Meeting Minutes
Columbia River Comprehensive Impact Assessment
Weekly Management Meeting
June 11, 1996
Battelle's ETB Building, Columbia River Room, 1:00 - 4:00

Attendees(*)/Distribution(#):

Jim Becker, PNNL*#
Charlie Brandt, PNNL#
Amoret Bunn, Dames & Moore*#
Sandra Cannon, PNNL*#
Paul Danielson, NPT*#
Greg deBruler, HAB#
Kevin Clarke, RL#
Dennis Dauble, PNNL*#
Roger Dirkes, PNNL*#
Sue Finch, PNNL*#
Larry Gadbois, EPA#
Rose Gentry, Oregon#
Dick Gilbert, PNNL#
Stuart Harris, CTUIR*#
RD Hildebrand, RL#
Dave Holland, Ecology*#
A Knepp, BHI#
Jay McConnaughey, WDFW*#
Terri Miley, PNNL#
Dick Moos, BHI#
Nancy Myers, BHI*#
Bruce Napier, PNNL#
Lino G. Niccoli, YIN*#
Roger Ovink, BHI#
Doug Palenshus, Ecology#
Ralph Patt, Oregon#
Stan Sobczyk, NPT#
Bob Stewart, RL*#
Mike Thompson, RL#
JR Wilkinson, CTUIR#
Thomas W. Woods, YIN*#
Jerry Yokel, Ecology*#
Admin Records-CRCIA#

Summary of Discussions:

Proposed Responses for Species Report

Copies of proposed responses for the Species report were handed out at the 6/4/96 meeting and again today. Jim Becker led the team through the proposed responses. Comments that had additional discussion are highlighted below:

- There were comments relating to why the CRCIA team selected the species that they did. The following was offered in response to the comment: "Species were added that are important to cultures of Native Americans or the people of Oregon and those importance values are not well represented in the screening criteria." An action was assigned to Jim Becker to contact the individuals who specified additional species and verify that this response is adequate. Also, check with Larry Gadbois as he had some rationale for the additional species.
- There was team consensus to go with the 43 species and acknowledge uncertainties.
- Much discussion took place regarding amphibians. Is it necessary to add a second amphibian, and if so, what would be added? An action was assigned to Jim Becker to discuss with Jay McConnaughey and Stuart Harris the process for choosing the amphibian.
- On comment number 322, there were differing opinions on the rationale of the response. An action was assigned for Charlie Brandt and Damon Delistraty to discuss and resolve the comment resolution on comment 322.
- The use of microtox data was discussed. An action was assigned to Dennis Dauble to work with Jerry Yokel and Amoret Bunn to determine if microtox data to represent the microbial communities should be included instead of just using fungi.

It was concluded that there was a lot of work responding to the comments but the substantive changes are minimal.

Responses to Scenarios Report

Stuart Harris will fax his comments on the Scenarios report to Sue Finch by the end of the week. A question was raised by Dave Holland on additional game species. Dave will contact Bruce directly.

Review of CRCIA Purpose and Team Purpose

Three versions of the purpose statement were handed out. Much discussion took place but no final resolution or agreement was reached. It was agreed to put this on the agenda for next week as the first item for discussion.

Draft of an Overview of the CRCIA for Publication on the Internet

A copy of a proposed Overview, Background, Purpose and Scope of the Screening Assessment, and Work Integration and Documentation was handed out for review. It was decided not to put this information on the CRCIA home page on the internet until further review takes place.

Proposal for Public Outreach Team

Deferred to next week.

Items Not on the Agenda

Copies of the Data report were handed out to team members that were presented. Those not at the meeting will receive their reports via mail. The due date for comments on the Data report is July 12.

Comprehensive Chapter:

- There is lack of data for in-depth study of a large number of species.
- Expand the amphibian list of species.

Agreements: None at this meeting.

Action Items:

Action Description	Assigned To	Due Date
Contact the individuals who specified additional species and verify that the response noted above is adequate. Also, check with Larry Gadbois as he had some rationale for the additional species.	Jim Becker	ASAP
Discuss with Jay McConnaughey and Stuart Harris the process for choosing the amphibian.	Jim Becker	6/18/96
Discuss and resolve the comment resolution on comment 322 on the Species report.	Charlie Brandt and Damon Delistraty	6/18/96
Determine if microtox data to represent the microbial communities should be included instead of just using fungi.	Dennis Dauble, Jerry Yokel, and Amoret Bunn	6/18/96

Attachments (file only - copies available upon request):

- 6/11/96 meeting agenda
- Proposed resolution to comments on the Species Report
- Purpose Statement - text from the board with redline/strikeout that represents comments Sandra received from Larry Gadbois and Dave Holland
- Purpose Statement - a proposed purpose from Bob Stewart
- Purpose Statement - text from the board with some changes made by Thomas Woods (note - one version is cleaned up and the other version has the redline/strikeout changes noted).
- Proposed Overview, Background, Purpose and Scope of the Screening Assessment, and Work Integration and Documentation

Prepared by SM Finch on 7/8/96

AGENDA
Columbia River Comprehensive Impact Assessment
Weekly Project Management Team

Scheduled from 9:00 - 12:00 p.m., June 11, 1996
Bechtel Building, 3350 George Washington Way, 2A01 Conference Room

Scheduled from 1:00 - 5:00, June 11, 1996
Battelle's ETB Building, Columbia River Room

Morning Session

1. 9:00 - Comprehensive Section
   - Thomas Woods - Introduction
   - Receive Team Comments on Section 1.1 and 1.2 that were handed out at the 6/4/96 meeting
   - Team Review of text on Transport-to-River Requirements before turning over for edit.
   - Revisit/solicit issues and concerns on the fourth presentation (waste entry to the river)
   - Larry Gadbois/Dan Landeen - Receptor Exposure Pathways Requirements (finalize discussions from prior week)
   - Stuart Harris/Dan Landeen - Dose-to-Receptor Calculation Requirements
   - Thomas Woods - Develop Scenario Requirements
   - Greg deBruler - Impact Tolerance Calculation Requirements
   - Thomas Woods - Develop Technical B/L Requirements

Afternoon Session

1. 1:00 - Bob Stewart - Introduction

2. 1:15 - Charlie Brandt/Jim Becker - Present Proposed Responses to Key Comments on the Species Report
   - Team action: Come prepared to present the criteria that was used for species selected by the CRCIA team

3. 2:15 - Sandra Cannon - Responses to Scenarios Report Comments
   - Sandra will accept any comments to the proposed responses on Scenarios Report that Bruce presented on 5/28/96. When the comments were presented, the due date of 6/11/96 was given for any team comments on the proposed responses.

