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August 25, 2005

Kenneth L. Kalman
Decommissioning Branch
Division of Waste Management
Office of Nuclear Materials Safety and Safeguards
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

RE: **Transmittal of Deliverable (License No. SMB-743, Control No. 132074)**

Encl: (1) Response to June 24, 2005 Comments on Draft Chapter 5 of SMC Decommissioning Plan

Dear Mr. Kalman:

Shieldalloy Metallurgical Corporation (SMC) is in receipt of your June 24, 2005 letter. Your letter provided us with the USNRC staff's comments on the Draft Chapter 5 (Dose Modeling) of our revised decommissioning plan (submitted to you on April 14, 2005). The purpose of this letter is to forward to you enclosure (1), SMC's responses and action plan, for your review and concurrence that the steps we are planning to take will adequately address the comments made by you and your staff.

SMC's goal, when our revised decommissioning plan is submitted to you, is that it will pass the USNRC's acceptance review and advance towards technical review by the staff. That is why your comments on our dose modeling chapter and our responses, if you deem them acceptable, are so important at this stage in the decommissioning planning process. We are thus asking for your concurrence that Chapter 5, once modified as described in the enclosure, will not, in and of itself keep our decommissioning plan from being accepted for technical review. We look forward to your timely response.

Please do not hesitate to contact the me, if you have any questions or would like to discuss any of our specific responses or plans for addressing your comments and

concerns when we submit the revised Decommissioning Plan. You can contact me via e-mail at dsmith@shieldalloy.com or by telephone at (856) 692-4201 extension 226.

Sincerely,

David R. Smith
Radiation Safety Officer

Cc: Eric Jackson – Shieldalloy Metallurgical Corporation
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ENCLOSURE 1
Response to June 24, 2005 Comments on Draft Chapter 5
of the SMC Decommissioning Plan

Comment 1: p.2 Section 5. The approach in the draft appears to assume restricted release for the total site and, therefore, did not minimize the restricted area. As noted on page 7 of the NRC interim guidance, a site could be subdivided into a restricted use part and another part that could allow reuse. This unrestricted use part would be under the Long Term Control (LTC) license, and the remaining license condition would prohibit sale of that part of the site. If the unrestricted use criteria can be met, than that part of the site could be made available under the LTC license for any reuse, and therefore, benefit the licensee and community. For this approach, Shieldalloy Metallurgical Corporation (SMC) would have to demonstrate compliance with the unrestricted use criteria for that part of the site and the restricted use criteria for the other part of the site. If SMC plans this approach, then the introduction should be revised to generally describe this approach and the rest of the chapter reorganized and revised to address the unrestricted use part. NRC provided guidance for dose modeling for this approach and noted it was similar to dose modeling for a partial site release approach, but the LTC license would apply to the total site, both the restricted and unrestricted use parts.

SMC Response: Concur. SMC does indeed intend to establish restricted release criteria for the storage yard, and unrestricted release criteria for the remainder of the site. The derivation of and basis for the derived concentration guidelines levels (DCGLs) for the unrestricted portion of the site are presented elsewhere within the decommissioning plan (i.e., Chapter 14), although they were introduced in Section 5.5.

Action to be Taken: The Chapter 5 text will be revised to include dose modeling for both the restricted and unrestricted portions of the site. In addition, the derivation of DCGL's will also be moved from Chapter 14 of the decommissioning plan to Chapter 5.

Comment 2: p.2 Section 5. The overall approach described is to demonstrate compliance with restricted release for the total site. The quoted LTR criterion of 100 mrem when institutional controls are no long in effect is not the only dose criterion that must met. The dose criterion of 25 mrem/yr with institutional controls in place must also be met and should also be mentioned.

SMC Response: Concur.

Action to be Taken: The applicable text in Chapter 5 will be revised to reflect the fact that there are two dose bases for decommissioning the SMC site.

Comment 3: p.5 There is no mention of an analysis of the unrestricted area.

SMC Response: Partially concur. Section 5.5 made reference to the DCGL's derived for the unrestricted areas of the site. However, Chapter 5 did not clearly differentiate between the restricted and unrestricted portions of the site, as shown in SMC's response to Comments 1 and 2.

Action to be Taken: The Chapter 5 text will be revised to include dose modeling for both the restricted and unrestricted portions of the site. In addition, the derivation of DCGL's will also be moved from Chapter 14 of the decommissioning plan to Chapter 5.

