



RECOMMENDATIONS FOR A COORDINATED APPROACH TO REGULATING THE URANIUM RECOVERY INDUSTRY

K. SWEENEY
National Mining Association

A.J. THOMPSON, W.U. LEHRENBAUM, P. GORMLEY, D.H. KIM
Shaw Pittman Potts & Trowbridge

United States of America

Executive Summary

A number of regulatory positions that are of central importance to the uranium recovery industry today have their origins in regulatory interpretations that were developed by Nuclear Regulatory Commission (NRC or Commission) staff almost two decades ago, shortly after Congress first granted the Commission the direct authority to regulate uranium mill tailings and related wastes by enacting the Uranium Mill Tailings Radiation Control Act (UMTRCA) as an amendment to the Atomic Energy Act of 1954 (AEA). Consequently, several key regulatory positions that govern uranium recovery activities today were developed at a time when the regulatory programme for uranium milling operations, including the management and disposition of uranium mill tailings and related wastes, was in the earliest stages of conception, and when the uranium recovery industry was at or near peak levels of production. Often, the policies and positions that were developed by the Commission staff during this period, and subsequently, were developed in an *ad hoc* manner, rather than being formulated as part of a deliberate, coordinated regulatory strategy. Moreover, many of these positions and policies were based on assumptions that would later turn out to be completely incorrect regarding the future development of the uranium recovery industry and of the regulatory programme governing the industry.

In the twenty years that have elapsed since Congress first enacted UMTRCA, a robust programme has been created for the comprehensive regulation of uranium recovery activities. At the same time, the nature of the uranium recovery industry has changed dramatically. As a result, some of the policies and positions that were developed by Commission staff almost two decades ago, that may have seemed reasonable at the time they were developed, appear increasingly unreasonable and inappropriate today, given the current regulatory framework and the realities of the modern uranium recovery industry. This raises concerns about the effectiveness of the current regulatory system at controlling uranium mill tailings and related wastes in a manner that optimizes protection of public health, safety and the environment. In addition, the patchwork of sometimes outdated and sometimes erroneous policies and positions that have been developed over the past 20 years has led to increasing confusion within the uranium recovery industry, which has been exacerbated by the inconsistent and sometimes ill-considered manner in which NRC staff have, in some of their policies and positions, deviated from the definitions of key terms set out in the statute and the relevant regulations. These terms, particularly “source material” and “byproduct material”, have jurisdictional significance for NRC and for uranium recovery licensees. While the Commission certainly has flexibility in interpreting these statutory terms, it must do so in a way that is carefully thought out and legally supportable, and in a way that does not jeopardize the consistent implementation of the overall regulatory programme created in the AEA, as amended by UMTRCA.

In this White Paper, NMA examines several of the more important policies and positions that have been adopted by NRC staff over the past two decades pertaining to uranium recovery activities. Through this examination, NMA hopes to provide the Commission with a fresh perspective on the implications that these staff policies and positions carry for regulatory policy under the AEA in general, and for the uranium recovery industry in particular. The White Paper focuses on staff policies and positions in the following areas: (i) the concurrent jurisdiction of non-Agreement states to regulate *non-radiological* aspects of 11e.(2) byproduct material; (ii) NRC's jurisdiction over in-situ leach (ISL) uranium recovery facilities; (iii) the disposal of *non-11e.(2) byproduct material* in uranium mill tailings piles; and (iv) NRC's alternate feed policy. It is NMA's hope that the fresh perspective offered by this White Paper will provide the Commission with a useful framework for realigning some of the staff policies governing uranium recovery activities in a manner that optimizes the net benefit to public health, safety and the environment.

