Sollenberger, Dennis

From: Duncan White - FSME
Sent: Friday, July 18, 2008 2:56 PM
To: Kathleen Schneider; Torre Taylor; Dennis Sollenberger; Donna Janda
Cc: Monica Orendi; Aaron McCraw
Subject: RE: 20080717 SMC-NJDEP Letter

Not really, the quicker the Agreement goes into effect, the less likely that NRC will approve their request for license termination with restricted conditions (i.e., leave the slag on site). NJ has no intention of allowing the slag to stay on-site

From: Kathleen Schneider
Sent: Friday, July 18, 2008 1:41 PM
To: Duncan White; Torre Taylor; Dennis Sollenberger; Donna Janda
Cc: Monica Orendi; Aaron McCraw
Subject: FW: 20080717 SMC-NJDEP Letter

FYI. Interesting that they felt the need to send it to us.

From: Campbell, Linda [mailto:lcampbell@metvan.com]
Sent: Friday, July 18, 2008 11:32 AM
To: Kathleen Schneider; Monica Orendi
Cc: White, David
Subject: 20080717 SMC-NJDEP Letter

Ms. Schneider and Ms. Orendi,

David White with Shieldalloy Metallurgical Corporation asked me to forward the attached letter which has been mailed to the NJDEP.

Please let me know if you would like a hard copy mailed to your attention as well.

Sincerely,

Linda Campbell
Office Manager

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July 17, 2008

New Jersey Department of Environmental Protection
Alice A. Previte, Esq.
ATTN: 04-08-04/637
Office of Legal Affairs
401 East State Street, 4th Floor
PO Box 402
Trenton, New Jersey 08625-0402

Re: Shieldalloy Comments on Proposed Revision of New Jersey Radiation Protection Programs' Regulations in Support of Its Agreement State Initiative

Dear Ms. Previte:

This letter submits comments by Shieldalloy Metallurgical Corporation ("SMC") on the proposed revision of New Jersey Radiation Protection Programs' regulations ("N.J. Proposed Rule"). The N.J. Proposed Rule was published in the New Jersey Register on May 19, 2008 for a sixty-day comment period.[1] The N. J. Proposed Rule is intended to provide consistency between New Jersey's radiation protection and those of the U.S. Nuclear Regulatory Commission ("NRC"). NRC policy requires such consistency as a prerequisite to New Jersey and the NRC entering an agreement pursuant to 42 U.S.C. § 2021 enabling New Jersey to regulate certain radioactive materials as an "Agreement State."[2]

SMC owns a facility in Newfield, New Jersey ("the Newfield facility") for which it holds a source materials license from the NRC. The status and ultimate radiological decommissioning of the Newfield facility could be affected if the provisions of the N.J. Proposed Rule were enacted and made applicable to it. SMC has the following three general comments on the N. J. Proposed Rule, which are summarized here and provided in more detail below.

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1 40 N.J.R. 2309(a) (hereinafter "N. J. Proposed Rule").

2 *Criteria for Guidance of States and NRC in Discontinuance of NRC Regulatory Authority and Assumption Thereof by States through Agreement*, 46 Fed. Reg. 7540 (1981), as amended by policy statements published at 46 Fed. Reg. 36,969 (1981) and 48 Fed. Reg. 33,376 (1983); *Statement of Principles and Policy for the Agreement State Program; Policy Statement on Adequacy and Compatibility of Agreement State Programs*, 62 Fed. Reg. 46,517 to 46,525 (1997).

- The remediation standards in the N. J. Proposed Rule do not provide the reasonable flexibility generally found appropriate by other radiation programs nationwide, and to the contrary creates an unnecessarily restrictive regulatory regime for radiological decommissioning that is not rationally related to the stated purpose of the regulations. Applying this generic approach to widely disparate sites has the potential to be deleterious to the public interest.
- The proposed regulations conflate the definitions of "source material" and "Diffuse NARM," erasing the distinction between them. The N. J. Proposed Rule would appear to make the definition of Diffuse NARM applicable to SMC's Newfield facility. In fact, SMC's Newfield facility contains material which has long been classified as source material by the NRC. Confusing the regulation of materials such as laboratory trash from accelerator produced radiopharmaceuticals (Diffuse NARM) with by-products from processing of naturally occurring ores (source material) does not make sense and the N. J. Proposed Rule should be revised to ensure source material is not defined as Diffuse NARM.
- The fee provisions to charge licensees for remediation efforts by New Jersey do not comply with the governing New Jersey statute.

