



CONFEDERATED TRIBES AND BANDS
of the Yakama Indian Nation

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Established by the
Treaty of June 9, 1855

May 9, 1995

RECEIVED

MAY 15 1995

DOE-RL/DCC

Mr. John Wagoner, Manager
Richland Field Office
Department of Energy
P.O. Box 550 A7-50
Richland, WA 99352

Dear Mr. Wagoner:

Subject: SIMULATED HIGH-LEVEL RADIOACTIVE WASTE SLURRY TREATMENT
AND STORAGE (SHLWS) CLOSURE PLAN; COMMENTS WITH REQUEST FOR
ACTIONS--

The *Simulated High Level Waste Slurry Treatment and Storage (SHLWS)*
T/S Unit Closure Plan details plans to close the SHLWS T/S unit,³⁸¹⁸⁰
including waste disposal and confirming soil sampling.

The SHLWS T/S unit is an open area within a fenced-in yard in the
3000 area of the Hanford Site that was used to store and treat
containerized simulated high-level slurry. The slurry was
corrosive, ignitable, and contained levels of heavy metals high
enough to warrant a dangerous waste designation, as well as low-
level radiation (less than 2 nCi/g). The treatment process, which
entailed stabilization with grout, resulted in a "non-dangerous"
solid waste product. A total of 199 55-gallon drums of SHLWS were
treated, resulting in the generation of a total of 306 55-gallon
drums of treated waste. The treated wastes have been removed and
disposed at another facility, and other wastes and implements such
as pallets, liners and treatment equipment have been or will be
removed or disposed off-site under the planned closure.

The closure plan for the SHLWS T/S unit has been developed by the
U.S. Department of Energy (DOE) in cooperation with the Washington
Department of Ecology, and it includes a phased sampling and
analysis plan which includes soil sampling in several locations at
various depths.

Provided below are specific comments on the subject document
relating to the adequacy of actions to resolve concerns and uphold
values of the Yakama Nation:

RL Commitment Control

MAY 12 1995

Richland Operations Office

Post Office Box 151, Fort Road, Toppenish, WA 98948 (509) 865-5121



COMMENTS:

1. The closure plan indicates that the State's Model Toxics Control Act (MTCA) Method B and/or MTCA Method C cleanup levels will be used to determine the need for additional site remediation. These cleanup levels may not be consistent cleanup levels considered desirable by the Yakama Nation. These cleanup levels and assumptions for performance assessments have been provided to DOE, EPA, and others, and are found in ATTACHMENT A to this letter.
2. The SHLWS T/S Closure Schedule given in Table 6.1 includes a reconciliation meeting in June of 1995 to discuss results of closure sampling and analysis, at which time a decision will be made regarding additional site remediation, if any. If no additional remediation is required (i.e., if soil samples are in compliance with MTCA Method B and/or MTCA Method C), site closure is expected by August of 1995; otherwise, the projected date of site closure is June of 1996. Results of initial sampling and analysis and decisions made in the June 1995 reconciliation meeting will be of particular interest to the Yakama Nation and should be examined closely when they become available.
3. It is requested that performance assessments that will be invoked to assess the sufficiency of the site relative to residual contamination be provided to the Yakama Nation for information. YIN concurrence should be obtained in the scenarios used in this assessment. It is requested that the Yakama Nation participate in the reconciliation meeting in June and that information be made available on results of performance assessments pertinent to the closure.
4. As we have noted in the past with respect to other sites, closure should allow unrestricted access to the site with no restriction on usage. Usage should assume typical Yakama Nation usage and scenarios that involve irrigation at the site. Such irrigation scenarios should include at least the influx of 32 inches of water per year in addition to natural precipitation for the area.
5. The closure plan asserts that no groundwater monitoring is necessary based on information known at this time. This assertion should be re-examined when results of initial closure sampling become available. If soil contamination is extensive, or of unknown depth, it is possible that groundwater contamination may have resulted from the SHLWS T/S Unit operations. In addition contamination may exist from other sources nearby or at a distance. Ground water sampling should be accomplished.

To summarize, no major flaws were identified in the *Simulated High Level Waste Slurry Treatment and Storage (SHLWS) T/S Unit Closure Plan*. However the issues identified above regarding the effect of the remaining contamination will warrant discussion after the initial sampling and analysis task is complete.