4. 2:20 - Thomas Woods - Review of CRCIA Purpose and Team Purpose
   - Per discussion at the 6/4/96 meeting, agreement will be reached at 6/11/96 meeting on the CRCIA Purpose and on the Team Purpose. Three versions were handed out: 1) from Bob Stewart, 2) from Thomas Woods, and 3) the text from the board at a prior meeting with redline and strikeout that represent comments Sandra received from Larry Gadbois and Dave Holland

4. 3:30 - Sandra Cannon - Draft of an Overview of the CRCIA for Publication on the Internet
   - The draft uses the words of the already approved preface for the data report. The only changes are to denote its role as an overview as opposed to its previous role as the preface to the data report. Please remember the overview is not engraven stone and can be changed at any time on the Internet. Ideal would be agreement for publication on 6/11/96 so that when the CRCIA home page debuts on 6/12/96 it would contain the overview. Otherwise, the overview will be placed on the CRCIA home page after the debut.

5. 4:00 - Rose Gentry - Proposal for Public Outreach Team
   - At the 4/23/96 meeting, a proposal for the Public Outreach Team was handed out and discussed. The proposal was briefly discussed at the 4/30/96 meeting. An updated proposal will be presented to the team for agreement at the 6/11/96 meeting.

6. 4:30 - Review of Upcoming Meetings

6/18/96 - Morning - Bechtel Building, Room 2A01

- Team Review of text on Abstract, Purpose, Uses before turning over for edit.
- Thomas Woods - Develop Common Requirements
- Lino Niccoli - Analysis Architecture & Integration Requirements
- Lino Niccoli - Identification of River Impact "Drivers"
- Team Review of text on Waste Entry to River Requirements before turning over for edit.
- Team Review of text on River Hydrodynamics Requirements before turning over for edit.

6/18/96 - Afternoon -ETB Columbia River Room

- Charlie Brandt - EHQs Presentation

6/25/96 - Morning - Bechtel Building, Room 2A01

- Dick Gilbert - Identification & management of Uncertainty
- Team Review of text on Habitat & Critical Locations Requirements before turning over for edit.

6/25/96 - Afternoon - ETB Columbia River Room

- Make-up session for Comprehensive Section

Responses to Comments on "Species for the Screening Assessment" (DOE/RL-96-16-b)
Columbia River Comprehensive Impact Assessment
[June 4, 1996]

Res. No.	Comment Category	Res. of Comment No.	Response
1	Outside the scope of this ~~document.~~ species document	1, 2, 3, 187	In the quantitative risk assessment, field data will be used to quantitatively model contaminant exposure and effects for the species selected in this document. It is not necessary and would be too costly in terms of schedule and $ to more quantitatively model exposure on hundreds of Master list or Tier I species in order to select species for the screening level ecological risk assessment. For species selection, modeling exposure qualitatively is sufficient. The final risk assessment will quantitatively model contaminant exposure and effects of all contaminants simultaneously.
		4	Interactions between organisms (secondary effects) will be considered in the quantitative risk assessment where direct effects (from contaminant exposures) are shown to occur.
		7, 87	The study area for the risk assessment was defined previously and approved by the CRCIA Team.
		21	Inclusion of a factor in this report, such as groundwater, does not necessitate its inclusion in the Human scenarios report. The ecological and human health risk assessments are being conducted separately. Refer to Bruce Napier for its inclusion as spring water in the Human scenarios report.
		58	The indirect effects evaluation includes all direct effects of biomagnification. Evaluation of indirect effects is not dependent on finding effects lower in the food chain; just on finding an effect.
		71, 72	The reader is provided references to these documents so that the reader, if he/she wishes, may become more familiar with the details of the riparian and riverine systems in the study area. The brief summary in section 2.0 is provided to give the reader an overall idea of the complexity of these systems. It is unnecessary to summarize or spell out all the details of these biological systems in order to proceed with species selection.
		134	Sediment/soil concentrations are the subject of the data report. How these sediment/soil concentrations will be used to model contaminant exposures for the selected species will be done in the screening level ecological risk assessment.
		172	Risks based on chronic toxicity tests will be evaluated in the screening level ecological risk assessment where such data on chronic toxicity are available. Use of chronic toxicity data was not necessary for species selection, nor was such information available at that time.
		184	Extrapolations between species and toxicity thresholds will be done according to established EPA guidelines in the screening level ecological risk assessment.
1	Outside the scope of this	186	Putting uncertainties on benchmarks will be done in the screening level ecological risk assessment.

Species of Concern Comment Responses

Res. No.	Comment Category	Res. of Comment No.	Response
cont.	document	187	Part of this comment is answered in the 1st comment response above. The other part about the Monte Carlo regime will come in the screening level ecological risk assessment.
		229, 313	More detail on how the exposure model will integrate exposure over all pathways and media to yield a total dose will be provided in the screening level ecological risk assessment. Chronic and sub-lethal toxicity benchmarks, as well as secondary population and community-level effects, will be discussed and used where appropriate in the screening level ecological risk assessment (see comment response #43).
		252	The question as to which document will contain the quantitative exposure model equations is outside the scope of this document. The title of this document will be decided at a later date.
		286	The overlap between selected species and the temporal and spatial distribution of contaminants is not within the scope of this document. This will be done in the quantitative risk assessment and will be slightly different than that described above. Where sufficient data is available, the spatial and temporal overlap between contaminants, species occurrences, and hazard levels will be determined for river segments where hazard levels are relatively high.
		316	It is not the purpose of this document to discuss for which of the selected species we have or do not have toxicological data. These data are currently being gathered for the screening level ecological risk assessment and any data gaps will be discussed there.
		323	The human health risk assessment is being conducted separate from the ecological risk assessment. Thus, exclusion of rainbow trout and mule deer from the ecological risk assessment in no way affects the analysis of risks to human health from ingestion of these species under the various human scenarios. However, mule deer were added to the final Tier II listing per response to No. 22 below.
2	Outside the scope of the screening level ecological risk assessment	16	Broader indicators of ecosystem health, such as water quality and productivity, are currently outside the scope of this screening level ecological risk assessment, as approved by the CRCIA Team.
		59, 324	Future contaminant fluxes and the risks that will be associated with them are not in the scope for this screening level ecological risk assessment; the scope of this ecological risk assessment is for current effects.
		108	The quantitative exposure model will be the subject of this screening level ecological risk assessment. The scope of this document and the ecological risk assessment does not include ground-truthing (e.g., validation through field study) the quantitative exposure model.
2.	Outside the scope of the	111	Testing the LOAEL (lowest observed adverse effects level) chronic effects of species or life stages is not the purpose of this screening

