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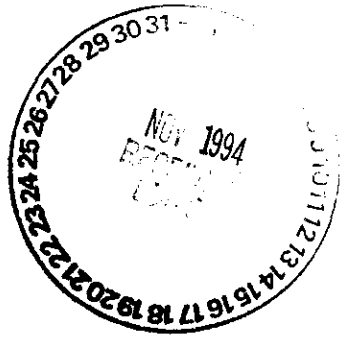
Confederated Tribes and Bands
of the Yakima Indian Nation

003907

Established by the
Treaty of June 9, 1855

September 16, 1994



John Wagoner
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Dear Mr. John Wagoner:

Subject: PRINCIPLES AND DESIGN CRITERIA TO BE INVOKED FOR HANFORD ENVIRONMENTAL REMEDIATION AND WASTE MANAGEMENT--

0013294.3061

As a follow-up to the presentation regarding treaty rights and cultural and religious values we made to DOE representatives on November 15 1993, we consider a review of the detailed principles we briefly described and have previously set forth relative to Hanford remediation and waste management is appropriate. Most of the ideas and principles were generated about three years ago in connection with our evaluation of the former grout vaults and their long-term performance. However, they apply generally to the subject Hanford activities.

Based on the large number of feasibility studies and other planning documents we are receiving for comment and brief reviews of their content, we are concerned that our previous input is not being used in applicable planning and design activities associated with the environmental remediation and waste management (ER/WM) projects at Hanford. We request that the following criteria be incorporated into design bases of the new systems engineering control documents and that applicability be established for all ER/WM projects at Hanford. We are available to participate in the drafting of the applicable requirements documents in the systems engineering effort. We request that planning for such participation be accomplished by DOE/RL.

The principles can be summarized as follows:

O CLEAN UP AND/OR DECOMMISSION SITES ALONG THE RIVER EARLY (WITHIN 10 YEARS) TO MAKE THESE CULTURALLY IMPORTANT RIVERINE LOCATIONS AVAILABLE FOR YAKAMA NATION USAGE.

O DESTROY WASTES THAT CAN BE SO TREATED.

O CONCENTRATE WASTES IN TERMS OF LAND USE AND SPACE (DO NOT DILUTE WASTES).

O ELIMINATE LONG-TERM ENVIRONMENTAL LIABILITY AT THE SITE BY PLANNING FOR DEEP GEOLOGIC ISOLATION IN AN OFF-SITE REPOSITORY OF LONG-LIVED RADIO ISOTOPES AND HEAVY METALS THAT CANNOT BE RECYCLED.

o MAKE SUPERIOR PERFORMANCE WASTE FORMS OR CREATE INTERIM WASTE FORMS THAT WILL FACILITATE SUBSEQUENT PROCESSING TO PROVIDE LONG-TERM INTEGRITY FOR DISPOSAL IN AN OFF-SITE REPOSITORY.

o DO NOT CREATE ANY MORE WASTE DISPOSAL SITES AND UTILIZE EXISTING SITES TO MAXIMUM EXTENT POSSIBLE CONSISTENT WITH LONG-TERM ACCEPTABILITY. UTILIZE ABOVE-GRADE DISPOSAL FACILITIES AS NECESSARY. (ESTABLISH DESIGN SPECIFICATIONS THAT NO HANFORD SITE, INCLUDING AFFECTED LAND AND WATERS NEAR A SITE, REQUIRE INSTITUTIONAL CONTROLS BEYOND 130 YEARS HENCE--30 YEARS FOR ACTIVE REMEDIATION PLUS 100 YEARS FOR WASTE SITE CONTROL.)