1. JURISDICTION OF NON-AGREEMENT STATES OVER THE NON-RADIOLOGICAL ASPECTS OF 11.E(2) BYPRODUCT MATERIAL

In 1980, NRC's Office of Executive Legal Director (OELD) issued an advisory legal opinion concluding that federal law does not preempt the exercise of non-Agreement state authority over the non-radiological aspects of 11e.(2) byproduct material. In reaching this conclusion, OELD conceded that "*the question is so close that the Commission could reasonably choose either interpretation*". Thus, even at the time the opinion was issued, OELD believed that the arguments favoring federal preemption of non-Agreement state regulation were persuasive. However, in the end, the legal staff chose to support the opposite position, concluding that non-Agreement states can exercise concurrent jurisdiction over the non-radiological aspects of 11e.(2) byproduct material.

NMA believes that the arguments adduced by OELD in support of preemption were clearly more persuasive than the arguments offered by OELD favoring concurrent jurisdiction. Moreover, it appears that OELD failed to consider several arguments in addition to those set forth in its memorandum, that would have further buttressed a finding of preemption. Thus, it is evident that the correct legal interpretation in 1980, and indeed the only permissible interpretation, would have found non-Agreement state regulation of *all* 11e.(2) byproduct material completely preempted. The argument favoring total preemption of non-Agreement state authority with respect to 11e.(2) material becomes overwhelming when viewed through the lens of today's regulatory environment. Indeed, when viewed through this lens, it becomes clear that the federal scheme set out in UMTRCA for regulating uranium mill tailings and related wastes satisfies two separate tests established by the Supreme Court, either one of which, alone, would be sufficient to demonstrate preemption.

First, the AEA, as amended by UMTRCA, establishes a *pervasive federal scheme* for the regulation of uranium mill tailings and related wastes. No less than three federal agencies play an active role in regulating mill tailings. Pursuant to section 274 of UMTRCA, the U.S. Environmental Protection Agency (EPA) has issued detailed, generally applicable standards to address *both* radiological and *non-radiological* hazards (i.e., groundwater) associated with mill tailings that are closely modeled after its Resource Conservation and Recovery Act (RCRA) regulations. In turn, NRC has incorporated these regulations into its criteria for the management and closure of mill tailings sites, set forth at 10 C.F.R. Part 40, Appendix A. In addition, NRC plays the key role in overseeing closure of active uranium mill tailings sites and final disposal of the tailings themselves. Finally, the Department of Energy (DOE)

completes the circle of federal oversight of uranium mill tailings by acting as the permanent custodian and perpetual licensee of sites used for the disposal of tailings under Title II of UMTRCA, as well as exercising primary responsibility for selecting and overseeing the remediation of inactive uranium mill tailings sites under Title I of UMTRCA.

The OELD opinion was issued at a time when the federal regulatory regime governing uranium mill tailings and related wastes was in its infancy. At that time, the roles that the EPA, NRC and DOE were assigned under UMTRCA in implementing the statutory scheme had not been elaborated upon in regulations. In addition, it appeared at the time that the radiological hazards (i.e., radon emissions) associated with those tailings and wastes would be the primary focus of regulatory concern. Indeed, OELD cited this apparent focus on radiological hazards as supporting the conclusion that federal regulation of mill tailings preempted non-Agreement state regulation *only* with respect to the *radiological* aspects of 11e.(2) material. However, in the nearly twenty years since the OELD opinion was written, the regulatory scheme set out in UMTRCA has developed into a robust and comprehensive federal programme that regulates both radiological and *non-radiological* components of mill tailings and related wastes – from the point of their generation through to their ultimate disposition. The pervasiveness of this federal scheme indicates that Congress did not intend to allow non-Agreement states to exercise concurrent jurisdiction over *either* the radiological or the *non-radiological* aspects of 11e.(2) byproduct material.

Second, the exercise of concurrent jurisdiction over 11e.(2) byproduct material conflicts with federal law, because it is inconsistent with the overall statutory scheme created by the AEA, as amended by UMTRCA, and it frustrates Congress' purpose in enacting UMTRCA. This inconsistency is most evident in the impact of concurrent jurisdiction on the Agreement state programme. While Agreement states must carefully conform their regulation of radiological and *non-radiological* hazards associated with 11e.(2) material to federal standards, as required by section 274(o) of UMTRCA, non-Agreement states would be free to regulate 11e.(2) material without any regard to consistency with the federal standards. In other words, Agreement states would have to comply with stringent requirements in order to achieve and retain their Agreement state status in order to receive *less* authority (at least with respect to 11e.(2) byproduct material) than they would otherwise be able to exercise as non-Agreement states. Such a result turns the Agreement state programme, as set out in the statute, on its head.