Species of Concern Comment Responses

Res. No.	Comment Category	Res. of Comment No.	Response
cont.	screening level ecological risk assessment	268	level ecological *risk assessment*. A comparative risk assessment to be done upstream of the study area to evaluate the effects of agricultural chemicals is outside the scope of what the CRCIA team decided for this screening level ecological risk assessment, and is also outside the scope of this document.
		213	What an organism might do to a contaminant is outside the scope of species selection and the whole screening level ecological risk assessment.
2	Incomprehensible comments	9	This comment refers in a very general way to every comment made about section 3.0.
		79	This comment refers to good seasonal data on aquatic communities. This comment is not interrogative and makes no suggestion as to how the document might be changed.
3	Clarification needed	see next column	Changes will be made to enhance clarity. 5, 6, 10, 11, 14, 17, 18, 19, 20, 22, 23, 24, 25, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 53, 54, 56, 57, 60, 62, 64, 65, 67, 69, 70, 73, 75, 77, 80, 81, 82, 83, 85, 86, 93, 94, 95, 96, 97, 98, 105, 106, 107, 110, 115, 116, 117, 118, 121, 122, 123, 124, 125, 127, 128, 130, 131, 133, 138, 139, 143, 146, 150, 153, 157, 158, 159, 161, 168, 177, 178, 183, 185, 189, 190, 194, 196, 197, 199, 200, 201, 202, 203, 204, 205, 206, 208, 212, 215, 216, 217, 224, 225, 227, 228, 230, 231, 235, 237, 238, 239, 240, 241, 242, 243, 244, 245, 246, 249, 250, 251, 253, 254, 263, 266, 270, 271, 272, 280, 282, 283, 285, 287, 288, 289, 290, 291, 292, 293, 294, 295, 296, 298, 299, 300, 301, 302, 303, 305, 307, 309, 310, 311, 312, 325, 327, 328, 329
4	Disagree; changes not incorporated	61	Changes will not be made to the following comments. This comment is an exclamation of appreciation that a more comprehensive risk assessment will follow this screening level ecological risk assessment.
		63	Voles feed primarily on green vegetation (Burt and Grossenheider 1980). So, classification of voles as herbivores is accurate, although they may also consume some insects.
		113, 114	"Lifestyle" is a useful term, as it generally refers to how an organism interacts with both its abiotic and biotic environment. It does not refer to habitat classes.
		136	The inhalation pathway is assumed to be complete for all aquatic and semi-aquatic species, except the adult bullfrog (see footnote [a] in these tables).
		147	The composite effect score is useful, and was thus discussed in the text, because it is important to show that exposure duration and sensitivity to contaminants were considered in the species selection

Species of Concern Comment Responses

Res. No.	Comment Category	Res. of Comment No.	Response
			process, even though these 2 factors did not serve to differentiate species within taxonomic groups (i.e., change their scores or their rankings).
		169	There is no contradiction here. Table 3.13 (media weightings at the 2 source areas, in-river and outfall) was not used in score summaries until paragraph 4 on page 3.15. All previous score summaries, paragraphs 1 to 3 on page 3.15, were made with all media being treated equally, i.e., left unweighted.
		175	This information does appear earlier in the report, in the summary in fact.
		198	The definition of "foraging guild" will remain unchanged, as it has to do only with similar diets not similar responses to environmental impacts.
		218	The term "biomagnification," as used, applies to the contaminant, not to the organisms, such as primary producers, that contact the contaminant.
		219, 220	The cells in Tables 3.8 and 3.10 would remain the same; there would be no advantage to segregating these tables.
		221	Prey are indeed a medium of contaminant transport.
		226	We are not saying that it is inappropriate to mix acute toxicity data (part of the composite effect score) with chronic exposure data. The discussion focused on the fact that even the lowest exposure duration score (1) was given to organisms that in reality (although only briefly in the study area) have exposure durations that far exceed that of acute toxicity tests (48-96 hours), which were the basis for scoring sensitivity to radiation.
		233, 234	These are statements made about the CRCIA Team revising the preface to this document and the definition of the initial phase of this screening level ecological risk assessment (also found in the preface).
		248	It was already stated in the text that the scoring on sensitivity to contaminants was based only on radiation and that this scoring was done only on broad taxonomic categories.
		279	We shouldn't change "many" to "most" because we don't know if that's the case. To find out if "most" was the correct expression, it would be necessary to enumerate all the riparian and riverine species between Priest Rapids Dam and the Columbia River estuary. This offers no advantage.
		303	We agree it would be advantageous to 1) score species on sensitivity to other contaminants (in addition to radionuclides) and 2) to use more chronic thresholds (in addition to LD50s). However, there was insufficient information available to score species on these bases.

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Res. No.	Comment Category	Res. of Comment No.	Response
4	Disagree; changes not incorporated (cont.)	304	Figures 1.2 and 1.3 are used to show the general make-up and the complexity of the ecosystem from which we selected species. These figures have nothing to do with ingestion exposure to contaminants in prey per se. Tables 3.4, 3.5, and 3.6 give a general presentation of exposure to contaminants in abiotic media. The treatment of exposure to contaminants in biotic and abiotic media is balanced in section 3.2. In our opinion, this discussion does not belong in the Introduction, as the commentor suggests.
		306	The score summaries are deemed necessary for the introduction to the section.
		308	Because the scoring system for sediment is the same as for groundwater does not equate to biased rankings for aquatic organisms. Terrestrial organisms (see e.g., great blue heron and muskrats) may ingest groundwater as well as sediment, depending on their lifestyle. Furthermore, selections were made from within major taxa to reduce any taxonomic bias.
		319	Coyotes are mentioned in the referenced paragraph as being omnivores, which is correct. Raptors are not mammals (mammals are the subject of the paragraph); raptors of the study area are identified in the subsequent paragraph on birds.
5	Qualitative ranges for scores and ranks	8, 162, 163, 164	Score summaries and ranks and thus the relative exposures of species are not intended to be quantitative, nor are they described as such. Additional text describing the qualitative nature of the scores and ranks will be provided.
6	CRCIA Team criteria	12, 55, 88, 100, 269, 281, 284	CRCIA criteria for selection of species will be provided in the revised text.
7	Further reduction of the number of final Tier II species	13	Agree, but will proceed as far as possible with the listing as defined by the CRCIA Team. Data may be lacking for some Tier II species which could preclude a credible screening risk assessment for these. It will be desirable to conduct a more credible risk assessment for those species for which we have good data. The trade-offs between these 2 scenarios will be addressed in the quantitative risk assessment.
8	Why didn't smallmouth bass make the final Tier II list	15	This species did not score as high as other species for ingestion and dermal uptake of sediment and pore water. It was therefore not included.
9	Extra criteria to consider in the species selection process	26, 27, 265	In Tier II, species were screened based on sensitivity to radiation. In Tier I, species were screened based on their protection status; they were, however, not screened based on endemism. It would likely add little to no value by adding endemism to the panel screening criteria. The critical points in species selection are whether a species is exposed to contaminated media, their degree of sensitivity to contaminants, and the magnitude of the potential threat to the species from the contaminant. First and foremost, if a species is not exposed, then there can be no adverse effects; in which case whether a species is endemic, protected, or sensitive to contaminants is of no consequence.