Comment 4: p.6 Line 5 Clarify why the minimum value is considered as the most likely value. • Line 1-14 There needs to be a description of the source term located outside of the restricted area.

SMC Response: The minimum size, as described in the text, is equal to the measured size of the residual radioactivity in the storage yard once consolidated, while the maximum size equals the design dimensions of the capped pile. The minimum value is considered to be the most likely because proportionately trivial additional radioactive materials will be added after consolidation and during cap installation.

Action to be Taken: The referenced text will be revised for clarity.

Comment 5: p.7 Line 11 The term "deep aquifer" may be the incorrect terminology. Is there a shallow aquifer?

SMC Response: As described in Sections 3.3.2 and 3.4.2.3 of the Draft Environmental Report, the geology in the vicinity of the Storage Yard is characterized by brown sand and gravel representative of the Bridgeton Formation that extends in depth to8.5 meters (28 feet) (well SC-12D) below the ground surface. The Cohansey Sand lies beneath the Bridgeton Formation and is composed of coarse sands and little to trace silt in the upper 12 meters (40 feet), and generally finer sand and some silt, with some clay and silt stringers in the lower 18 to 24 meters (60 to 80 feet). Based on pump test analyses, the shallow and deep transmissivities vary for the upper and lower Cohansey Sand beneath the SMC facility, with lower transmissivity and specific yield values for the lower Cohansey Sand (due to the smaller grain size sand and increased percentage of silt and clay) than for the upper Cohansey Sand. Based on these differences, historically the ground water data for the shallow wells (screened above 15 meters or 50 feet) have been evaluated separately from the data for the deeper wells (screened below 15 meters). The depth to ground water in the vicinity of the Storage Yard area ranges from approximately 8 to 10 feet below grade.

Action to be Taken: References to the "Deep Aquifer Saturated Zone" will be revised to simply the "Saturated Zone" and will be described as consisting mainly of the coarse sands and little to trace silt of the upper portion of the Cohansey Sand.

Comment 6: (1) p.8 • Lines 7-8 Based on section 5.2.1, the contaminated zone dimensions should be treated stochastically. • (2) Lines 11-12 Section 5.2.2 says that the undisturbed surface layer is between 0 to 28 feet, while this section states 8 to 10 feet. • (3) Line 17 The distribution coefficients developed for the source term, which are based on clay leaching test are probably inappropriate for the unsaturated zone.

SMC Response: Concur on all three issues. Also, see Response to Comment 5.

Action to be Taken: The contaminated zone text in Section 5.2.2.2 will be revised to reflect the variability in size and thickness factors previously described in Section 5.2.1. With respect to item (2), based on the information presented in response to Comment 5, the "Undisturbed Surface Layer" will be described as consisting of the undisturbed native deposit of gravel/sands of the Bridgeton Formation , with an unsaturated thickness of 8 to 10 feet. References to the "Deep Aquifer Saturated Zone" will be revised to simply the "Saturated Zone" and will be described as consisting mainly of the coarse sands and little to trace silt of the Cohansey Sand. Finally, in regard to item (3), the unsaturated zone would be best characterized as materials of the Bridgeton Formation. The upper eight (8) to 10 feet of the Bridgeton Formation consists of brown sands, the coarseness of which varies, as well as the amount of silt and gravel that is present. To ensure an element of conservatism in the analysis, the distribution coefficient for "sand", from Sheppard

(Sheppard, M.I., and D.H. Thibault, 1990, "Default Soil Solid/Liquid Partition Coefficients, Kds, for Four Major Soil Types: A Compendium," Health Physics 59:471–482.) will be used.

Comment 7: p.9 • There needs to be a description of the surrounding land use. • Line 3 The appropriateness of the scenario cannot be fully assessed without seeing Chapter 3. • Lines 12-13 Is there a farm in the area? What is the distance to the nearest farm? • Lines 19-21 Failure of institutional controls and engineered barriers should be viewed separately. Institutional controls should be assumed to fail instantaneously. • Lines 22-25 Could there be additional reasons why someone could excavate the pile other than for its contents (e.g., drilling a well)?

SMC Response: Chapter 5 was never intended to be a stand-alone chapter. Chapter 3 of the decommissioning plan will contain the site and facility description.

