

Yurok Tribe Interim

Cleanup Standards for Contaminated Properties

**Adopted by Yurok Tribal Council
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Yurok Tribe Cleanup Standards For Contaminated Properties

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Yurok Tribe Cleanup Standards For Contaminated Properties

1 Introduction to the Cleanup Standards

1.1 Background

The goal of the Yurok Tribe (“Yurok” or “Tribe”) in promulgating these Cleanup Standards for Contaminated Properties (“Cleanup Standards”) is to restore all land within the Yurok Reservation (“Reservation”) and associated Indian Country¹ to the levels that existed prior to the contamination that the standards are designed to address, in order to protect traditional, cultural, ceremonial, and subsistence uses of tribal land.

Running through the Reservation, the Klamath-Trinity River is the lifeline of the Yurok because the majority of the Yurok food supply – like ney-puy (salmon), Kaa-ka (sturgeon), and kwor-ror (candlefish) – is offered to tribal members from this watercourse. Other foods important to the Yurok are offered from the ocean and inland areas, and include pee-ee (mussels), chey-gel’ (seaweed), woo-mehl (acorns), puuek (deer), mey-weehl (elk), ley-chehl (berries), and wey-yok-seep (teas). These foods are essential to the health of the Yurok, and to their wellness and religious ceremonies. Also, traditional family homes and sweathouses are made from fallen keehl (redwood trees) that are cut into boards. The way of the Yurok is never to overharvest and to always ensure sustainability of the food supply for future generations.

The Yurok’s traditional and subsistence connection with the land, waters, biota, and natural resources of the Reservation is integrally related to the well being of tribal members and overall tribal morale and must be preserved. These Cleanup Standards are therefore deliberately conservative. The Tribe and the Yurok Tribal Environmental Program (“YTEP” or “Program”) recognize, however, that there may be situations where attainment of the Cleanup Standards is technically impracticable. The Cleanup Standards therefore provide in such cases the opportunity to petition for a waiver, as discussed in Part 3 below.

¹ In accordance with EPA’s standard use terminology: ‘Indian Country’- as defined at 18 U.S.C. § 1151 as: "(a) all land within the limits of any Indian reservation under the jurisdiction of the United States Government, notwithstanding the issuance of any patent, and, including rights-of-way running through the reservation, (b) all dependent Indian communities within the borders of the United States whether within the original or subsequently acquired territory thereof, and whether within or without the limits of a state, and (c) all Indian allotments, the Indian titles to which have not been extinguished, including rights-of-way running through the same.

1.2 Purpose

By promulgating these Cleanup Standards, the Tribe seeks to ensure that when a response action is undertaken at a brownfields or other contaminated site on the Reservation, whether by an owner, an operator, a responsible party, or an entity of tribal government, including contractors or consultants, the ensuing cleanup adequately protects human health, safety, and the environment, including biota; restores or protects current and potential beneficial uses to ground and surface waters; and mitigates adverse impacts on ecologically sensitive and culturally valued areas.

Second, the Tribe believes that setting uniform cleanup standards throughout the Reservation, with provisions for waiver for technological reasons when site-specific conditions warrant, is the best way to protect tribal members' health, the purity of ground and surface waters, and the availability of natural resources and biota, and also to preserve traditional Yurok cultural beliefs and values. Moreover, this approach will allow the Tribe and the Program to:

- a. Accommodate a broad range of site characteristics from simple to very complex;
- b. Establish uniform criteria for designing and implementing site assessments and evaluating data, thereby ensuring consistent procedures across tribal departments and programs and encouraging voluntary cleanups among private parties;
- c. Reduce the time and expense otherwise required to prepare detailed environmental risk assessments for every site under proposed redevelopment; and
- d. Use the limited tribal resources for oversight judiciously and effectively.

These Cleanup Standards are intended for cleanups conducted on the Reservation under all applicable laws. When response actions are conducted on the Reservation under the Comprehensive Environmental Response, Compensation, and Liability Act ("CERCLA," or "Superfund"), 42 U.S.C. § 9601-9675, these Cleanup Standards are intended to be applicable or relevant and appropriate requirements ("ARARs") under CERCLA § 121(d), 42 U.S.C. § 9621(d). Consequently, attainment of these Cleanup Standards will be a "threshold requirement" for a CERCLA response action on the Reservation, unless an ARAR waiver applies.²

² The six types of ARAR waivers are found at CERCLA § 121(d)(4), 42 U.S.C. § 9621(d)(4), and 40 C.F.R. § 300.430(f)(1)(ii)(B).