Similarly, the exercise of concurrent jurisdiction by non-Agreement states would conflict with the role established for NRC under section 84 of the AEA, which directs the Commission to "*insure*" that the management of *any* 11e.(2) byproduct material is carried out in a manner that:

- (1) the Commission deems appropriate to protect the public health and safety and the environment from radiological and non-radiological hazards associated with the processing and with the possession and transfer of such material, taking into account the risk to the public health, safety, and the environment, with due consideration of economic costs and such other factors as the Commission determines appropriate.

If non-Agreement states were allowed to exercise concurrent jurisdiction over *non-radiological* aspects of 11e. (2) byproduct material, then non-Agreement states could force licensees to perform virtually any remedial action, beyond those required by NRC, regardless

of the net risk, cost, or environmental impact and conceivably even after termination of the license granted by NRC. Under this policy, the Commission would be unable to weigh the impacts of state imposed actions with the other factors mandated for consideration by the Statute, thereby leading to inappropriate management of 11e.(2) byproduct material, in contravention of Section 84 of the AEA.

The exercise of concurrent jurisdiction would also interfere with license termination and site closure at Title II sites. After operating for many years under federal standards governing non-radiological hazards and having had corrective actions approved based upon those standards, a facility may have to comply with additional requirements imposed by the state as a condition of site closure. This would not only substantially increase closure costs but also delay license termination, particularly in instances where the state imposed requirements are technologically or economically infeasible for a licensee to comply with, since NRC and DOE have recently signed a protocol whereby the Commission will not terminate the license of and DOE will not accept custody to any mill tailings site that has not resolved “*all* issues with state regulatory agencies”. Similarly, if non-Agreement states are allowed to exercise concurrent jurisdiction, and to impose whatever remediation requirements they deem necessary in order to address non-radiological concerns associated with 11e.(2) byproduct material, DOE may find it impossible to accept title to uranium mill tailings disposal sites in such states, even following completion of all remedial actions required by NRC, because of concerns that the state might, at some point in the future, impose additional remediation requirements beyond those contemplated by NRC. In particular, DOE may refrain from taking title to such sites because of the possibility that the additional regulatory burdens imposed by the non-Agreement state, and the economic costs associated with those regulatory burdens, would conflict with the directive continued in Section 83 of the AEA, which requires that the transfer of title to DOE occur *without cost to the government* other than administrative and legal costs associated with the transfer itself. This reluctance in the part of DOE is likely to be compounded by the federal facilities compliance Act, which waives sovereign immunity with respect to Federal Facilities Compliance with state laws respecting the control of hazardous waste disposal and management.

If concurrent jurisdiction were to be permitted, the result would be the sub-optimization of protection of public health and safety and the environment, which, in the extreme, could preclude site closure and/or increase site-specific adverse impacts associated with closure activities. By impeding site closure, the exercise of concurrent jurisdiction by non-Agreement states frustrates one of the primary goals underlying UMTRCA—orderly closure and remediation of mill tailings sites. This disruptive effect is greatly amplified by the large number of sites currently preparing for closure.

In view of the compelling arguments supporting federal preemption and the potentially grave consequences of allowing concurrent jurisdiction, the Commission should discard the current *de facto* staff policy as contrary to law and not optimally protective of public health and recognize complete federal preemption in the regulation of 11e.(2) byproduct material.