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Res. No.	Comment Category	Res. of Comment No.	Response
		26, 27, 265	In addition to the above, the Tier I and Tier II screenings were not absolute. The CRCIA Team added species (for reasons other than the species' potential exposure) as they thought appropriate throughout the species selection process. Some of these species have a relatively high potential exposure, as determined by the species selection process. These will be evaluated in the quantitative risk assessment.
		26, 27	As for species in the Hanford Reach, there have been no studies indicating effects on numbers or production, and numerous studies indicating no adverse effects.
10	Selection of the American kestrel instead of the barn owl as a final Tier II species	28	Although, both species had the same grand average exposure, the barn owl was not selected because it weighs more than the Northern harrier (see response number 22 for the basis of eliminating species with the largest body weight), which has the same foraging habit.
11	Periphyton, caddisfly, crayfish, mayfly, midge, clams, mussels, snails, ferns and fungi are broad taxa. Species within these taxa will likely exhibit different sensitivities, etc... to contaminants	29, 30	For these broad taxa species, specific data will be used where available to model contaminant exposure and effects in the screening risk assessment. Lowest toxicological endpoints will be used where available.
12	Inclusion of macrophytes in the final Tier II species	31, 179	While the lifestyles of macrophytes and emergent vegetation are close in terms of contaminant exposure, they do differ in the following way. Macrophytes are completely submerged, whereas emergent vegetation is partially submerged. Macrophytes are likely to be more highly exposed via dermal uptake of contaminants, having greater dermal exposure to surface water. Although not strictly a macrophyte, yellowcress has the same exposure characteristics as macrophytes and is included in the final species list.
13	Make the process of species selection more tractable to the non-technical	52, 84, 89, 173, 180	The groups of the CRCIA Team were mentioned in the preface. In the document we will discuss in greater detail whether the CRCIA Team was **in agreement** on the criteria used in each tier, the food webs, and the final Tier II species. The document will describe the process of arriving at the final list of Tier II species in more detail.

Species of Concern Comment Responses

Res. No.	Comment Category	Res. of Comment No.	Response
	reader		
14	Why wasn't sensitivity to contaminants other than radiation used as a criterion?	55, 92	There is too little species-specific information available on sensitivity to the individual 23 contaminants of concern to differentiate all the Tier I species on that basis. Also, this level of detail was not necessary for the species selection portion of this screening level ecological risk assessment. However, such toxicological information, if it exists, will be gathered and used in the quantitative portion of this risk assessment.
15	What direct effects will be evaluated for the selected species?	60	Effects such as mortality (LC50 and LD50) and LOAEL will be evaluated, for example. LOAELs will be specified on a species- and contaminant-specific basis in this screening level ecological risk assessment. These effects are not the subject of this document; this document ends with a brief discussion of these effects in order to give an introduction to the next document, i.e., the quantitative portion of this screening level ecological risk assessment.
16	Emphasis of past ecological studies of the Columbia River ecosystem	68	It is clear in section 2.0 that many ecological studies have been conducted in the study area of this screening level ecological risk assessment. The CRCIA Team agrees that we have identified the species to be considered in this risk assessment. Therefore, additional field study is not necessary to identify species for consideration in this species selection process.
17	Why are the federal and state species not explicitly followed throughout the species selection process?	74	The most important reasons for selecting a species for the screening assessment are that it 1) has a high potential exposure and 2) is important to the CRCIA Team. If federal and state listed species were either of the above, they were retained throughout the species selection process.
18	Why are bats not included in the final Tier II species	76	Their potential exposure, based on scores and the resulting ranks, is too low.
19	Defensibility of screening Master Species List to eliminate species that occur outside the study area and those that occur in upland areas	90, 91	Elimination of species outside the study area was done based on known species distributions. Because the ecological risk assessment is limited to riverine and riparian systems, species that primarily occur in upland areas were eliminated; these were eliminated based on known species habitat usage.
20	Why use the 88th percentile in the analysis of the panel screening	99, 100, 101, 210, 321	Because this was the percentile at which at least 50% of the screening criteria (3 or more) had a yes response. The use of this cutoff was arbitrary, and the 88th percentile was a consequence, not a criterion, as the document implies. The confusing information on the 88th percentile will be deleted from the document.

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Res. No.	Comment Category	Res. of Comment No.	Response
	criteria?		
21	Why does this document appear to do part of the actual risk assessment when all it does is select the species for it?	102	This document does present a qualitative screen using elements of a risk assessment. The species selection process qualitatively selects those species that have the highest exposure potential. The actual risk assessment quantifies the exposure and effects of the selected species, based on exposure models and actual data on contaminant levels in abiotic media.
22	What is the rationale for eliminating species with the largest body weight?	103, 104, 137, 174, 176, 195, 211, 227, 297, 322	The selection of species was performed primarily on the basis of CRCIA input, regulatory drivers, and the need to complete a representative food web. Body weight was a criterion only selection of raccoon over coyote and western harvest mouse over mule deer. Assuming that toxicological effects for two species occur at a common concentration of chemical (or metabolite) in the body of the individuals (the basic assumption for scaling absolute dose to body weight), and assuming that assimilation efficiencies and depuration rates are similar between the species, the environmental concentration producing the effects concentration will be lower for the smaller-mass species. The concern raised by one commentor that depuration rates are often not similar is a valid one, although metabolites can be as toxic or more so than the original contaminant. Because of that uncertainty, mule deer and coyotes will be included as final Tier II species. The text will also be amended to clarify the correct relationship between allometry and measurement endpoints.
23	Media weighting	108, 144, 145	The relative potential exposure of species within taxonomic groups is differentiated by scoring both the number of contaminated media the species contacts and the extent to which species contact these media. This scoring system was implemented in the following two scenarios: 1) with media at in-river and outfall source areas weighted to reflect relative levels of contamination, and 2) with media at in-river and outfall source areas left un-weighted so that all media/pathways would have the same contribution to an individual's overall exposure.
24	Exposure duration	112, 119, 137	Residence time in the study area is the only indicator of exposure duration we have for screening species. We have no specific information regarding where migratory species go when they leave the Hanford Site nor anything about the contaminants they might be exposed to away from the Hanford Site. Life span was incorporated into exposure duration.
25	Trophic level of suckers	123	Species of suckers are considered herbivores, although a relatively small portion of their diet consists of benthic invertebrates.
26	Exposure as juveniles versus adults	129, 183	In tables 3.4 and 3.5 species were not "scored down" if they could be exposed as larvae. These tables only generically depict exposure scenarios for species as larvae and adults; actual scoring of species based on exposure at different life stages is done later in the document. And here species were not "scored down" if exposed