1.3 Authority

The Cleanup Standards were developed pursuant to the inherent sovereignty of the Yurok Tribe, the successful exercise of which requires protection of the health and social well-being of tribal members and future members; preservation and promotion of culture, language, and religious beliefs and practices; and restoration and enhancement of tribal natural resources. Yurok Const.Preamble. Indeed, “[t]his whole land, this Yurok country, stayed in balance, kept that way by our good stewardship, hard work, wise laws, and constant prayers to the Creator.” *Id.* Section 5 of the Yurok Constitution authorizes the tribal government to act consistently with the objectives enumerated in the Preamble and specifically to manage Tribal lands and assets. Adoption of the Cleanup Standards is one way for the Yurok Tribal Council (“Council”) to implement these goals.

1.4 Applicability

These Cleanup Standards shall apply to all persons and all lands within the Yurok Reservation, including non-Indian fee lands within the exterior boundaries of the formal Reservation and all tribal trust lands outside the formal Reservation boundaries. For purposes of these Standards, the term “person” includes any individual, firm, corporation, association, partnership, consortium, joint venture, commercial entity, the United States, state, tribe, municipality, commission, political subdivision of a state or tribe, or any interstate or other intergovernmental body.

1.5 Effective Date

These Cleanup Standards shall become effective immediately upon enactment by the Yurok Tribal Council.

2 Framework of the Cleanup Standards

2.1 Cumulative Exposures

All people living or working on, visiting, or otherwise present on the Reservation may be acutely exposed to hazardous substances at sites within the Reservation where there is localized soil or water contamination or where vapors of contaminants have been observed or are anticipated. At these sites, the potential human exposure scenarios (*i.e.*, exposure assessments) range from direct exposure to contaminants to casual indirect exposure through the uptake and bio-assimilation of contaminants by local food sources and plants that are then ingested, inhaled, or handled. Examples of such sites include forestry and agriculture sites (including illegal marijuana plots) with pesticide and herbicide residues; timber and plywood mills with associated natural and industrial chemicals; fire suppression zones; active and legacy mines; and high-risk areas from activities such as the burning of wood products waste and plastics, methamphetamine production, and illegal dumping. Furthermore, Highway 101 – which runs through the Reservation – gathers into one transportation corridor private and commercial vehicles that produce vapor and particulate emissions from gasoline and diesel fuel and create the potential for accidental spills that may find their way into ground and surface waters on the Reservation.

Yurok tribal members may face additional exposures and adverse impacts from hazardous substances on the Reservation. Tribal members are integrally related to the environment in ways not typically accounted for in most exposure evaluation models, which reflect exposures largely received in urban and suburban settings and do not consider the extent of tribal environmental contact. The Yurok Tribe has resided along the Lower Klamath River, its tributaries, and surrounding lands, including the Pacific Coast, since time immemorial. Consequently, tribal members have historically faced and continue to face psycho-social impacts from the contamination of sacred sites and natural resources, the loss of purity in traditional medicines and basketry species, the alteration of the cultural landscape, and the decline and loss of traditionally significant species. These injuries, coupled with the Tribe's strong commercial and subsistence fisheries, high utilization due to economic reliance on other coastal and riverine resources, and extensive cultural programs and ceremonial activities, place the Yurok at severe risk of cumulative exposures from multiple contaminants.

Therefore, while tribal members face the same routine exposures as do members of mainstream American communities to industrial additives and contaminants in commercial

products and foods, exposures to such contaminants may be increased through tribal-specific activities. The Yurok population includes the same standard epidemiological sub-populations of physical vulnerability: children, pregnant women, and the elderly. Exposure across these sub-populations, however, is increased through routine subsistence activities and consumption. Differentiated higher risk sub-populations of cultural and ceremonial practitioners are at still higher risk due to additional completed exposure pathways, *i.e.*, chronic, frequent, and extended exposures to environmental pollutants via ingestion, inhalation, or dermal absorption.

The following charts characterize the cumulative risks to the Yurok Tribe through four potential scenarios:

- a. food and drink (consumptive) pathways;
- b. subsistence pathways;
- c. cultural pathways; and
- d. ceremonial pathways.