Action to be Taken: Chapter 5 will be submitted to the USNRC as part of a complete decommissioning plan. In addition, wording to reflect the fact that institutional and engineered controls are assumed to fail at different rates will be captured in the Chapter 5 revision. The analysis will reflect that for purposes of the 100 millirem/yr cap the controls fail at the time restrictions go in effect and that engineered barriers degrade and fail over time. Also, a series of reasons as to why a hypothetical intruder might excavate through the capped pile will be presented in the Chapter 5 revision, along with justification for selecting or rejecting those reasons in developing reasonably foreseeable use scenarios.

Comment 8: p.9 Section 5.3. The discussion of the restricted use part of the site would be clearer if land use were separated into one reasonably foreseeable uses with institutional controls and the other 2 sections assuming institutional controls are not in effect. Also identify the uses of the unrestricted part of the site, both reasonably foreseeable and unlikely uses.

SMC Response: Concur (see response to Comments 1 and 2)

Action to be Taken: See response to Comments 1 and 2.

Comment 9: p.9 Section 5.3. What is meant by deed-restricted SMC property? Under NRC's interim guidance, the LTC license and a deed notice are the two types of institutional controls suggested.

SMC Response: Concur.

Action to be Taken: The text in the revised Chapter 5 will be modified accordingly.

Comment 10: p.9 Section 5.3, bullet 6. The phrase "control fails" should not be used. NRC's guidance separates institutional controls from engineered controls. Therefore, institutional controls should be assumed to fail instantly, along with any maintenance, but engineered controls would degrade over time without monitoring and maintenance.

SMC Response: Concur.
Action to be Taken: The text in revised Chapter 5 will be modified accordingly.

Comment 11: p.10 Section 5.3, last bullet. Although, NRC does not use the term "buffer", the boundary of the restricted use part of the site should be defined by SMC and would provide a separation of the restricted property line from the engineered cap. This boundary should be determined by dose assessment insights and consideration of the need for monitoring.

SMC Response: Concur. The boundary of the restricted area will be set such that the applicable dose limits in both the restricted and unrestricted portions of the property may be met. At this time, a nominal distance of 100 feet from the fence line immediately south of the capped pile is being used as the default value.

Action to be Taken: None required, other than successful demonstration of compliance with applicable dose limits in revised Chapter 5.

Comment 12: p.10 Section 5.3.1. Deed restrictions should be replaced by LTC license conditions. Why are deed restrictions planned? Simply, the conditions of the license will identify the prohibited and permitted uses of the site.

SMC Response: SMC is committed to documenting the restrictions established in the LTC license in the form of a legal document recognized by and recorded with Gloucester County. However, because such restrictions may not be a requirement for decommissioning, SMC concurs that reference to such may be confusing and that clarification is in order. Because the restrictions will be in effect for a substantial time period, SMC intends to have a recorded deed notice that addressees site use restrictions. A part of the LTC will be a license condition that requires the maintenance of the deed notice in the recorded land records. This will provide a layering of protection and provide notice of the status of the site on any legal issues involving the property.

Action to be Taken: The text in the revised Chapter 5 will be modified accordingly.

Comment 13: p.10 Section 5.3.1. Use reasonably foreseeable and unlikely exposure scenarios as the two groups of scenarios. Avoid other terms like "most likely" to avoid confusion with terms used in the interim guidance.

SMC Response: Concur.

Action to be Taken: The text in the revised Chapter 5 will be modified accordingly.

Comment 14: p.11 Line 10 The values given for the inspection and maintenance time seems too short.

SMC Response: Disagree. The selected value of 64 hours per year is based on eight (8) days of work, with a work day duration of eight (8) hours. In reality, the inspection and maintenance of the cap should require a considerably lower annual average duration, particularly when the vegetation on the surface of the cap takes hold. From SMC's experience at its Cambridge, Ohio site, where cap inspection and maintenance has been on-going for many years for residual radioactivity with a deposition footprint that is significantly larger than the one proposed for the Newfield site, a more realistic annual average inspection and maintenance duration is one (1) day per month for two (2) hours.[1] However, to ensure an element of conservatism in our analysis, the duration was arbitrarily elevated to 64 hours per year.

Action to be Taken: None required.

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[1]See the SMC-Cambridge Radiation Protection Program Plan, RSP-001, for specifications on the routine maintenance and inspection activities for the West Pile.

Comment 15: p.12 • Line 21 Provide the source of data used for assuming a short time exposure of 8400 m 3 /yr. • Line 22 Provide the assumed value for the amount of soil that the maintenance worker would ingest.