Sincerely,

Barbara Manuel

for Russell Jim, Manager
Environmental Restoration/Waste Management Program
Yakama Indian Nation

ATTACHMENT A: YIN letter dated December 21, 1993 to the Environmental Protection Agency (EPA)

cc: K. Clarke, DOE/RL
L. McClain, DOE/RL
M. Riveland, WA Ecol.
C. Clarke, U.S. EPA Reg. 10
T. Grumbly, DOE/EM
T. O'Toole, DOE/EH
Washington Gov. M. Lowry
U. S. Senator P. Murray
DNFSB
D. Sherwood, EPA, Richland

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ATTACHMENT A: Yin letter dated December 21, 1993 to the
Environmental Protection Agency (EPA)

December 21, 1993

U.S. Environmental Protection Agency
Mail Stop 6102 (Old M.S. LE-131)
Air Docket #A-93-27
Room M-1500
First Floor, Waterside Mall
401 M Street, S.W.
Washington, DC 20460

Dear Sirs:

Subject: PRINCIPLES, STANDARDS AND DESIGN CRITERIA TO BE INVOKED FOR ENVIRONMENTAL REMEDIATION AND WASTE MANAGEMENT; ADVANCED RULE MAKING (AIR DOCKET #A-93-27) FOR ESTABLISHMENT OF STANDARDS FOR RADIOACTIVE MATERIALS; COMMENTS ON--

The Yakima Nation's comments relative to the subject rule making follow.

1. NEED FOR PERFORMANCE ASSESSMENTS TO SET CRITERIA AND LIMITS FOR REMEDIATION AND DISPOSAL ACTIONS

a. There is a need for performance assessments that consider the long-term for all the operations--remediation and disposal--that are being planned and/or accomplished. The Yakima Indian Nation (YIN) is particularly concerned with respect to such operations at the Department of Energy's Hanford facility. This facility resides on Yakima Nation ceded lands for which there are reserved usage rights, subject to treaty law, that could be affected by the subject standards.

b. Short-term impacts should also be evaluated, however, it is our observation that it is usually the case that the long-term impacts, if properly considered, will control the design and operation of waste management facilities and remediation activities. We note that the question "how clean is clean?" evolves from cultural and religious values of the YIN not necessarily related to human health effects and potentially more limiting.

c. We consider that performance assessments for environmental effects should be patterned after the well established procedures for evaluating the probability of health injuries to individuals and populations currently being applied with respect to many sites. Site specific design or performance goals pertinent to protecting environmental values, not necessarily related to human health, should be established.

d. Regarding the application of standards to populations in addition to individuals, we consider that any health effect, whether or not it is considered to occur in a specific sub-group of individuals or the entire population, should be avoided, if that specific health effect is consider significant. Thus, contaminants that become wide spread in

the biosphere must be evaluated with respect to their effect on all individuals, even though the risk to any given individual is low.

e. In summary there would appear to be no basis for a universal standard for remediation or disposal criteria, since such criteria are necessarily site specific as determined by applicable site performance assessments considering site specific scenarios with respect to pertinent environmental and human health values.

2. DESIGN BASES

The following design actions should routinely be taken for site remediation and waste management actions:

a. Design requirements should be incorporated into the design bases for waste treatment and disposal facilities to require the use of the best available technology to remove substances (including radioactive substances) that are not naturally existing in the environment from waste streams or waste decommissioned equipment discharged to the environment or left at the site after decommissioning or closure. In all cases waste materials should be recycled for use as robust waste containers or in processing facilities. If water is clean enough to be discharged to the environment, reuse of the water may also be possible in some remediation or treatment activity at the site in question and should be required. Systems engineering of facility designs and the design of site activities should have this criteria as a primary requirement.

b. Requirements should be established to disallow dilution of wastes in waste streams for disposal, storage or treatment, facilities unless the dilution is necessary to make a waste form whose performance in the long and short term reflects "superior performance." (See definition below.) Applicable waste streams considered in this context should include those streams with discharges to the atmosphere as well as liquid, gaseous or solid wastes from streams discharged to waters or soils.

c. "Superior performance" of a waste form that is intended to contain contaminants for any proposed application should be determined on a site-by-site basis. To accomplish this, the best estimate of the natural, maximum concentration of any given contaminant in the environment (soils, waters or atmosphere) during the Holocene but prior to the event of the activity involving contaminants or waste management, for example, at Hanford prior to the 1943 construction of nuclear facilities, should be estimated. (Estimates should be "best estimates".) The waste form in question should be considered superior in its performance, if, considering possible processes and events, its performance would not allow greater than a %10 increase above the natural maximum concentration of contaminant in question for all time in the future.