Taken together, they describe differentially exposed sub-populations; potentially complete pathways of exposure specific to tribal members' activities; and a range of possible contaminant transport mechanisms from suspect media: air, soil, soil vapor, sediments, biota, and ground and surface waters.

CHART 1: YUOK POTENTIAL EXPOSURE SCENARIO - Food and Drink (Consumptive) Pathways

PATHWAY	ROUTE	MEDIA	TRANSPORT	RECEPTOR POPULATIONS *							SCENERIO
				Children	Elderly	General Population	Subsistence Users	Cultural Practitioners	Ceremonial Participants	Recreational Users	
FOOD & DRINK	Oral	Drinking Water	Contaminated surface waters	/	/	/	/	/	X	/	Routine ingestion; upriver individual household and community domestic water collected from surface waters of springs and tributaries; Reservation schools' water tested clean of pesticide residues
			Contaminated ground waters	X	X	X	O	O	O	/	Routine ingestion; downriver individual household and community domestic water sourced from wells; Reservation schools' water tested low level of pesticide residues
			Leachate	/	O	O	O	O	O	O	Accidental ingestion
		Food/Biota	Uptake into plant tissue	/	/	/	X	X	X	O	Ingestion during daily meals, medicines, daily teas, and flavorings
			Assimilation into fish tissue	X	X	X	X	X	X	/	Daily meal ingestion; recreational fishers' seasonal take; additional incorporation and concentration of contaminants by preferend preparation techniques of smoking and cooking over hot coals
			Assimilation into mammal tissue	X	X	X	X	X	O	/	Daily subsistence food ingestion; recreational hunters' season take
		Soil/Sediments	Contaminated particulates	X	O	O	/	X	X	O	Accidental ingestion of soil itself; soil & dust adhering to equipment, foods, and hands during procurement and preparation
		Direct	Toxin adhesion to foods/biota	X	/	/	/	X	X	O	Berries and seeds possible coated with contaminant/ pesticide residues that are difficult to impossible to clean, fish and roots cleaned with surface waters that would cross contaminate foods if polluted

* X Likely a complete pathway; / Potentially complete, likely infrequent or seasonal; O Presumed incomplete pathway

CHART 2: YUOK POTENTIAL EXPOSURE SCENARIO - Subsistence Pathways

PATHWAY	ROUTE	MEDIA	TRANSPORT	RECEPTOR POPULATIONS *							SCENERIO
				Children	Elderly	General Population	Subsistence Users	Cultural Practitioners	Ceremonial Participants	Recreational Users	
SUBSISTENCE ACTIVITIES	Oral	Surface Water	Contaminated run-off	X	/	/	X	X	X	X	Accidental ingestion through water splashing/immersion during fishing, eeling, shellfish harvesting, water fowl hunting, gathering of plants and use of waterways and riparian trails for transport
		Food/ Biota	Uptake into plant tissue	/	/	/	X	X	/	O	Ingestion of traditional plant use for stamina when hunting; large leaves/ fronds for wrapping of food items for transport
		Soil/Sediments	Contaminated particulates	X	/	O	X	/	/	/	Accidental ingestion of soil adhering to foods and equipment used in preparation and cooking, often in outdoor settings
		Direct	Toxin adhesion to foods/biota	/	/	O	X	X	X	O	Traditional fish cleaning includes rinsing with river water and release of viscera back into the river. Cooking with surface contaminated hot rocks
	Inhalation	Indirect	Aerosolized contaminated water	/	O	O	X	/	/	/	Accidental inhalation through water splashing/ immersion during fishing, eeling, shellfish harvesting, water fowl hunting, gathering of plants and use of waterways and riparian trails for transport
			Smoke from contaminated fuel	/	/	/	X	O	O	O	Most wild foods smoked for preservation; both hunting and fish camps rely on fires for heat and cooking; wood stove heat predominates in Reservation housing; firewood procurement from within pesticide sprayed areas or pulled as drift wood, floating logs in winter river flows subject to contaminant run-off
		Direct	Vapors	/	/	/	/	/	/	/	Any outdoor activities at release sites
	Dermal	Indirect Contact	Adhesion to biota	O	O	O	X	X	/	/	Contact of wildlife, deer, elk cross- contaminates hunters via contact with fur during handling and cleaning of carcasses; plucking of fowl
			Contaminated soil/ sediment particulates	/	O	O	/	X	X	/	Soil adhering to foods and equipment used in preparation and cooking, often in outdoor settings may spread contaminant onto skin
			Contaminated surface waters	/	O	O	X	X	X	X	Accidental immersion during fishing, eeling, shellfish harvesting, water fowl hunting, gathering of plants and use of waterways and riparian trails for transport; hands and arms continuously in the water while checking nets, baskets, and removal of fish
		Direct Contact	Accidental application	/	O	O	X	X	/	/	Exposed to any free product at traditional harvest sites, along travel paths, or areas of cleaning and preparation