SMC Response: The inhalation rate of 8,400 m^3/year was a default provided by the RESRAD code and based on a geometric mean established by the U.S. Environmental Protection Agency in the *Exposure Factors Handbook.*[2] This inhalation rate was assumed to range from 4,380 m^3 to 13,100 m^3/yr. Soil ingestion of 36.5 grams per year is also a default parameter provided by RESRAD and is widely assumed to be conservative in light of the fact that a maintenance worker is not likely to eat plants nor spend much time at all in the vicinity of the storage yard.

Action to be Taken: The technical basis for these assumptions will be added to the text in Revised Chapter 5.

Comment 16: p.13 (1) Lines 2-10 Is the worker assumed to be exposed to radiation from the pile? If not, why? If so, how do you model the location of the person is in reference to the source? (2) Lines 11-15 Why was the use of groundwater for drinking not included?

SMC Response: (1) The RESRAD model assumes that the person who is exposed to external radiation is positioned directly on top of the cap. Because the intensity of external radiation exposure decreases with distance from the source, the maximum radiation exposure rate is found directly on top of the cap. To ensure an element of conservatism into our analysis, SMC also assumed the worker would be subjected to the maximum possible exposure rate which would occur directly on top of the cap rather than any distance from it.

(2) The RESRAD User Manual supports the position that an industrial worker is not likely to drink groundwater.[3] Instead, he/she would drink water supplied to the site by the local drinking water service. Consequently, the groundwater pathway in RESRAD was turned off for this analysis because a public water supply is indeed available to industrial workers at the Newfield site.

Action to be Taken: The computer code, MicroShield, will be used to demonstrate the relationship between external radiation exposure and distance from the source. In addition, the exposure rates on top of the cap and "at distance" will be used to test the sensitivity of modeling results to this input parameter. Also, applicable references and other information that supports the disabling of the groundwater pathway for industrial workers will be included in the text.

Comment 17: p.15 Section 5.3.2. Discuss the potential for an offsite use scenario for removal of the slag and its use as fill or road bed. Is this use unlikely or reasonably foreseeable?

SMC Response: Concur. Because the particle size of the slag currently in the storage yard is so large (i.e., dimensions on the order of square feet rather than square inches), it would take significant effort to excavate it and crush it down to sizes that would be more useful for fill or

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[2]U.S. Environmental Protection Agency, *Exposure Factors Handbook, Volume I, General Factors*, EPA/600/P-95/001, August, 1997.

[3]Argonne National Laboratory, User's Manual for RESRAD Version 6, Section 2.4.2, ANL/EAD-4, July, 2001.

road bed. (As part of a former CANAL production operation, SMC is intimately familiar with the difficulties of producing two-inch-diameter or less particle sizes from the current slag form.) It is not reasonable to assume anyone would pursue the use of slag as a source of fill when other sources of fill that are cheaper to obtain are available. The baghouse dust, on the other hand, does have a smaller particle size, but it will be used to fill void spaces between the large pieces of slag prior to capping the residual radioactivity. As such, its retrieval would not be cost-effective in light of the ready availability of similar materials elsewhere. Therefore, this is considered to be an unlikely scenario.

Action to be Taken: Justification for not assessing radiation doses for the off-site use scenario will be included in the text of revised Chapter 5.

Comment 18: p. 15 • Lines 11-13 Explain which aspects of the shape/form of the pile makes it not conducive to building construction. • Line 27 How can the recreational hunter scenario be characterized both as unlikely and also as one of the most likely (see section 5.3.2) exposure scenarios?

SMC Response: The cap over the Storage Yard is shaped as a chevron and exhibits side slopes that are too steep for construction. On the top surface, there is insufficient area to build a house or install footers for a building foundation. SMC agrees that hunting on the property is not likely, even if administrative controls fail. However, this scenario, albeit unlikely, was the most likely of all alternatives (i.e., agricultural farm family, resident family, excavator), thus it was selected for the dose assessment. It will also provide for a conservative assessment.

Action to be Taken: Additional wording to explain the selection of the scenarios will be included in the text of revised Chapter 5.

Comment 19: p.16 Line 1 Note: For this particular scenario (Recreational Hunter Scenario), we will pay special attention to the exposure time and the amount of ingestion.

SMC Response: None required.

Action to be Taken: None required.