SMC's specific comments are as follows:

1. The N.J. Proposed Rule Does Not Provide Reasonable Flexibility For Radiological Decommissioning

Nationwide, radiation control programs have found it appropriate for efficient and timely radiological decommissioning to provide flexibility in the analysis approach to address the wide variations in the regulated facilities. As discussed below, the method for calculating compliance with radiological decommissioning criteria in the N. J. Proposed Rule is overly restrictive. The N. J. Proposed Rule (a) requires analysis for thousands (or even billions) of years into the future without a rational basis, (b) does not allow for any radioactive contamination above background in surface waters, (c) does not allow for reasonable alternate scenarios in dose calculations, (d) requires calculations to arbitrarily assume that engineering controls instantaneously fail, rather than degrade over time, and (e) does not allow any increase in the remediation dose criteria even if justified on the basis of the ALARA principal.

a. Analyzing Dose From Radiological Decommissioning For More Than A Thousand Years Into the Future Is Meaningless

The N.J. Proposed Rule requires that dose calculations for remediation must be conducted until the time of peak dose is reached or a thousand years, whichever is longer. *See, e.g.,* N. J. Proposed Rule 7:28-12.10(d); 7:28-12.11(a)4; 7:28-12.11(f)2.iii. First, if the time of peak dose is less than a thousand years, there is no rational basis to analyze a thousand year period. Second, for the types of activities that would be regulated by New Jersey as an Agreement State, calculation of dose beyond a thousand years would be meaningless, as discussed below. The reliance by the N. J. Proposed Rule on statements by the NRC is misplaced as it mischaracterizes the statements.

In promulgating a final rule that limited dose calculations to no more than a thousand years, the NRC addressed comments arguing that the time period for calculating dose was too short. According to the NRC, "[s]ome commenters objected to the proposed 1000-year time frame for calculating dose and wanted it lengthened to better predict health effects over the hazardous life of *each isotope*." *Final Rule, Radiological Criteria for License Termination*, 62 Fed. Reg. 39,058, 39,083 (July 21, 1997) ("Final Rule") (emphasis added). The NRC rejected this argument, reiterating the rationale that it had stated in the proposed rule for limiting the time period to 1,000 years:

> As previously discussed in the preamble to the proposed rule, the Commission believes the use of 1000 years in its calculation of its maximum dose is reasonable based on the nature of the levels of radioactivity at decommissioned sites and the potential for changes in the physical characteristics at the site over long periods of time. . . .where the consequences of exposure to residual radioactivity at levels near background are small and peak doses for radionuclides of interest in decommissioning occur within 1000 years, long term modeling thousands of years into the future of doses that are near background may be virtually meaningless.

Id. Thus, the NRC explicitly rejected the argument that dose assessments should be conducted over periods that were dependent on the half-life of the nuclide at issue. The 1,000-year time period in NRC regulations applies to *all* facilities covered by the regulation, and *all* radionuclides residing at a given site.[3] The N. J. Proposed Rule should be revised to delete requirements for dose calculations where the results would be meaningless.

In addition, the time calculation appears intended only to apply to SMC's Newfield facility, for which it will have a discriminatory economic impact. The N. J. Proposed Rule states, "The proposed amendment to *N.J.A.C. 7:28-12.10(d)*, extending the time period of dose calculations to the time of peak dose, will have an economic impact on licensees only if the licensees have large amounts of contaminated material that will leach into the groundwater and the peak dose occurs after 1,000 years. The Department and Commission estimate that there are only one or two NRC licensees in the State that would fall into this category. These licensees are former manufacturing facilities and are in the process of decommissioning." N. J. Proposed

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[3] The N.J. Proposed Rule cites the NRC as intending to apply the rule only to short-lived radionuclides and agreeing that for long-lived nuclides "future calculations beyond 1000 years would be valuable." In fact, what the NRC actually said was:

> Unlike analyses of situations where *large quantities* of long-lived radioactive material may be involved (e.g., a *high-level waste repository*) and where distant future calculations *may* provide some insight into consequences, in the analysis for decommissioning . . . long term modeling thousands of years into the future of doses that are near background may be virtually meaningless.

62 Fed. Reg. at 39,083 (emphasis added). Contrary to the characterization in the N.J. Proposed Rule, the NRC stated that calculation beyond a thousand years is meaningless except for special cases similar to a high-level waste repository that are not within the authority that would be held by N.J. as an Agreement State.