X Likely a complete pathway; / Potentially complete, likely infrequent or seasonal; O Presumed incomplete pathway

CHART 3: YUOK POTENTIAL EXPOSURE SCENARIO - Cultural Pathways

PATHWAY	ROUTE	MEDIA	TRANSPORT	RECEPTOR POPULATIONS *							SCENARIO
				Children	Elderly	General Population	Subsistence Users	Cultural Practitioners	Ceremonial Participants	Recreational Users	
CULTURAL ACTIVITIES	Oral	Surface Water	Contaminated run-off	X	X	O	O	X	X	O	Ingestion during procurement and preparation of basketry and regalia materials; practitioners wade in the shallows of the water to dig roots/rhizomes, to harvest mussel shells and to collect rocks for cooking and preparation of medicines; placing hides in creeks for tanning; and soaking of plant material for flexibility; and dipping of abalone shell in water while grinding
		Food/ Biota	Uptake into plant tissue	/	/	/	X	X	/	O	Ingestion of basketry plant materials while weaving when held in mouth
			Assimilation into fish tissue	O	/	O	O	X	/	O	Traditional materials such as sinew softened by chewing; sturgeon skin chewed for glue and preparation for reinforcing bow backs
			Assimilation into mammal tissue	O	/	O	O	X	/	O	Traditional materials such as sinew softened by chewing; sturgeon skin chewed for glue and preparation for reinforcing bow backs
		Soil/ Sediments	Contaminated particulates	X	/	O	O	X	/	O	Accidental ingestion of soil adhering to basketry & regalia materials during procurement and preparation that often
	Direct	Toxin adhesion to foods/biota	/	/	O	O	X	/	O	Basketry materials, sticks, & roots held in the mouth while weaving.	
	Inhalation	Indirect	Aerosolized contaminated water	X	O	O	O	X	O	O	Accidental inhalation through water splashing/ immersion during procurement and preparation of basketry and regalia
			Smoke from contaminated fuel	X	X	O	O	X	/	O	Accidental inhalation while smoking hides for color and preservation; while burning out canoes and in the heating of rocks to steam canoes for shaping; cultural burning of hazel and bear grass patches to stimulate weaving material production
		Direct	Vapors	/	/	/	/	/	/	/	Any outdoor activities at release sites
	Dermal	Indirect Contact	Adhesion to biota	X	X	O	O	X	/	O	Basketry & regalia material procurement and preparation often results in abrasion to skin and forced contact with contaminant/ toxins
			Contaminated soil/ sediment particulates	/	X	O	/	X	/	O	Soil adhering to materials and equipment used in preparation as well as from general outdoor settings may spread contaminant onto skin; shell, root & rhizome collection requires hands, arms, and some prefer bare feet digging/feeling through silts and clays to locate the best or proper items
			Contaminated surface waters	/	X	O	/	X	/	O	Accidental immersion during use of waterways and riparian trails for transport that require wading; hands and arms
		Direct Contact	Accidental application	/	/	O	X	X	/	O	Exposed to any free product at traditional harvest sites or areas of cleaning and preparation; traveling along riparian corridors and across Brownfields sites to reach traditional sites increases risk

X Likely a complete pathway; / Potentially complete, likely infrequent or seasonal; O Presumed incomplete pathway