Comment 20 p.17

(1) Line 2 Justification is needed as to why the house is assumed to be located 100 yards from the storage yard. (2) Line 5 How can the Suburban Resident Scenario be characterized as both unlikely and as one of the most likely (see section 5.3.2) exposure scenarios? (3) Lines 9-14 Why is the groundwater pathway not included? Is it possible that groundwater could be used for other uses, such as watering a garden. (4) If the house is 100 yards from the pile, describe how radiation emanating from the pile is modeled with RESRAD?

SMC Response: (1) Concur. Additional justification is required. (2) Concur. Text clean-up is required. (3) The groundwater pathway was excluded because a suburban resident is most likely to secure water from a public water supply, which is regionally available, rather than drilling and maintaining a well. (4) See response to Comment 16.

Action to be Taken: (1) Justification for the distance between the house and the Storage Yard will be included in the text of revised Chapter 5. (2) The text will be edited to eliminate the

identified conflict in revised Chapter 5. (3) Justification will be given for excluding the groundwater pathway as a source of drinking water, for crop maintenance, etc. (4) See response to Comment 16.

Comment 21: p.17 Suburban resident scenario. The introduction to Section 5.3.2 identifies this scenario as likely but section 5.3.2.2 states that this scenario is unlikely; clarify and be consistent. It is not clear what is meant by lack of available space to construct a house and parking. Also, this scenario is assumed unlikely because of the natural resource damage mitigation area would restrict the location of the house. Under the scenarios of NRC's LTC license failing, all other types of institutional controls should also be assumed to fail. The License Technical Review (LTR) requirement is used when institutional controls are not in effect and this would apply to any type of institutional controls. Furthermore, it would be inconsistent to assume an NRC license would fail and natural resource area would remain in effect.

SMC Response: Concur.

Action to be Taken: The text in the revised Chapter 5 will be modified accordingly.

Comment 22: p.18 Section 5.3.2.3, cover excavation scenario. This scenario accounts for the excavation worker. How much of the cover would be removed and how would exposure to the contamination be included in other scenarios, such are resident or industrial worker?

SMC Response: Concur.

Action to be Taken: SMC will provide an estimate of the radiation dose to an intruder who removes a portion of the cap and partially uncovers the slag by using the RESRAD and Microshield computer codes to estimate the external and internal exposure pathways. Guidance on the input parameters for this assessment is still being sought. While we are prepared to justify a maximum removal of one (1) square meter (m^2) of the cap and an equal spatial area of other cap constituents, including the geomembrane, followed by an exposure duration of 100 hours, we will also determine the limiting configuration (footprint dimensions and exposure duration that would result in a dose potential of 100 millirem TEDE). A second scenario to address the exposure potential of members of the public who may reside near the capped pile after the intruder departs will also be evaluated.

Comment 23: p.18 Line 25-26 Describe how the assumption for time of excavation was obtained.

SMC Response: It will be assumed that the intruder uses manual methods to excavate the cap and remove the layers in order to expose the slag. (The use of earthmoving equipment for this scenario is unrealistic as no one is likely to go to the expense of mobilizing such equipment to the site without having first completed geophysical testing that confirms the "mound" is worth excavating.) It will also be assumed that the intruder is somehow able to cut or otherwise breach the geotextile membrane during the excavation process. The nominal footprint for the excavation (i.e., one square meter) would provide enough space for the intruder to climb down from the cap surface and onto the top layer of slag in order to confirm that further excavation would not be fruitful.

Action to be Taken: See response to Comment 22.

Comment 24: p.20 Section 5.3.2.4 industrial worker scenario. This scenario indicates that when maintenance ceases, the cover erodes. What is the timing and what are the dose consequences? If this

could result in noncompliance with the dose criteria, a more robust erosion control barrier (rip rap) would be necessary to mitigate the erosion potential.

SMC Response: From an analysis performed by a Professional Engineer, we have determined that the cover as designed for the decommissioning plan may, without maintenance or care, erode as much as six inches (0.015 meters) in 1,000 years. For the dose modeling, SMC has assumed that cap maintenance ceases immediately after the LTC license is issued. Over the following 1,000-year period, there is insufficient erosion to result in noncompliance with the applicable dose criteria for the industrial worker. In fact, the maximum dose potential occurs at year 1,000 when the cap is, presumably, at its thinnest.

Action to be Taken: None required, however we will assess and present the limiting cap erosion rate (i.e., that which would result in a dose potential of 100 millirem TEDE) in the revised Chapter 5.