Rule, Compliance Costs discussion. SMC's Newfield facility is one of the facilities affected by this definition. These proposed decommissioning regulations should be revised to ensure the regulations have a rational basis, are consistent with the NRC rules and comparable programs in the rest of the country, and do not have a discriminatory impact on a single facility.

b. Applying New Jersey Surface Water Quality Standards To Radioactivity Lacks a Rational Basis

The N.J. Proposed Rule requires compliance with the New Jersey Surface Water Quality Standards ("SWQS"). *See, e.g.,* N. J. Proposed Rule 7:28-12.8(c); 7:28-12.11(a)4. The SWQS contain "anti-backsliding" provisions. N.J.A.C. 7:9B-1.5(d). If applied to radioactive discharges to surface waters, these provisions would preclude detectable radioactivity releases above background, even if the levels are significantly below those required to protect the health and safety of the public, because the SWQS do not allow measurable changes in water quality. "Category One Waters shall be protected from any measurable changes (including calculable or predicted changes) to the existing water quality." N.J.A.C. 7:9B-1.5(d)6(iii). Comparable provisions apply to surface waters other than Category One Waters. N.J.A.C. 7:9B-1.5(d)6(iv) The SWQS allow exceptions to the backsliding provisions only if "some change in ambient water quality should be allowed because of necessary and justifiable social or economic development." N.J.A.C. 7:9B-1.8(a); *see also* N.J.A.C. 7:9B-1.9(a)1(i). A decommissioning site may not be able to demonstrate that its discharges are necessary for "social or economic development", particularly given the overly vague standard which the Proposed Rule would adopt. Essentially, New Jersey is proposing to ban altogether any radioactive discharges to surface waters from remediation sites, an impractical standard for radioactivity that is not related to a rational public health and safety goal.

As the N. J. Proposed Rule notes, the NRC regulations allow radioactive discharges to surface waters, provided all pathways for exposure are considered and resulting doses are within limits. The N. J. Proposed Rule recognizes that New Jersey rules do not consider exposures through consumption of fish, use of irrigation water on crops, or bathing, but asserts that implementing the SWQS takes "into account the potential dose that could result from the contamination of surface water." N. J. Proposed Rule, Federal Standards Analysis. The N. J. Proposed Rule provides no further analysis as to how the effective ban proposed on discharges of radioactivity to surface waters by decommissioning sites in the N. J. Proposed Rule is consistent with the NRC approach to allow radioactive discharges to surface waters within limits.

Furthermore, the N. J. Proposed Rule does not consider that the NRC rules require that radioactive discharges to surface waters be minimized to the extent reasonable considering a balance of competing compliance costs and public health and safety benefits. *See* 10 C.F.R. § 20.1101(b). The N. J. Proposed Rule does not and can not explain the equivalence between its proposed impractical ban on discharges with the NRC approach of minimizing discharges consistent with a balance of cost and benefits. The application of SWQS to radioactivity should be deleted from the N. J. Proposed Rule as there is no rational relationship to its public health objectives.

The N. J. Proposed Rule appears to recognize that this effective ban would only apply to SMC's Newfield facility and result in an economic impact that is not justified in accordance with the New Jersey Code. The N. J. Proposed Rule states, "Proposed amended *N.J.A.C. 7:28-*

12.8(c) requires licensees to adhere to the New Jersey Surface Water Quality standards, *N.J.A.C. 7:9B*. The proposed amendment will have an economic impact only on those licensees whose activities have resulted in contamination to surface water. The Department knows of only one such facility in the State, which is a former manufacturing facility." N. J. Proposed Rule, Compliance Costs discussion. Again, although not mentioned by name, SMC's Newfield facility is the facility discussed. Furthermore, New Jersey appears to recognize that this regulation will have a discriminatory impact on SMC. These proposed decommissioning regulations should be revised to ensure the regulations are not arbitrary, have a rational basis focused on protection of human health and the environment, are consistent with the NRC rules and comparable programs in the rest of the country, and do not have a discriminatory impact on a single facility. This is particularly the case where radioactive discharges to surface water in New Jersey are not only permitted by Federal (NRC) regulations but routinely take place with no impact to the public health and safety.

c. The N. J. Proposed Rule Should Allow Calculation of Dose Based on Realistic Scenarios