CHART 4: YUOK POTENTIAL EXPOSURE SCENARIO - Ceremonial Pathways

PATHWAY	ROUTE	MEDIA	TRANSPORT	RECEPTOR POPULATIONS *							SCENERIO
				Children	Elderly	General Population	Subsistence Users	Cultural Practitioners	Ceremonial Participants	Recreational Users	
CEREMONIES	Oral	Surface Water	Contaminated run-off	X	X	O	O	X	X	O	Water often taken to the site of ceremony and used in various ways including cleansing, cooking, preparation, drinking, landscaping (packing sand down), and used with plants for medicine
		Food/ Biota	Uptake into plant tissue	/	/	/	X	X	/	O	Ingestion of traditional plant use for purification & medicines
			Assimilation into fish tissue	O	/	O	O	X	X	O	Fish for ceremonial use is fresh which offers less preservation methods such as canning that might remove toxins
		Soil/ Sediments	Contaminated particulates	X	/	O	O	X	X	O	Activities take place outdoors with soil contact or in traditional houses with high dust content
		Direct	Toxin adhesion to foods/biota	/	/	O	O	X	X	O	Fish for ceremonial use is fresh ; ceremonial sites have primitive cooking and prep areas that offer greater risk of surface contamination
	Inhalation	Indirect	Aerosolized contaminated water and steam	X	O	O	O	X	X	O	Sweats used during and after ceremonies
			Smoke from contaminated fuel	X	X	O	O	X	X	O	Brush fires used to heat rocks for sweats, and cooking
		Direct	Vapors	/	/	/	/	/	X	/	Any activities at release sites; especially training
	Dermal	Indirect Contact	Adhesion to biota	X	X	O	O	X	X	O	Handling of regalia that could become contaminated during temporary storage on site
			Contaminated soil particulates	/	X	O	/	X	X	O	Activities take place outdoors or in traditional houses with soil contact
			Contaminated surface waters	/	X	O	/	X	X	O	Training involves full body swimming, immersion in water, bathing, and diving; meditation/prayer often performed by sitting on riverbank with feet in water; full body immersion during fish dam construction, use of dam , and deconstruction
		Direct Contact	Accidental application	/	/	/	O	O	/	O	Exposed to any free product at utilized sites; regalia for men often minimal with upper body, arms, and legs exposed

X Likely a complete pathway; / Potentially complete, likely infrequent or seasonal; O Presumed incomplete pathway

2.2 Methodology

a. Sequence of Steps for Response Actions

First, compare the data collected as part of the investigation of a brownfields or other contaminated site to the appropriate media standards listed below. All potential human exposure pathways and potential exposure scenarios at the site must be fully accounted for, including all current and potential beneficial uses' including but not limited to current and potential food and drink, subsistence, cultural, and ceremonial uses. Under most circumstances, the presence of contaminants in soil, soil gas, sediments, or ground or surface waters in concentrations below the applicable media standard can be assumed not to pose a significant risk at the site, whereas concentrations above the applicable media standard suggest that a response action is warranted.

Second, remediate all media, including ground and surface water resources, until they match Reservation background levels or applicable media standards, as provided in subsection (b).

Third, protect the physical integrity and purity of terrestrial and aquatic habitats, taking into account as necessary the erosion of contaminated soils and their subsequent runoff into nearby wetlands, streams, or other aquatic habitats.

Fourth, address nuisance concerns (*e.g.*, odors and staining) and gross contamination.

b. Applicable Media Standards

A response action is not concluded until the contaminated site is remediated such that all current and potential exposure and transport pathways have been measured to detections at or below the following media standards for residential use:

- **Air:** San Francisco Bay Regional Water Quality Control Board Environmental Screening Levels (“ESLs”), Table E: Shallow Soil Gas and Indoor Air.
- **Soil:** ESLs, Table A: Shallow Soils (<3m bgs), Groundwater is a Current or Potential Source of Drinking Water.
- **Soil Vapor (Gas):** California Department of Toxic Substances Control’s Guidance for the Evaluation and Mitigation of Subsurface Vapor Intrusion to Indoor Air (“DTSC Vapor Intrusion Guidance”).
- **Sediments:**
 1. For freshwater habitats, United States Army Corps of Engineers Pacific Northwest Sediment Evaluation Framework (“SEF”), using the lowest effect level (“LEL”), below which the sample contaminant levels are presumably nontoxic.

2. For marine habitats, National Oceanic and Atmospheric Administration (“NOAA”) Sediment Quick Reference Tables (“SQuiRT”), for both organics and inorganics in sediment, using the LEL.

For a naturally occurring chemical, utilize the referenced screening levels above or its background level, whichever is higher.