Comment 25: p.20 There needs to be a discussion of how parameters are correlated in the uncertainty analysis.

SMC Response: None of the parameters are correlated in the uncertainty analysis.

Action to be Taken: None required.

Comment 26: p.22 Section 5.4.2 How are sources of uncertainty addressed? This section notes that mathematical approaches to quantify uncertainty in future use scenarios are not well developed. The NRC staff understands that there are limitations on quantifying this type of uncertainty. To address this limitation, SMC could note that NRC's reasonably foreseeable scenario policy divides future use into two groups: reasonable foreseeable and unlikely, and then assumes these uses for the 1000 year compliance period. This is a simple approach to addressing uncertainty in future use.

SMC Response: Concur.

Action to be Taken: The text in the revised Chapter 5 will be modified accordingly to capture both a "reasonably foreseeable" scenario and an "unlikely" scenario.

Comment 27: p.22 Lines 26-28 There needs to be an explanation of how the models have been designed to be conservative.

SMC Response: Partially concur. The wording in this section of draft Chapter 5 should be clarified to show that the models as selected by SMC to depict the reasonably forseeable exposure scenarios are conservative. By carefully selecting input parameters as SMC has attempted to do for Chapter 5, the estimates of dose potential using the RESRAD computer code will over- rather than under-estimate the resulting dose. For example, as described in SMC's response to Comment 16, the calculated dose potential for a maintenance worker will be higher with the unlikely assumption that he/she spends the entire occupancy period on top of the capped pile rather than anywhere else on the SMC prioperty. In other words, direct radiation was assumed to be received in this scenario, even though no such scenario, as described, would actually exist. Another example is the hunter scenario, which has little basis in reality because of restrictions on hunting within the Newfield borough limits, but which nonetheless offers a more realistic scenario than one that involves long-term residency simply because construction on or over an elevated land area, particularly when flat land areas surround the elevation, is not forseeable.

Action to be Taken: The text in the revised Chapter 5 will be modified accordingly.

Comment 28: p.23 Lines 14-17 For the deterministic analysis, the parameter values should be provided, as well as an explanation of how these values were determined.

SMC Response: All input parameters are provided in the Decommissioning Plan.

Action to be Taken: Provide the USNRC the complete DP.

Comment 29: p.26 Lines 24-25 The range of 0.5 to 0.75 for the evapotranspiration coefficient is probably too narrow to adequately gage the sensitivity.

SMC Response: Concur.

Action to be Taken: The RESRAD documentation gives 0.5 as an average value for the United States, however SMC will verify that the national average is appropriate for the Newfield site, and will attempt to secure bounding values (standard deviations and/or upper confidence levels for the US. These will be used to evaluate how sensitive the final assessment of dose is to this parameter. However, if no bounding values can be reasonably determined the sensitivity testing range will be arbitrarily expanded to 0.3 to 0.9.

Comment 30: p.27 Runoff coefficient. If dose is insensitive to runoff coefficient, what is the purpose and benefit of the geomembrane? The contribution to compliance by the geomembrane should be described and calculated, including the time period of its performance, and potential for degradation. Sensitivity analyses could be used to estimate how much degradation of the geomembrane would be needed for noncompliance.

SMC Response: The radiation dose is insensitive to the runoff coefficient because the geomembrane is in place. SMC intends to take credit for the presence of the geomembrane in the dose modeling for the site.

Action to be Taken: The text will be revised to describe the geomembrane in greater detail and provide justification for taking credit for its presence in the dose modeling.

Comment 31: p.29 Erosion rate. Has the erosion rate taken into consideration accelerated erosion in specific areas, such as gully erosion or will gully erosion be analyzed separately and mitigated, if necessary, by cover design? How has erosion and exposure of the contamination been included in the scenarios?

SMC Response: From an engineering analysis, SMC has determined that the cap, as designed, will erode at a rate of no more than six inches (less than 0.015 meters) over the 1,000 years of the operating life of the cap. This one-meter-thick cap will not permit any of the slag confined below it to be exposed over the 1,000-year dose assessment period. If a small area of the cap (i.e., gully) erodes at a rate of six inches in 1,000 years, the dose potential to any recipient will be lower than if the cap in its entirety erodes at that rate, and the latter is the assumption associated with the RESRAD analysis.

Action to be Taken: The text in the Chapter 5 revision will be modified to address the issue of small area erosions if this engineered control is permitted to fail.