The N. J. Proposed Rule requires from the use of default clean up criteria for radiological decommissioning whose basis are specific exposure scenarios. N. J. Proposed Rule 7:28-12.11(b). Furthermore, licensees may request consideration of alternate parameters for site-specific characteristics, but not for site-specific exposure scenarios. N. J. Proposed Rule 7:28-12.11(c). New Jersey has previously stated that this approach is based on the assumption that only the specific scenarios assumed by New Jersey "would endure for the length of time the residual radionuclides would be present." *Soil Remediation Standards for Radioactive Material, Summary of Public Comments and Responses*, DEP Docket 11-99-06/697, adopted June 21, 2000, response to comment 93. In contrast, NRC guidance allows the use of realistic site-specific scenarios with justification for the reasons stated in *License Termination Rule Analysis*, SECY-03-0069 (NRC 2003). *See Consolidated Decommissioning Guidance*, NUREG-1757, Vol. 2, Ch. 5. New Jersey should reevaluate its approach to exposure scenario selection considering the more recent NRC guidance.

d. Dose Calculations Based on Realistic Degradation of Engineering Controls Over Time Should Be Allowed

The N. J. Proposed Rule states:

> Under the Department's rules, the licensee would also have to provide for durable institutional controls and provide sufficient financial assurance to enable a responsible government entity or independent third party to carry out checks of the facility every five years and to maintain the controls. When modeling the all controls fail scenario, the Department interprets failure of all institutional and engineering controls strictly. This means that no credit for any engineering controls, such as a fence or cover, can be taken when performing the model to determine if the 100 mrem annual dose is exceeded. The NRC, however, allows the licensee to take credit for controls that have degraded, but not completely failed. So the NRC would allow a small hole in a cover rather, for

> example, which could result in a significant difference in the resultant dose.

N. J. Proposed Rule, Compliance Costs discussion. The NRC approach reflects that engineered structures degrade by known physical processes. Instead, New Jersey proposes to assume that engineered structures instantaneously fail at the precise moment when institutional controls are presumed to end. The N. J. Proposed Rule does not and can not provide a reasoned basis for assuming engineered structures simply vanish, rather than degrading through processes consistent with the known physical world. Furthermore, the assumption is inconsistent with the objectives of the regulations as it discourages licensees from providing robust barriers as engineering controls. Contrary to the NRC approach, the New Jersey approach would treat even the most robust engineering control like it is a sand castle on the beach. The N. J. Proposed Rule should be revised to provide for calculations based on realistic degradation of engineering controls over time.

e. The N. J. Proposed Rule Should Allow Use of NRC Remediation Dose Criteria When Appropriate

The N.J. Proposed Rule will not allow consideration of alternate remediation standards if they would result in increasing in any manner the allowed incremental dose criterion of 15 mrem/yr. *See, e.g.,* N. J. Proposed Rule 7:28-12.11(b); 7:28-12.15(a) and (b). The N.J. Proposed Rule will not allow consideration of alternate remediation standards if they would be supported by increasing in any manner the allowed 100 mrem/yr incremental dose criterion in the event controls fail. *See, e.g.,* N. J. Proposed Rule 7:28-12.11(e).

The N. J. Proposed Rule concedes that the NRC remediation standards differ from New Jersey's.

> Under the existing Federal and State rules, the NRC requires remediation to a dose of 25 mrem per year (mrem/y) with an as low as reasonably achievable (ALARA) requirement. The Department's and the Commission's existing rules require remediation to a dose of 15 mrem/y. (See *N.J.A.C. 7:28-12.8.*) The NRC does not require a state to adopt the NRC's remediation dose criterion in order to become an Agreement State; consequently, the Department is continuing its remediation dose criterion of 15 mrem/y.

N. J. Proposed Rule, Subchapter 12 discussion. The N. J. Proposed Rule provides no justification for requiring stricter remediation standards than those provided by the NRC, nor for not allowing licensees to apply the Federal standards. Specifically, the N. J. Proposed Rule recognizes that the NRC and New Jersey remediation standards are equivalent as a practical matter. *Id.* The consequence of not allowing consideration of the NRC standards in appropriate cases is that New Jersey would prohibit returning land to productive use when allowed by Federal regulations. The N. J. Proposed Rule should be revised to either adopt the NRC criteria or allow for consideration of alternate dose criteria, such as the NRC criteria, in appropriate cases.

2. **New Jersey Improperly Redesignates Source Material as "Diffuse NARM" Without a Rational Basis**

The N. J. Proposed Rule defines "Diffuse NARM" such that the definition could improperly cover source material subject to NRC regulation. The N. J. Proposed Rule descriptive material seems to recognize that Diffuse NARM does not include material regulated by the NRC as source material.