- **Ground and Surface Waters:** Comply with Cal. Code Regs. Tit. 23, § 2721(b), and follow the decision tree below:
 1. For contaminants that are naturally occurring chemicals and for which numerical objectives are available, they shall not exceed Reservation background levels.
 2. For contaminants for which numerical objectives have been designated in the ESLs for drinking water sources, they shall not exceed these ESLs, specifically Table A: Shallow Soils, *supra*, and Table F-1a: Groundwater Screening Levels, Groundwater is a Current or Potential Drinking Water Resource.
 3. For contaminants not included in the ESLs for drinking water sources but for which numerical objectives have been designated in water quality control plans, such as the State Water Quality Control Board’s Regional North Coast Basin Plan, the responsible party shall strive to achieve the numerical objectives in such plans. Should the responsible party be unable to meet the numerical objectives, a report and waiver request should be submitted to the Yuork Tribal Council or their designated Yurok authority.
 4. For water contaminants and impairments not included in the ESLs for drinking water sources and for which no numerical objectives have been designated in water quality control plans, the target cleanup levels shall be based on a site-specific impact assessment that is prepared in accordance with federal and Yurok Tribal guidelines.

When more than one cleanup standard applies, the more stringent or most stringent standard shall be selected to guide the response action. When a contaminant is not covered by any of the standards above, the cleanup level shall be based on a site-specific impact assessment prepared in accordance with federal and Yurok Tribal guidelines.

2.3 Rationales

a. Residential Use Protective Level

The Program requires all contaminated sites to be cleaned to unrestricted residential use levels. There are three reasons behind this requirement. First, residential use levels protect vulnerable sub-populations by allowing for the possibility that a given site may be used not only for residences but also for other sensitive purposes, such as medical clinics and daycare centers, and also is protective of other cultural, subsistence, or ceremonial uses. Second, the Tribe actively supports working adults' caretaker responsibilities and duties to the young and elderly. This cultural practice results in several generations being routinely involved throughout the day at work sites and creates circumstances where the presence of contaminants in soil, soil gas, or groundwater at concentrations in excess of residential use could pose a significant health risk to vulnerable populations. Therefore, these Cleanup Standards do not include a separate category of remediation standards for commercial/ industrial use, since risk calculations reflecting the assumption that only working age adults will be regularly present at a site during the workday are not valid. Third, as a general proposition, remediation to levels that embrace all sensitive uses of the land is always protective of human health and the environment and provides the highest level of long term protection, effectiveness, and permanence (U.S. EPA 2006: 5-8). This approach corresponds to the Tribe's attitude of stewardship towards the land, ground and surface waters, biota, and natural resources of the Reservation, as described in Section 1.1.

b. Use of Drinking Water Source Remediation Standards

The Program assumes that (1) all groundwater beneath a given site is a potential source of drinking water and (2) all shallow groundwater will ultimately discharge to a body of surface water and potentially impact both aquatic habitats and their biotic communities. These assumptions are based in part upon a 2003 survey of Yurok households on the Reservation that identified their sources of domestic water as ground and surface waters, including nine community source water systems and over 200 private systems. Many Yurok households also reported utilizing multiple sources of drinking water, including numerous traditional groundwater seeps that provide seasonal drinking water outside the dry months of July through October (McKinnon 2003). Furthermore, preliminary data from the YTEP Source Water

Assessment and Protection Program indicates that although private water systems predominantly use surface water collection intakes from numerous small perennial streams, creeks, and spring boxes, they also utilize 22 wells that are located down the main stem of the Klamath River. All these water sources may be greatly impacted by surface water sheet flowing from contaminated sites, down the predominantly steep hillsides, and most likely percolating through the porous and shallow soils that are typical on the Reservation.