Species of Concern Comment Responses

Res. No.	Comment Category	Res. of Comment No.	Response
			as larvae, but rather were weighted the same whether exposed as larvae or adults. In the screening assessment of risk, contaminant exposures and effects will be evaluated separately for different life stages; for example, larvae and juveniles, where exposure potential is known for larvae and exposure potential is substantial.
27	Are seeps and springs at the shoreline where they may be contacted by muskrats, etc...?	132, 135, 140	Yes, seeps and springs appear at the shoreline where they may be contacted by terrestrial animals. Seeps and springs were considered for species selection but were not included nor evaluated in this document. Seeps and springs are small and few in number, and terrestrial species' exposure via ingestion of and dermal contact with water likely comes mostly from the river. Nonetheless, because contaminant concentrations in river water are generally much less than in seeps and springs and groundwater, and to be conservative, 100% of terrestrial animals' exposure to contaminants via ingestion of and dermal contact with water will be modeled in the quantitative portion of this screening level ecological risk assessment using contaminant data from seeps and springs (where such data are available). (This last sentence also appears in response #32).
28	Species screening based on minute differences in foraging habits	137	Sufficient detail is not available to screen species on such minutia; for example, based on which of the aquatic bottom feeders forages deeper in sediments. What is important and what the species screening process does is to generally distinguish in which media different species forage and their general exposure duration.
29	Were specific contaminants identified as biomagnifying and non-biomagnifying?	142, 148	Yes, the contaminants were identified as such in the literature, but these identifications were not included on a contaminant-by-contaminant basis in this document. Scores were assigned based on potential ingestion exposure to biomagnifying/non-biomagnifying contaminants in prey while these contaminants were only grouped generically as either biomagnifying or non-biomagnifying.
30	Why was there no distinction between 1st, 2nd, and 3rd level carnivores in terms of exposure to biomagnifying contaminants?	149	This trophic level for carnivores was not needed to select species for the screening assessment of risk. It will be considered in the screening assessment when modeling contaminant exposures. For species selection, we distinguished between carnivores, omnivores, herbivores, and producers. Of course , the riparian and aquatic food webs are more complicated than this, as shown in Figures 1.2 and 1.3.
31	Why not weight egg and juvenile exposures more heavily	151	Changing the weighting of life stages would not change the relative exposure of species in the same taxonomic group and thus their rankings, and the rankings are the basis of species selection. This detail will be included in the screening assessment of risk.

Species of Concern Comment Responses

Res. No.	Comment Category	Res. of Comment No.	Response
	than other life stages?		
32	Should the score of the western harvest mouse for ingestion of groundwater and the scores of avian species for dermal contact with groundwater be changed because of ingestion and dermal contact with water in seeps and springs?	152, 154	These scores do not need to be changed for species selection. Seeps and springs are small and few in number. Mice will likely drink and birds likely bathe far more frequently in the river than in the seeps and springs. Thus the relative potential contribution of seeps and springs to ingestion exposure of mice and dermal exposure of birds is small compared to the river. Nonetheless, because contaminant concentrations in river water are generally much less than in seeps and springs and groundwater, and to be conservative, 100% of terrestrial animals' exposure to contaminants via ingestion of and dermal contact with water will be modeled in the quantitative portion of this screening level ecological risk assessment using contaminant data from seeps and springs (where such data are available). (This paragraph also appears in response #27).
33	"Species virtually never make dermal contact with pore water"	155	Text will be changed to read "species that virtually never have dermal contact with sediments will also not likely have dermal contact with pore water."
34	Ratio of the difference in frequency of dermal contaminant exposure in surface water, is it really 4:1?	156	In reality, the 4:1 ratio is merely an index. The purpose was to provide a basis for screening species on scoring differences in the frequency of dermal contaminant exposure in surface water - not to have the scores necessarily represent real differences in exposure duration with a great degree of accuracy. The scale of scores used for this medium/pathway was the same as the scale of scores used for the other media/pathways to ensure that all pathway/media combinations were considered of equal importance in their contribution to an individual's overall potential exposure. This explanation will be added to the text.
35	Air-borne contaminants given a 0 at in-river source areas?	160	Air-borne contaminants were given a 0 at in-river source areas because, relative to other media at the two source areas, this medium contributes very little, if anything, to species' potential exposure. This level of detail was considered sufficient for screening species.
36	Inclusion of IAEA document on sensitivity to radiation. The use of radiation LD50s has	166	The IAEA (International Atomic Energy Agency) document on sensitivity to radiation will be included if it adds enough information on the sensitivity of taxa/species to change the scoring scheme. The only difference between the composite effect score and the grand exposure score is the addition of radiation sensitivity and exposure duration scores to make up the composite effect score. There was virtually no difference in the ranking of species within taxonomic groups based on the composite effect score and the

Species of Concern Comment Responses

Res. No.	Comment Category	Res. of Comment No.	Response
	an effect on the composite effect score and thus the ranking of species.		grand exposure score. Thus the effect of the composite effect score in the ranking and selection of species is minimal.
37	Masking information for individual contaminants by summing biomagnifying and non-biomagnifying contaminants into the grand average exposure score?	170	No. Information on individual contaminants cannot be masked because contaminants were not considered individually in the species selection. Instead, they were only considered as two groups: biomagnifying and non-biomagnifying contaminants.
38	Why discuss composite effect score if it was not useful?	171	Because it was necessary to show that radiation sensitivity and exposure duration (the only types of scores that make the composite effect score different from the grand exposure score) were considered in the species selection even if these items did not provide any additional information for ranking species.
39	Use of NOAELs instead of LOAELs, etc... for a screening level risk assessment	181	NOAELs (no observed adverse effects level) would be appropriate to use if we were simply screening sites to arrive at those where there is a potential risk and we did not need to need to know anything about the magnitude of that risk. However, the latter is the case in this risk assessment. To assess the magnitude of risk, we must use toxicity levels above NOAELS; for example, LOAELs, LC50s, and LD50s. We are looking to see if and where there are substantial risks to the ecosystem. This is the kind of information upon which clean-up decisions may be based.
40	What risks (effects) will be looked at (death, cancer, what)? And what types of effects might be left out of the screening assessment?	182, 193, 229	The type of effect considered in the modeling of exposure to individuals of species will depend on the type of toxicity test against which the exposure estimate will be compared. For example, LOAELs and EC50s may specify different types of sub-lethal effects, whereas LC50s and LD50s deal with mortality, and TD50s deal with teratogenicity. The toxicity tests that deal with effects to individuals of species and sub-lethal effects have ecological relevance. The types of ecosystem effects that will not be considered in the modeling of exposure to individuals of species and for which there are no toxicity data are population- and community-level effects. However, these higher level effects will be modeled if and where there are substantial effects to individual organisms. Otherwise, population- and community-level effects will not be considered.
41	Defensibility of calculating uncertainty around	186	EPA benchmarks are given as standards and uncertainty cannot be calculated for these values. However, uncertainty about benchmarks obtained in the toxicological literature can and will be estimated (see Suter 1993) in the quantitative portion of the