> The Department and the Commission propose to amend Subchapter 4, and its heading, so that it applies only to diffuse sources of NARM. Because Congress amended the Energy Policy Act to change the definition of byproduct material to include discrete sources of NARM, the State must have regulations that encompass diffuse sources of NARM, in order that these sources are regulated.
>
> Diffuse NARM is a radionuclide that has become concentrated, but not for the purpose of use in commercial, medical, or research activities. An example of diffuse NARM is the concentrated naturally occurring radioactive materials in a waste pile from a mineral extraction facility. In the process of extracting one or more non-radioactive minerals from soil, the naturally occurring radioactive materials become concentrated above licensing criteria in the waste pile. Because the waste has no use in commercial, medical, or research activities, it is not discrete and, therefore, not regulated under Federal (or Agreement State) authority.
>
> The existing subchapter applies to all sources of NARM. Once the Federal Energy Policy Act of 2005 goes into effect in August 2009, NARM materials that the NRC would otherwise regulate will be regulated by the Agreement States, including New Jersey. The appropriate Federal regulations are incorporated throughout the chapter for that purpose. However, diffuse NARM is not a NRC-regulated material, and is not included in the Agreement State rules. Therefore, the State must amend its rules in order that they apply to diffuse NARM. Therefore, the Department and the Commission are proposing to amend *N.J.A.C. 7:28-4.1* to insert the word "diffuse" before accelerator produced and naturally occurring radioactive materials.

N. J. Proposed Rule, Subchapter 4 discussion. The N. J. proposed rule apparently is only intended to cover material not currently regulated by the NRC ("diffuse NARM is not a NRC-regulated material"). However, the proposed regulation at N. J. Proposed Rule 7:28-4.1(b) is ambiguous. The NRC defines as source material naturally occurring uranium or thorium above certain threshold criteria. 10 C.F.R. § 40.4. However, Subchapter 4 of the Proposed Rule (quoted above) provides as an example of Diffuse NARM "concentrated naturally occurring radioactive material in a waste pile for a mineral extraction facility."[4] Since this material could well be NRC-licensed source material, the N.J. Proposed Rule seems to trying to create an ambiguity between what is, and what is not, NRC-licensed materials. Therefore, it appears that the N. J. Proposed Rule should not be read to regulate the source material currently licensed by the NRC at SMC's Newfield facility as Diffuse NARM.

The N. J. Proposed Rule also appears to suffer from a drafting error. Currently, source, byproduct and special nuclear material are explicitly excluded from the definition of Diffuse NARM. The N. J. Proposed Rule deletes the exception for source material from the scope of New Jersey regulations of Diffuse NARM. N. J. Proposed Rule 7:28-4.1(b). The N. J. Proposed Rule attempts to justify the deletion, stating: "This sentence is no longer necessary because this subchapter applies only to diffuse NARM. Regulation of byproduct, source, and special nuclear material are addressed in the Federal rules that are proposed to be incorporated by reference elsewhere in these proposed rules." N. J. Proposed Rule, Subchapter 4 discussion. As drafted, the definition of Diffuse NARM would also cover the material that contains naturally occurring or accelerator-produced isotopes covered in the other proposed subchapters if the exception is deleted. The N. J. Proposed Rule should be corrected to ensure that source material does not fall within the definition of N. J. Proposed Rule 7:28-4.1(b).

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[4] To the extent that the description in the N.J. Propose Rule (quoted above) of the general mineral extraction process as concentrating is meant to describe the SMC's Newfield facility, the description is factually incorrect. The SMC process added significant weights of aluminum powder as part of the process resulting in a tough, volcanic rock-like slag that is diluted, not concentrated, in uranium and thorium compared to the incoming raw material.

3. **The Basis For Calculating Certain Fees Is Inconsistent With The Governing New Jersey Statute**

In Table 2 of Subchapter 64 of the N. J. Proposed Rule, two categories of decommissioning or reclamation work are charged at "Full Cost." However, no definition of "Full Cost" is provided, nor is there an explanation of whether this fee is an annual or periodic fee. In addition, the annual fee adjustment factors in 7:28-64.10 of the N. J. Proposed Rule have no relationship to the actual costs incurred by N. J. The governing New Jersey statute requires that fees shall be annual or periodic; shall "be based on criteria contained in the fee schedule;" and shall "reflect the actual or projected expense incurred by the department in the performance of the service." N.J.S.A. 26.2D-9(l). The fee provisions in the Proposed Rule do not comply with the requirements of N.J.S.A. 26.2D-9(l) and must be corrected.

If you have any questions or comments concerning this matter, please feel free to contact me at 740 432 6345 ext 246 or my HSE Director, David White at 614 599-9582.

Sincerely,

Hoy E. Frakes, Jr.
President

cc: Robert Haemer, Esq., Pillsbury Winthrop Shaw Pittman LLP USNRC,
Federal and State Materials and Environmental Management
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