2. JURISDICTION OVER IN-SITU LEACH OPERATIONS

NRC's assertion of jurisdiction over the underground portions of ISL wellfields raises similar issues and concerns. For example, in 1980 NRC legal staff prepared a memorandum which concluded that the AEA provides NRC with jurisdiction over the subsurface aspect of ISL wellfields. This advisory legal opinion was prepared at a time when the regulatory programme

for the uranium industry was still developing and ISL was still a relatively new technology that comprised a fairly insubstantial portion of the uranium recovery industry. Thus, in its advisory opinion, NRC legal staff was, in effect, trying to predict how the new jurisdiction over 11e.(2) material granted to the Commission under UMTRCA would relate to ISL operations. With the best of intentions, OELD made the erroneous determination that NRC had authority over the subsurface aspects of ISL activities.

The fundamental problem is that NRC's legal staff reached its erroneous conclusion as a result of a misapplication of the statutory definitions by which Congress provided the Commission with jurisdiction over specific radioactive materials: source, special nuclear, and byproduct material. If a substance does not fall within the scope of one of these definitions, then the AEA does not provide NRC with authority to regulate it. Accordingly, the statutory definitions must be applied to each material over which NRC claims regulatory jurisdiction. Although these definitions need not be applied inflexibly, they should be applied consistently and the applications should be legally supportable. This approach, if applied to ISL wellfields, will show that because the underground activities do not involve materials within the AEA's statutory definitions, NRC has no jurisdiction over these subsurface activities. Moreover, the legal staff's attempt to support its conclusion by claiming that the National Environmental Policy Act (NEPA) provides a "*supplemental*" grant of jurisdiction suggests a well-intentioned, but erroneous, reading of that act and the cases applying it. Although early federal cases were less than clear on the issue, contemporary NEPA decisions hold that the statute provides no supplemental jurisdiction beyond an agency's organic act.

Additionally, when it drafted the 1980 memorandum asserting jurisdiction over ISL wellfields, the legal staff did not have the perspective we have today as the industry is in its maturity. Without this perspective, the legal staff did not foresee the contradictions and inconsistencies that would become evident as NRC staff scrambled to make their jurisdictional claim over subsurface activities make sense. As just one example, in 1980 the legal staff did not have reason to predict the practical difficulties associated with liquid effluent discharges at ISL facilities when, applying the legal staff's approach, mining wastes and byproduct materials are commingled in storage ponds. NRC's reaction to this situation, and its reaction to other contradictions and concerns in the ISL context, have implications that reach beyond the ISL sector and that may even present obstacles to final closure of mill tailings piles.

Similarly, in 1980 NRC legal staff did not know that EPA's underground injection control (UIC) programme would provide such comprehensive protection over the subsurface aspect of ISL mining. That programme now requires any ISL project to undergo an EPA permitting process to ensure that no underground sources of drinking water are affected. To receive EPA approval, the ISL facility must meet specific UIC regulations and standards for constructing and operating the wellfield. Therefore, NRC regulation of the underground portion of the wellfield is duplicative and could be viewed as a waste of federal resources.

Finally, the legal staff's eagerness to assert jurisdiction over underground activities at ISL wellfields is perplexing when contrasted with its restraint in the concurrent jurisdiction context. As noted above, the legal staff suggested that despite the overwhelming federal interest and presence in the mill tailings programme, non-Agreement states might have concurrent jurisdiction over non-radiological hazards at tailings piles. Accordingly, NRC has not asserted exclusive jurisdiction over these hazards in non-Agreement states. On the other hand, the legal staff claims that Congress provided the authority to regulate ISL mining

activities that are outside the scope of AEA jurisdiction. This is despite the absence of any indication that Congress was concerned with the subsurface activities at ISL wellfields and despite a lack of any significant federal presence in the ISL uranium recovery industry. Indeed, at the time Congress enacted UMTRCA, non-conventional methods of uranium mining such as ISL were not expected to produce significant quantities of uranium.

