRC staff dose assessment.

No safety concerns were identified with the performance of final decommissioning and decontamination activities.

c. Conclusions

Review of the information provided in the March 2005 HMI license termination request, and data obtained from December 2004 and January 2005 NRC sampling, indicate that Heritage Minerals, Inc. has met the decommissioning requirements specified in the approved Decommissioning Plan. In accordance with SECY-92-106, NRC performed an assessment of the resultant exposure from the residual contamination remaining in the NRC licensed portions of the site. In the most likely exposure scenario, the resultant dose to a suburban resident is greater than the 25 mrem per year limit described in the LTR. Therefore, in accordance with SRM-SECY-04-0024, NRC staff must request the Commission's approval for termination of HMI's license.

PARTIAL LIST OF PERSONS CONTACTED

Licensee and Licensee Contractors

D. Ardeto, Environmental Rail Solutions
B. Bahrle, HMI
C. DeWitt, ENERCON
E. Hovnanian, HMI
J. Lord, HMI
G. Williams, ENERCON

Findings

Items Opened, Reviewed, Closed

None