TABLE 1: MAJOR DIFFERENCES BETWEEN APPROACHES TO CLEANUP WITH RESPECT TO WATER QUALITY PROTECTION

	DEPARTMENT OF HEALTH SERVICES	STATE & REGIONAL WATER BOARDS	YUROK TRIBE
End points addressed:	Toxicologic effects on humans and other biological receptors.	Any impact on present or probable future beneficial uses of water, including non-toxicologic effects on biological receptors and effects on non-biological endpoints .	Impacts to humans, other biological receptors (both aquatic and terrestrial), and non-biological endpoints should be addressed in initial site assessments with the recognition that site-specific waivers may be issued for remedial actions for technical impracticability
What criteria are applied:	Threshold effect level for non-genotoxic (non-mutagenic, carcinogenic or teratogenic) agents. 10^{-6} risk level for genotoxic agents.	In the initial assessment, background . Relaxed under certain demonstrations of responsible party, but in no case shall beneficial uses be impaired.	All site assessment parameters shall include present or probable subsistence, cultural, and ceremonial use for receptor modeling and all future beneficial uses of both ground and surface water as present or probable drinking water sources.
Where criteria & standards are applied:	At the boundary of the site or the nearest point of current use.	Any and all waters of the State, even on-site or directly under the source of contamination, due to the probability for future beneficial use.	Any and all waters, on-site, directly under the source of contamination, and at site boundaries with consideration of current use and probability for future beneficial subsistence, cultural, and ceremonial use.

3 Waiver

3.1 Petition Due to Technical Impracticability

a. Petition for Waiver

An owner, an operator, or a responsible party at a site subject to cleanup may petition the Yurok Tribal Council (the “Council”) for a waiver to apply to one or more cleanup standards due to technical impracticability.³ The petition shall clearly and succinctly state the reasons that the waiver is requested and a grant of the petition shall be based on the factors set forth below. Petitions that would waive the Cleanup Standards at only a portion of the site, or that propose alternative standards that are as close as practicable to the Cleanup Standards, will be favored.

b. Grant of Petition

The Council will grant a petition for a waiver under this section if the following criteria are satisfied:

1. The Council finds that appropriate remediation technology has been attempted for an amount of time sufficient to evaluate whether the owner, operator, or responsible party can reliably achieve the applicable cleanup standard(s). At a minimum, a claim of technical impracticability must be supported by two consecutive years of quarterly site monitoring data showing that the degree of contamination is leveling or has leveled off and no other remediation method could appropriately achieve a reduction in contamination;
2. Once this initial burden has been met, the Council finds that there is no reasonable relationship between the economic and social costs that would be incurred and the benefits that would be obtained by continuing to attempt to achieve the applicable cleanup standard(s).
3. The Council finds that the proposed alternative standard(s) are technically achievable and protective of human health and the environment, and do not violate applicable federal standards. In no case may the Council approve alternative cleanup standards

³ If the Yurok Tribe is conducting the response action, the full Council will need to vote on the appropriateness of the waiver, rather than simply a quorum. In this situation, it is likely that the Yurok Planning and Community Development Department, the Yurok Forestry Department, or the Yurok Economic Development Corporation will be the entity petitioning the Council for a waiver.

that violate applicable federal requirements unless permission has been obtained from the appropriate federal agency or agencies to deviate from those requirements.

c. Considerations in Granting Waiver

Failure to achieve the Cleanup Standards due to inadequate system design or operation or unsuitability of the technology for site conditions shall not be considered sufficient justification for a waiver under this section. Moreover, the role of cost in determining technical infeasibility is subordinate to the goal of ensuring the protection of human health and the environment, and in some cases high costs may be appropriate. The grant of a technical impracticability waiver under this section is intended to be as identical as possible to a grant of a technical impracticability waiver under CERCLA § 121(d)(4)(C), 42 U.S.C. § 9621(d)(4)(C), and U.S. EPA guidance, policies, and precedents interpreting that provision of CERCLA shall guide the implementation of this section.

3.2 Processing Fees

The YTEP may provide, by regulation, for processing fees to be submitted together with the petition for a waiver.

3.3 Judicial Review

Any aggrieved person seeking to challenge a final decision of the Tribal Council regarding a petition for a waiver pursuant to § 3.1 of these Cleanup Standards is entitled to judicial review in Tribal Court.

4. References

Marshack, J.B. 1986. The Designated Level Methodology for Waste Classification and Cleanup Level Determination. California Regional Water Quality Control Board, Central Valley Region. Sacramento.

McKinnon, L. 2003. Yurok Indian Reservation Domestic Needs Assessment. Summary Report for US Bureau of Reclamation and Yurok Tribe Environmental Program.

U.S. Environmental Protection Agency (U.S. EPA). 2006. Guidance for Assessing Chemical Contaminant Data for Use in Fish Advisories. Volume 1, Fish Sampling and Analysis, Third Edition.