Species of Concern Comment Responses

Res. No.	Comment Category	Res. of Comment No.	Response
	benchmarks		screening level ecological risk assessment.
42	Use of probabilistic analyses only for definitive risk assessments	188	This is a screening assessment only in the sense that it is limited in scope both temporally and spatially and in the number of species it considers. Because clean-up decisions may be based on the results of this risk assessment, it is important not just to use deterministic analyses, but rather to get an estimate of the uncertainty about these deterministic estimates of risk. This is what the probabilistic analyses will do.
43	Comments dealing with the preface to this document	191, 192, 232, 236, 267, 273, 274, 275, 276, 277, 278, 315, 320,	The preface will be rewritten.
44	Source areas and media	264	Within the riparian and riverine systems, the two source areas mentioned in the report (in-river and outfall) are those believed to have contaminant loads sufficient to pose a substantial hazard. The relative importance of the abiotic media at the in-river and outfall source areas was considered in the media weighting.
45	There is no ecological significance in the panel's screening criterion "availability of toxicological data"	209	Agree, but it is not possible to re-visit the panel screening process now.
46	Possible use of NOAELs to rank sensitivity to contaminants ?	214, 223, 313	A rank-ordering of species based on LD50s will yield basically the same results as one based on NOAELs. The extrapolation from an LD50 to a NOAEL is 1 to 1. Consequently, nothing is to be gained by using NOAELs (see EPA's guideline on extrapolation of LD50 to NOAEL). Text will be clarified on this point. In addition, route of exposure to radiation is of little significance in the overall effect, so responses to radiation exposure between taxa can be reasonably compared. Text will be clarified on this point.
47	Biomagnifying scores cancel non-biomagnifying scores resulting in no added differentiation of species	247	In the report, the scoring of ingestion exposure to biomagnifying and non-biomagnifying contaminants in prey does not add to the differentiation of species because, in the calculations, biomagnifying scores cancel non-biomagnifying scores. Therefore, the calculations in the tables will be modified and the text changed to obtain differences in species scores and ranks.
48	By using LC50 values may leave out more chronic toxicity data that would be more applicable to	313	In this document, we used LD50 values only to screen species. Both acute and chronic toxicological data will be used in the screening assessment of risk. However, such chronic data are sparse in the toxicological literature.

Species of Concern Comment Responses

Res. No.	Comment Category	Res. of Comment No.	Response
	Hanford species		
49	Use of ambient water quality criteria	314	Ambient water quality criteria will only be used where other species-specific contaminant thresholds are lacking for aquatic species.
50	Figures 1.1 and 1.2	66, 255-262, 317, 318, 326, 330	Comments will be addressed by replacing Figures 1.1 and 1.2 with alternate figures previously presented to the CRCIA Team. Foraging data are taken from published accounts and are not merely assertions. Sediment/water and decomposers will be added to the figure for the terrestrial food web (this last line relates to response number 55).
51	Available field data on toxicological response	78	This information is provided in Appendix B.
52	Exposure screening on soil ingestion	141	This is already addressed and shown in Appendix C.
53	Contaminants of concern	165, 222	Reviewer mistakes the potential contaminants list for the list of contaminants to be used in the screening level ecological risk assessment. Eleven of the 23 COCs are radionuclides; 6 are non-radionuclide metals; 4 are inorganics; and 2 are organics. It will be added to this species selection document that 11 out of the 23 contaminants are radionuclides.
54	Radioactivity as the primary risk driver	167	There is no a priori primary risk driver. Risk to species will be evaluated on a contaminant-by- contaminant basis. The risk assessment will result in knowledge as to what combination of source areas, media, contaminants, and pathways are the most hazardous to selected species.
55	Exclusion of microbial communities, other than fungi.	207	Other than fungi, microbial communities were not incorporated into the species selection process because there is a paucity of toxicological data on these communities. In addition, field studies indicate that these communities are the least affected, e.g., are the most resilient, to contaminants in the environment. A brief discussion of the importance of these communities and why they were not considered will be added to this species selection document web (this relates to the last line of response number 50).
56	Why Tables 3.4, 3.5, and 3.6 do not include exposure via ingestion of contaminated prey?	120	These tables only cover exposure to contaminants in **abiotic media**. These tables will be changed to reflect that.
57	Use of the word "potential" in Tables 3.4, 3.5, and 3.6	126	We agree that this word might be confusing to the reader; it shall be eliminated from these tables and replaced with "... for several [aquatic, semi-aquatic, terrestrial] species known to occur in the study area."

Text from Board with redline/ Strike out that represents comments from Larry Gadbois & Dave Holland.

Purpose

In light of the Hanford Site's past, present, and future handling and [?] storage of hazardous materials and the resulting need to protect the Columbia River ~~from future contaminants~~, the purpose of CRCIA is to assess the potential effect of Hanford-derived contaminants on the Columbia River environment and its users. To achieve this purpose, CRCIA needs to:[5/2/96 Dave Holland recommends the following for the above sentence: "As a result of interest in protecting the Columbia River from Hanford contaminants, the purpoose of CRCIA is..."]

- estimate the river-related risks to human health, the sustainability of the ecosystem, economic vitality, and cultural quality of life, which result from hazardous materials originating at the Hanford Site throughout the time those materials remain intrinsically hazardous

- establish the requirements under which this and future analyses would necessarily be conducted if their results and conclusions are to be regarded as acceptably comprehensive

- provide results for use in Hanford cleanup decisions

[Worked on by the CRCIA Team 4/16/96; 4/25/96 Larry Gadbois recommended changes

- "sustainability of ecosystem" does not contain important concept that if system is degraded we want that system to recover - change to "ecological integrity"?
- amend with the idea of being comprehensive relative to protection of the river
- identify near-term IRMs [write out] needed to protect the Columbia River from contaminants currently in the river]

Description/Justification (Continued)

Phase 1 Work

The following work, with proactive involvement by the non-TPA members, will be performed in response to TPA Milestone M-15-80:

1) Perform an assessment of Hanford-derived contaminants (existing conditions including residual contaminants from past operations) in a screening assessment to support IRM decisions.

2) Compile and make available to the public the approximately 2000 documents identified in Appendix A of the data compendium; pertinent supporting Hanford data will be made available.

3) Work with the declassification efforts of the HAB in identifying the Columbia River documents as a high priority for release.

4) Define the essential work remaining to provide an acceptable "comprehensive" river impact assessment. This work will be documented in the same report as the screening assessment.

5) Data (from 2&3) will be available for reconciliation against the screening assessment.

These actions are designed to fulfill the requirements for a screening assessment to support IRM decisions limited only by the time and FY 1996 funds available for this effort. However, the "comprehensiveness" issue is left open. Work identified under #4 will be assigned TPA milestones as appropriate, scoped, prioritized and scheduled.

Counter-proposal: CRCIA "PURPOSE"

6/3/96
FROM → Bob Stewart

Excerpt from "Preface" (as updated at 5/28/96 CRCIA Mtg, per 5/29 mssg from Sue Finch/Sandra Cannon)

Third paragraph:

A major CRCIA Team decision was to organize CRCIA into phases, with additional phases to ~~potentially~~ be identified as warranted after completion of the initial phase. The initial phase is comprised of two parts: 1) a screening assessment to evaluate the current impact to the river resulting from Hanford-derived contamination (Figure P.1 - [SG96030040.1 map in the data report only]) and 2) identification of requirements considered necessary by the CRCIA Management Team for a comprehensive assessment of impact to the river.