Comment 32: p.30 Lines 30-31 Explain how the assumption that the contaminated zone has a soil density equal to that of the native sand materials, makes this value conservative.

SMC Response: When the draft of Chapter 5 was prepared, SMC had a variety of quoted values for the density of the slag in the Storage Yard. Because of the increased volumetric attenuation of emitted radiations with increasing density, a higher dose would result if a lower density was assumed, thus a density equal to that of soil was selected. Since that time, the final measured densities of the slag have been received; thus an assumption for the density of contaminated zone is not required.

Action to be Taken: The text in revised Chapter 5 will be modified to eliminate the reference to an "assumed" contaminated zone density and to include the measured slag density (specific gravity) of 2.8 grams per cubic centimeter.

Comment 33: p.35 Line 3 Clarify how the results from the deterministic analysis will be used. Lines 11-13 Specify which set of Derived Concentration Guideline Level (DCGL) values will be used. Ideally, these should be listed in a table.

SMC Response: The deterministic values for soil in the unrestricted areas will be used to calculate DCGLs for the unrestricted portion of the site (i.e., all areas outside of the restricted area).

Action to be Taken: A table of DCGLs will be provided in the decommissioning plan.

Comment 34: p.35 Lines 14-15 The modeling used to derive the DCGLs outside the restricted area needs to be described in a similar manner as those for the restricted area.

SMC Response: Concur.

Action to be Taken: See SMC response to Comment 1.

Comment 35: p. 37 Section 5.6, Summary. Summarize the dose modeling results for 25 mrem/yr with institutional controls and 100 mrem/yr when assuming controls are in effect. Also, provide results for the unrestricted use area that demonstrate compliance with the 25 mrem/yr.

SMC Response: Concur.

Action to be Taken: The text in the revised Chapter 5 will be modified accordingly.

General Comments: The input and output files of the dose analysis must be provided with the DP. The document needs to explain which scenario was used for the uncertainty and sensitivity analysis.

SMC Response: Concur.

Action to be Taken: The required information will be included in the decommissioning plan.

DAVID R. SMITH
ENVIRONMENTAL MANAGER
NEWFIELD OPERATIONS

Certified Mail 7001 0360 0002 6044 3828

August 25, 2005

Mr. William Boehle
State of New Jersey
Department of Environmental Protection
Division of Water Quality
Bureau of Permit Management
P.O. Box 029
Trenton, NJ 08625-0029

ATTN: MONITORING REPORTS

RE: DISCHARGE MONITORING REPORT FOR NEW JERSEY POLLUTION DISCHARGE ELIMINATION SYSTEM PERMIT No. NJ 0004103; July 2005

Dear Mr. Boehle:

Enclosed please find Shieldalloy Metallurgical Corporation's (SMC's) Discharge Monitoring Report (DMR) in accordance with the renewed consolidated permit issued December 10, 2002 and which became effective on January 1, 2003.

SMC experienced no exceedances for the July 2005 monitoring period for those samples taken pursuant to the NJPDES/DSW permit.

Please do not hesitate to contact the undersigned, if you have any questions.

Sincerely,

David R. Smith

Cc: Joseph T. Diegel, SMC
Millie DeFeo, NJDEP-DWR
Donna L. Gaffigan, NJDEP-DRPSR-BFCM
Delaware River Basin Commission

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SMC experienced no exceedances for the July 2005 monitoring period for those samples taken pursuant to the NJPDES/DSW permit.

Please do not hesitate to contact the undersigned, if you have any questions.

Sincerely,

David R. Smith

Cc: Joseph T. Diegel, SMC
Millie DeFeo, NJDEP-DWR
Donna L. Gaffigan, NJDEP-DRPSR-BFCM
Delaware River Basin Commission

DAVID R. SMITH
ENVIRONMENTAL MANAGER
NEWFIELD OPERATIONS

Certified Mail 7001 0360 0002 6044 3828

August 25, 2005

Mr. William Boehle
State of New Jersey
Department of Environmental Protection
Division of Water Quality
Bureau of Permit Management
P.O. Box 029
Trenton, NJ 08625-0029

ATTN: MONITORING REPORTS

RE: DISCHARGE MONITORING REPORT FOR NEW JERSEY POLLUTION DISCHARGE ELIMINATION SYSTEM PERMIT No. NJ 0004103; July 2005

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