3. GUIDANCE ON DISPOSAL OF NON-11e.(2) BYPRODUCT MATERIAL

Under NRC's final guidance for disposal of non-11e.(2) *byproduct material* in tailings piles, a facility may dispose of *non-11e.(2) byproduct material* in tailings impoundments only after satisfying nine criteria specified in the guidance. NRC's purpose in establishing these criteria is to prevent inappropriate commingling of mill tailings with *non-11e.(2) material* in tailings piles in order to prevent "contamination" of the tailings and thus to avoid any duplicative regulation by EPA or a state. Ultimately, the *non-11e.(2) policy* is intended to facilitate eventual transfer of the tailings to DOE or a state upon license termination. However, the current guidance imposes a tremendous burden on facilities wishing to dispose of non-11e.(2) byproduct material directly into tailings piles and, as such, is inconsistent with sound public policy and with the goal of optimizing protection of public health, safety and the environment, and thus needs to be revised to facilitate such practices.

As with the other staff regulatory interpretations examined in this White Paper, there are sound legal and policy reasons for addressing this issue as part of a comprehensive overview of NRC's regulatory programme for uranium recovery facilities. For example, there are many materials that do not meet the definition of 11e.(2) byproduct material but that have almost the identical radiological and toxicological characteristics. Given the shortage of disposal capacity for low level radioactive materials, the difficulties associated with siting new disposal facilities, and the conservative UMTRCA requirements that protect public health and the environment, it makes a great deal of sense to allow the disposal of these *non-11e.(2) materials* in tailings piles.

While DOE is only required by UMTRCA to take 11e.(2) byproduct material, Section 151(b) of the Nuclear Waste Policy Act (NWPA) allows DOE to take title to and custody of low level waste under certain conditions that UMTRCA and the regulations thereunder satisfy *by definition*. Moreover, to the extent that there are any concerns about whether DOE or a state will take title to a tailings pile, these issues easily can be resolved through an interagency agreement or Memorandum of Understanding.

UMTRCA does not preclude the disposal of *non-11e.(2) materials* in tailings piles. Rather, the flexibility in that act and sound policy considerations suggest that the Commission should consider how mill tailings piles can most effectively be used to provide a safe and economically viable disposal option for some low level radioactive materials that are *similar* physically, chemically, and radioactively to 11e.(2) byproduct material.

4. ALTERNATE FEED POLICY

In 1995, NRC issued its policy for processing of uranium mill feed material other than natural ores in response to various requests it had received in prior years to process feed material other than natural uranium ore at uranium mills, some of which the Commission had approved. Examples of typical alternate feed include wastes from other mineral recovery operations (i.e., niobium-tantalum extraction) and mine dewatering that contain uranium. The

policy imposes three requirements for acceptance of alternate feed: (1) the material must qualify as "ore," as that term is regulatorily defined; (2) the material must not contain any listed hazardous waste; and (3) the material must be processed "primarily" for its source material content, as demonstrated by either the co-disposal test or the certification test¹. These requirements reflect the Commission's concern that tailings and other wastes generated by processing of alternate feed qualify as 11e.(2) byproduct material so that the transfer of custody to mill tailings impoundment upon license termination to DOE will proceed without complications.

However, the policy, in its current form, restricts rather than facilitates the use of alternate feed material at uranium mills. The Commission should modify the policy to maximize the processing of alternate feed since such use produces two substantial benefits – extraction of valuable source material and utilization of waste disposal capacity of mill tailings sites. Such benefits also greatly outweigh any concerns about “sham disposal”, which is a classic “red herring” that should be dismissed as a policy concern. *Non-11e. (2) byproduct material* that would otherwise have to be disposed of at substantial cost may be processed as feed material for its source material value and to create 11e. (2) byproduct material, thus assuring its long term isolation to protect against any adverse impacts to human health or the environment. It is hard to imagine a more sound public policy at a time when LLRW disposal capacity is expensive and ever more limited.

¹ Under the co-disposal test, a licensee must meet all nine criteria of the current policy for disposal of *non-11e.(2) byproduct material*. Meeting these criteria would demonstrate that the facility was processing the feed material for its source material content rather than engaging in “sham disposal” of low level radioactive waste (LLRW) that would otherwise have to be disposed of at LLRW waste facilities at far higher cost. In other words, if the material could go directly into the tailings pile, the reason for its processing must be for its source material content. Under the certification test, a licensee must certify that it is processing the feed material for its source material content and appropriately justify such a certification.