[INSERT]
At the time of this writing, a proposed purpose (by the CRCIA Team) of the "next" CRCIA Phase (Phase II) is to perform a more comprehensive assessment of the river than the screening assessment (CRCIA Phase I, Part 1) , based on using information developed in "Identification of Requirements Considered Necessary..." (CRCIA {Phase I, Part 2). Specifically, the proposed purpose of a Phase II is to estimate, with agreed-to certainty, the potential effect of Hanford-derived contaminants on the Columbia River environment and River-dependent activities, as follows:

- estimate river-related risks to human health, to sustainability of the river ecosystem, to economic vitality, and to cultural quality of life - for the time period during which Hanford contaminants remain intrinsically hazardousl.

- establish requirements under which this and future analyses would necessarily be conducted if their results and conclusions are to be regarded as acceptable.

- provide useful results for Hanford cleanup decision making.

Decisions regarding performing this work (or additional CRCIA Phases) will be made based on submittal of information as required by Tri-Party Agreement milestones, as follows:

M-15-80A *DOE is to provide a list of comprehensive work scope tasks developed and prioritized in coordination with the CRCIA ~~Management~~ Team (not based on funding).*

Existing Due Date: Sept 30, 1996
Revised Due Date: February 28, 1997

M-15-80B *DOE is to provide a recommendation for follow-on work to M-15-80, primarily based on M-15-80A, as well as funding considerations, overall Sitewide objectives, and TPA authority. This will include future milestones.*

Existing Due Date: Dec 31, 1996
Revised Due Date: June 30, 1997

The following target date is added:

M-15-80B-T01 *DOE is to provide to EPA and Ecology an initial recommendation for CRCIA "next phase(s)" budgeted work to be used as input into the FY 1999 budget submission (to include recommendations for FY 1998). Recommendations are to be based on CRCIA workscope prioritization discussions with the CRCIA Team.*

Target Date: January 10, 1997

Thus - it is expected that preliminary decisions regarding CRCIA Phase II work to address the above proposed CRCIA Team "Phase II purpose" will be announced by January 10, 1997, with more definitive plans determined by June 30, 1997.

6-4-98 8613454.0640

In light of the Hanford Site's past, present, and future storage of ~~hazardous~~*chemical and nuclear* materials and the resulting need to protect the Columbia River from ~~future~~ contamination, the purpose of *technical analyses conducted to assess the River (for which these requirements strive to be comprehensive) is to estimate, with useful* ~~the CRCIA is to assess~~*certainty,* the potential effect of Hanford-derived contaminants on the Columbia River environment and ~~its users~~*River-dependant life*. To achieve this purpose, the CRCIA ~~need~~*strives* to:

- estimate the river-related risks to human health, ~~the~~*o* sustainability of the ecosystem, *to* economic vitality, and *to* cultural quality of life, ~~which result from hazardous materials originating at the Hanford Site throughout the time those materials remain intrinsically hazardous~~*for the time period during which Hanford contaminants remain intrinsically hazardous.*
- establish the requirements under which this and future analyses would necessarily be conducted if their results and conclusions are to be regarded as acceptably ~~comprehensive~~*e*.
- provide ~~results for use in Hanford cleanup decisions~~*useful results for Hanford cleanup decision-making.*

from Tom Woods - edit of text on the board

6-4-96

In light of the Hanford Site's past, present, and future storage of chemical and nuclear materials and the resulting need to protect the Columbia River from contamination, the purpose of technical analyses conducted to assess the River (for which these requirements strive to be comprehensive) is to estimate, with useful certainty, the potential effect of Hanford-derived contaminants on the Columbia River environment and River-dependant life. To achieve this purpose, the CRCIA strives to:

- estimate the river-related risks to human health, to sustainability of the ecosystem, to economic vitality, and to cultural quality of life, for the time period during which Hanford contaminants remain intrinsically hazardous.
- establish the requirements under which this and future analyses would necessarily be conducted if their results and conclusions are to be regarded as acceptable.
- provide useful results for Hanford cleanup decision-making.

Overview

The Columbia River is a critical resource for residents of the Pacific Northwest. It provides for basic needs and is interrelated with the life style and quality of life for Columbia Basin's many human and non-human residents. This resource drew the Manhattan Project's planners to the site now called Hanford to produce nuclear weapon materials. Production of those materials has left behind a legacy of chemical and radioactive contamination and materials that have, are, and will continue to pose a threat to the Columbia River for the foreseeable future.

To evaluate the impact to the river from this Hanford-derived contamination, the U.S. Department of Energy, U.S. Environmental Protection Agency, and State of Washington Department of Ecology (the Tri-Party agencies) initiated a study referred to as the Columbia River Comprehensive Impact Assessment (CRCIA). To address concerns about the scope and direction of CRCIA as well as enhance regulator, stakeholder, tribal, and public involvement, the CRCIA Management Team was formed in August 1995. The CRCIA Team meets to share information and provide input to decisions made by the Tri-Party agencies concerning CRCIA. Representatives from the Confederated Tribes of the Umatilla Indian Reservation, Hanford Advisory Board, Nez Perce Tribe, Oregon State Department of Energy, Yakama Indian Nation, Tri-Party agencies, and contractors are active participants on the team.

A major CRCIA Team decision was to organize CRCIA into phases, with additional phases to be identified as warranted after completion of the initial phase. The initial phase is comprised of two parts:

1) a screening assessment to evaluate the current impact to the river resulting from Hanford-derived contamination

2) identification of requirements considered necessary by the CRCIA Management Team for a comprehensive assessment of impact to the river.

~~This *Data for the Screening Assessment Report* is the fourth in a series of reports which have been issued as part of the initial phase. Figure P.2 [SG96050234.1 document diagramwill be Figure P.2 in compilation report as well] depicts the documents which have been and will be issued in the initial phase. After the data report and three previously published reports have been revised, they will be incorporated into a two-part report which will document the results of the two parts of the initial phase of CRCIA: the screening assessment results and the requirements for a comprehensive assessment. [Will be changed for compilation report.]~~

Background

The Hanford Site occupies 1456 square kilometers (560 square miles) in the south central portion of the State of Washington. It is located northeast of the Tri-Cities of Richland, Kennewick, and Pasco. The site is partially bordered on the north and east by the Columbia River and includes a relatively narrow buffer zone north of the river referred to as the Wahluke or North Slope. The Hanford Site is located on land ceded in 1855 by treaties with the Confederated Tribes of the Umatilla Indian Reservation and the Yakama Indian Nation. The Nez Perce Tribe has treaty rights on the Columbia River. The tribes were guaranteed the right to fish at all usual and accustomed places and the privilege to hunt, gather roots and berries, and pasture horses and cattle on open and unclaimed land.

From 1944-1987, the U.S. Department of Energy (DOE) conducted nuclear production operations at the Hanford Site along the Hanford Reach of the Columbia River. The Hanford Reach extends 85 kilometers (51 miles) downstream from Priest Rapids Dam to the head of the McNary Pool near the city of Richland, Washington. These past nuclear operations resulted in the release of hazardous chemicals and radionuclides to the Columbia River and into the soil. These operations also resulted in the storage of wastes and nuclear materials, some of which have escaped containment or have the potential for doing so. Current conditions of the Columbia River reflect that contamination is reaching the river primarily via the groundwater pathway.