o CONTROL THE SPREAD OF CONTAMINATED WATER PLUMES AS SOON AS POSSIBLE AND NO LATER THAN 1998. INITIATE GROUND WATER REMEDIATION USING EXISTING TECHNOLOGY. (DO NOT CONTAMINATE GROUND WATER RESOURCES WITH HIGH-LEVEL RADIOACTIVE WASTE STREAMS OR OTHER WASTE STREAMS THAT INCLUDE TRITIUM OR ANY OTHER CONTAMINANT, CONSISTENT WITH THE DESIGN SPECIFICATION NOTED IN THE PRECEDING ITEM.)

o USE TECHNOLOGIES THAT EXIST, THAT CAN BE IMPLEMENTED STARTING WITH PILOT PLANT SCALE OPERATIONS OR SMALL (MODULAR) REMEDIATION/TREATMENT FACILITIES, THAT CAN BE CONSTRUCTED AND PUT INTO OPERATION QUICKLY, AND THAT CAN BE TOTALLY DECONTAMINATED AND DECOMMISSIONED.

o DISCONTINUE OPERATIONS OF FACILITIES, IF NO REMEDIATION OR WASTE MANAGEMENT MISSION EXISTS OR CAN BE REASONABLY EXPECTED BASED ON NEPA ALTERNATIVES EVALUATIONS. ESTABLISH SCHEDULES FOR D&D OF THESE FACILITIES TO VOID COSTS OF CONTINUED CARETAKING WHEN MISSIONS ARE NOT IDENTIFIED.

o RECYCLE EXISTING WASTES IN STORAGE AND NEW WASTE STREAMS, IF REUSE CAN BE ACCOMPLISHED. ESTABLISH QUANTITATIVE REUSE DESIGN REQUIREMENTS FOR SPECIFIC MATERIALS IN WASTES STREAMS.

The following detailed comments further elaborate these principles.

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

There is a need for performance assessments that consider the long-term for all the operations--remediation and disposal--that are being planned at Hanford. This is not to say that short-term impacts should not also be evaluated, however, it is usually the case that the long-term impacts, if properly considered and designed-for, will control the design of the waste management facilities and remediation activity. We note that acceptable levels of contamination will evolve from cultural and religious values of the YIN as well as values associated with assuring the health of individuals, populations and the genetic makeup of future generations.

In addition, we consider that risk assessments for environmental effects (the broad category impacts and effects considered under NEPA

evaluations) should be linked directly to the fairly well established procedures for evaluating health risks. Design goals with respect to risk to values not related to human health should be established.

2. DESIGN BASES

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

a. Design requirements should be incorporated into the design bases in systems engineering 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 discharged to the environment or waste decommissioned equipment left at the site after decommissioning or closure. In all cases metallic waste materials that cannot be released for unrestricted usage should be recycled for use as robust waste containers. Contaminated water that cannot be remediated for unrestricted use should be stored and/or used in processing facilities. If water is clean enough to be discharged to the environment, reuse of the water should also be possible in some remediation or treatment activity at Hanford. Systems engineering of the 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 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. 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 Hanford 1943 construction of Hanford 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 (95% confident).

(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 Hanford 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 and unrestricted usage will not be possible until 130 years hence. We note that the DOE's stated purpose to remediate Hanford is inconsistent with further site contamination or additional near-term use restrictions associated with new disposal facilities.

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.

f. These design goals could serve to allow evaluation of cultural/ religious values held by the Yakama Nation regarding a pristine, unadulterated environment/ecology around Hanford 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 holisticly how much remediation is warranted.

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 managements 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 1943 start of the Hanford project, 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 disposal facilities should not require institutional controls at 130 years hence to protect the health and safety of people using the site or the environment.

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 exiting 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.