In addition the waste form should not degrade so as to cause any continuous contaminant accumulation (i.e., increase at any given point) from year to year in the accessible environment for more than a period

of 10 years. The level of certainty for this performance should be reasonable assurance. (We consider that this is equivalent to engineering confidence of 95% or greater.)

(These long-term design requirements should not be relaxed because of any seemingly less restrictive short-term monitoring requirement associated with a contaminated site, discussed in comment 3a below.)

d. Currently "clean" surface areas at a site should not be allowed to be used for new disposal sites. RCRA disposal, if necessary and justified (see comment 3 below), should only be allowed in contaminated areas where cleanup is not anticipated, consistent with land use projections, which anticipate and take advantage of the natural decay or detoxification of contaminants.

e. Possible natural and man induced "processes and events", as used above, should include all potential processes and events except those for which there is reasonable assurance that they will not occur in 100,000 years. Thus, if a scenario is proposed by any person, there must be reasonable assurance that the proposed scenario will not occur in order to reject consideration of the scenario in the performance assessment. Such scenario development should not be restricted to the consideration of human health values, but should include consideration of all environmental values, including cultural and religious values.

f. These design goals could serve to allow evaluation of cultural/religious values held by the Yakima Indian Nation regarding a pristine, unadulterated environment/ecology on ceded, lands. They are in way of suggesting a basis for holistic engineering evaluations as proposed by the YIN and others and provide a basis for deciding holistically "how clean is clean".

3. SITING RCRA OR RADIOACTIVE PROCESSING AND DISPOSAL FACILITIES IN CONTAMINATED ZONES

The following requirements should be observed for these facilities:

a. RCRA or radioactive waste management facility requirements should include requirements to monitor the facilities and the ground water under the facility for leakage from the facility. Determination of leakage to already contaminated areas and ground water may be difficult, if the facility leakage is minimal such that increases in the concentration of a contaminant in ground water is not capable of being detected. In such a case the requirement to monitor a facility could not be met.

Thus, it should be required that vadose zone monitoring to provide the required capability for detecting leakage be employed. In any case, best available technology should be required for RCRA facility monitoring systems to determine small increases in a contaminant in an already contaminated area. In addition the expected change of any contaminant concentration due to natural cleansing of (or additional inflow of contaminants to) the area should be projected throughout the design lifetime of the facility, given existing sources of

contamination. These expected changes should be stated with upper and lower bounds on the projected concentrations established at the 95% confidence level. Such analyses are necessary to allow proper design of monitoring systems and will be useful for justifying future early land use and remediation efforts.

b. The requirements for monitoring releases from a RCRA or radioactive substance management (non-mixed waste) facility should consider the natural background contaminant levels, with the design of monitoring systems able to provide for the determination of releases with respect to the natural background. For example, such dangerous substances as nitrate should be characterized as to its natural concentration in the environs around a proposed RCRA facility, if it is a potential contaminant from the facility. Radioactive contaminants should be treated in a similar manner.

However, if man-made contamination, introduced subsequent to the start of the project(s) being considered would act to mask the leakage of any such facility, this should not be a basis for relaxing the long-term design performance requirement on the facility, discussed in comment 1 above.

c. Despite the suggestion above to site new RCRA facilities in areas already contaminated, RCRA facilities, particularly disposal facilities, should not be sited in contaminated areas, if reliable monitoring is not possible relative to the determination of adding contamination to the environs from facility leaks. In any case RCRA or radioactive materials disposal facilities should not require institutional controls beyond 100 years following closure to protect the health and safety of people using the site or to protect the environmental with respect to values associated with the site.

Particular attention should be paid to proposed disposal facilities, considering the long-term monitoring required, the potential for contaminant levels to change as a result of nearby existing disposal facility sources and the motion, concentration or dilution of contaminants in the environs resulting from other natural or man-induced phenomena during the lifetime of the monitoring system.

Sincerely,

/s/ Russell Jim

Russell Jim, Manager
Environmental Restoration/Waste Management Program
Yakima Indian Nation

cc. John Wagoner, DOE/RL
K. Clarke, DOE/RL
Thomas Grumbly, DOE/EM
Washington Gov., M. Lowry
U. S. Congressman, J. Inslee
U. S. Senator, P. Murray
Dennis Faulk, USEPA, Richland