In addition to contamination resulting from past and present Hanford operations, there is the potential for more contamination because the Hanford Site is being used for storage and disposal of nuclear materials, radioactive waste, chemically hazardous waste, and mixed waste (nuclear materials mixed with hazardous chemicals). For example, presently two-thirds of the nation's high-level defense nuclear waste is being stored at the Hanford Site with continuing shipments of nuclear waste being received (DOE 1992 [link to DOE/RW-006, Rev. 8]). Much of this nuclear waste may remain at the Hanford Site. The storage of these nuclear wastes could potentially contribute to the contamination of the Columbia River (depending on the performance of the chosen isolation solution) for thousands of years.

As a result of the known contamination, four areas of the Hanford Site (the 100, 200, 300, and 1100 Areas) have been placed by the U.S. Environmental Protection Agency (EPA) on the national priorities list for cleanup. The national priorities list is a component of the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980* (CERCLA) (42 USC 9601 [link to document]) enacted by the U.S. Congress.

To address the cleanup needs mandated by CERCLA and to address the requirements for handling currently stored/generated wastes as mandated by the Resources Conservation and Recovery Act (RCRA) (42 USC 6901), DOE entered into a *Federal Facility Agreement and Compliance Order* (unofficially known as the Tri-Party Agreement) (Ecology et al. 1994 [link to document]) in 1989 with EPA and the State of Washington. Milestones have been adopted for the Tri-Party Agreement that identify actions needed to ensure acceptable progress toward Hanford Site compliance with CERCLA, RCRA, and the *Washington State Hazardous Waste Management Act* (RCW 1985 [link to document]).

During 1993, the Tri-Party agencies began work toward a comprehensive assessment of the impact of Hanford operations (past and present) on the current conditions of the Columbia River (DOE 1994 [link to document]). In January 1994, the Tri-Party Agreement was revised to reflect this project. This revision included a new Milestone, M-13-80B (later changed to M-15-80), that established CRCIA. In December 1995, the CRCIA milestone was revised, enhancing the review process and specifying target dates. In April 1996, another change to the Tri-Party Agreement provided additional time to perform the work in the initial phase.

Purpose and Scope of the Screening Assessment

The purpose of the screening assessment is to support cleanup decisions. The scope of the screening assessment is to evaluate the current risk to humans and the environment resulting from Hanford-derived contaminants. The screening assessment has the primary components of:

- identifying contaminants to be assessed
- identifying a variety of exposure scenarios to evaluate human contaminant exposure
- identifying a variety of other species to evaluate ecological contaminant exposure
- assessing risks posed by exposure of humans and other species to the contaminants

The study area for the screening assessment (see map of screening assessment area [link to SG96030040.1 map]) was defined to extend from upstream of the Hanford Site in areas unaffected by Hanford Site operations down to McNary Dam, which is the first dam downstream of the Hanford Site. Historical data indicate that the concentrations of contaminants are as high or higher in this reach of the Columbia River than in areas downstream of McNary Dam. Other factors determining the study area include the availability of appropriate environmental data to conduct the screening assessment, the lack of such data downstream of McNary Dam, the known discharge of contaminants into the river (primarily via groundwater seepage) along the Hanford Site, and the resource constraints (time and dollars) originally imposed on the screening assessment. The parameters of the scope are:

Area:	Columbia River (vicinity of Priest Rapids Dam to McNary Dam), groundwater (up to 0.8 kilometer/0.5 mile in from the river), and adjacent riparian zone
Time:	January 1990 - present (date data were received for use in the screening assessment) with data gaps filled by earlier data where available
Contaminants:	Published in Napier et al. (1995) (to be modified) [link to document]
Scenarios:	Published in Napier et al. (1996) (to be modified) [link to document]
Receptor Species:	Published in Becker et al. (1996) (to be modified) [link to document]
Measured Media:	Groundwater, sediment, seeps, surface water, external radiation, biota, cobalt-60 particles, drive point groundwater, N Springs punch point water, and pore water

The primary contractor conducting the screening assessment is the Pacific Northwest National Laboratory [link to external home page]. Bechtel Hanford, Inc. [link to external home page] provides technical and public involvement coordination with environmental restoration activities. Technical peer reviewers are evaluating the work under the guidance of the Directors of the Oregon Water Resources Research Institute and State of Washington Water Research Center.

Work Integration and Documentation

The results of the initial phase of CRCIA are reported in a series of reports (see diagram [SG96050234.1] and table of documents [link to each]). These reports reflect the process involved in the screening assessment of current risk. The reports published first as drafts will be compiled into one document on the screening assessment and requirements for a comprehensive assessment.

The process involved in the screening assessment was to first identify the documents containing pertinent data. That information was published in two reports (Eslinger et al. 1994 and Miley and Huesties 1995 [links to documents]), which were issued as final reports.

The data documents listed in Eslinger et al. (1994) and Miley and Huesties (1995) helped to identify the most significant Hanford Site contaminants that affect the Columbia River. The winnowing process used to determine which of those contaminants should be evaluated in the screening assessment of risk was published in Napier et al. (1995 [link to document]) as a draft. The comments on the draft are being incorporated, and the contaminants information will appear as a section in the draft of the report on the screening assessment and requirements for a comprehensive assessment.

Next, groups of people with potentially different exposures to the Columbia River were identified. With information from the Hanford Site Risk Assessment Methodology (DOE 1995 [link to document]) and with input from the CRCIA Team, scenarios were written defining the potential pathways and exposures for the various groups. Input from the scenarios will be used in the screening assessment of human risk. The scenarios are described in Napier et al. (1996 [link to document]), which was published as a draft. The comments on the draft are being incorporated, and the scenarios information will appear as a section in the draft of the report on the screening assessment and requirements for a comprehensive assessment.

Simultaneously, the most significant species were identified and those to be evaluated in the screening assessment of ecological risk were selected. The species to be used in the screening assessment and the process used to select them are described in Becker et al. (1996 [link to document]), which was published as a draft. The comments on the draft are being incorporated, and the species information will appear as a section in the draft of the report on the screening assessment and requirements for a comprehensive assessment.

The monitoring data available, the lists of contaminants and species to be evaluated, and the selection rules developed by the CRCIA Team determined which data were selected for use in the screening assessment of human and ecological risk. The data to be used in the screening assessment and the process used to select them are presented in Miley et al. (1996 [link to document]). The comments on the draft will be incorporated, and the data information will appear as a section in the draft of the report on the screening assessment and requirements for a comprehensive assessment.

The draft report on the screening assessment and requirements for a comprehensive assessment will provide the results of the screening assessment and a definition of the essential work remaining to provide an acceptable comprehensive river impact assessment. The comments on the draft will be incorporated and the screening assessment and requirements for a comprehensive assessment will be published as a final report.