4. COMMENTS REGARDING EXISTING PLANNING (MILESTONES)

a. As we have indicated in the past, actions (milestones) which allow continued discharge of waste waters to the ground are unacceptable. In addition, the discharge of clean waters to contaminated areas or in such a manner so as to flush and/or dilute contaminated groundwater is unacceptable. Such actions should be discontinued. Other actions should be scheduled to properly treat waste streams and to assure facilities are not operated that would entail further ground water discharge or dilution and spread of existing contaminated ground water plumes. Clean water wastes, for example fire main waste water, should not be allowed to dilute wastes from other facilities, by mixing the clean water with undesirable wastes in sewer systems as is accomplished in the 300 Area sewer system. This comment applies to the proposed change to milestone M-17-00.

b. Milestones should be established to control/permit the discharge of solid wastes by the Department of Ecology from gaseous waste streams. Dilution provided by facility ventilation systems should not act to justify otherwise unacceptable solid waste discharges. Plutonium discharges should be disallowed in this regard, considering the long-term toxic and radiologic hazard associated with plutonium. Acceptability of discharges should be determined at the discharge to the atmosphere, not at the Hanford Reservation boundary to assure protection of rights specified in the Treaty of 1855 on ceded lands at Hanford.

c. Consistent with the comments in 3 above regarding RCRA facilities, any activity that involves disposal of wastes at Hanford should only be justified on the basis of not endangering the environment, the public health and safety, the exercise of rights derived from the Treaty of 1855, or religious and cultural values that are otherwise protected. In general RCRA and Washington State dangerous waste disposal site decision criteria do not provide for long-term performance assessments that would address these issues. For example, the performance assessment accomplished for formerly planned grout facilities had not adequately assessed the long-term integrity of the site relative to toxic substance releases to the ground water following disintegration of the grout and its surrounding engineered barriers. Thus, milestones should be established to require performance assessments for the disposal actions being considered.

d. Milestones should be established for the remediation of old reactor facilities along the Columbia River and disposition of spent fuel in the K Reactor basins.

Thus, the expeditious decommissioning and or remediation of the old reactor sites and the elimination of other conditions inhibiting the exercise of the right to fish in usual and accustomed places and to erect structures associated with fishing practices and otherwise reside along the River, should, for example, be objectives considered in setting priorities.

e. If actions are initiated to design disposal facilities for potential low-activity streams of the high-level radioactive wastes in tanks, milestones for regulatory actions by the Nuclear Regulatory Commission (NRC) should be planned and established, considering DOE commitments to seek regulation of its nuclear activities. NRC regulatory requirements for disposal of such waste streams could greatly affect other planned actions and the cost for remediation, considering potential delays without proper planning for regulation.

5. COMMENTS REGARDING TANK WASTE REMEDIATION

a. Alternative plans for separating the tank wastes into two wastes streams, including a low-activity fraction, would utilize the Hanford Site for final disposal of the low-activity wastes. However, the long-term environmental liability associated with this action is not

acceptable, since it would restrict free access and use of the area for an indefinite period, thus, denying the exercise of culturally significant usage rights. Specifically, the nitrates and other long-lived isotopes in the low-level waste stream, including C-14, I-129, Se-79 and other stable isotopes of Se, Np-237, and various toxic organic compounds, all have the potential of contaminating the groundwater and hence the springs and seeps along the River, as well as the soils and ground water at a disposal site. As noted in the past the Yakama Nation opposes the disposal of such wastes, considering the lack of necessary geologic isolation afforded by any sites at Hanford.

b. The Yakama Nation considers that tank wastes should be concentrated to provide flexibility in accomplishing additional processing (if required for disposal in the deep repository) to facilitate the complete removal of the tank wastes from the ceded lands and to minimize waste management costs. The actions proposed are consistent with the utilization of self-shielded metal storage casks which would provide cost effective interim management of wastes in a MRS should a deep repository not be available on time to accept the Hanford wastes.

c. Development activities should be initiated to refine techniques for calcining the high sodium wastes that exist in the Hanford tanks. (Hanford documents which identify techniques for calcining wastes exist and have been identified previously.) Development should include plans for blending of wastes, addition of sugar to achieve reduction of nitrates and nitrites to facilitate handling of calcined wastes without excessive fusing of waste materials.

Sincerely,

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