

INSTRUCTIONS FOR TABLE 9

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs

<p>PURPOSE OF THE TABLE:</p> <ul style="list-style-type: none"> To provide a summary for each receptor by medium, exposure route, and exposure point of cancer risks and non-cancer hazards. 	<p><i>Table 9 presents cancer risk and non-cancer hazard information for all COPCs and media/exposure points quantitatively evaluated.</i></p>																												
<p>INFORMATION DOCUMENTED:</p> <ul style="list-style-type: none"> The cancer risk and non-cancer hazard to each receptor for each COPC by exposure route, and exposure point The total cancer risk and non-cancer hazard for each exposure pathway The total cancer risk and non-cancer hazard for each medium across all exposure routes The primary target organs for non-carcinogenic hazard effects. 																													
<p>TABLE NUMBERING AND SUMMARY BOX INSTRUCTIONS:</p> <ul style="list-style-type: none"> Complete one copy of Table 9 for each unique combination of the following three fields that will be quantitatively evaluated (Scenario Timeframe, Receptor Population, and Receptor Age). Enter each combination of these three fields in the Summary Box in the upper left corner of the table. Number each table uniquely beginning with 9.1 and ending with 9.n where “n” represents the total number of combinations of the three key fields. Different tables should be prepared to address RME and CT Risk and Hazard summaries. Tables 9.1. RME through 9.n. RME should be completed for RME Risk and Hazard summaries. Table 9.1.CT through 9.n.CT should be completed for CT Risk and Hazard Summaries. <p><i>For the example data provided, there should be six copies of Table 9 for the RME calculations, numbered 9.1.RME through 9.6.RME. Six corresponding tables should be prepared for CT calculations, numbered 9.1.CT through 9.6.CT.</i></p> <table style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="text-align: left;"><u>Table Number</u></th> <th style="text-align: left;"><u>Scenario Timeframe</u></th> <th style="text-align: left;"><u>Receptor Population</u></th> <th style="text-align: left;"><u>Receptor Age</u></th> </tr> </thead> <tbody> <tr> <td>9.1.RME</td> <td>Current</td> <td>Resident</td> <td>Adult</td> </tr> <tr> <td>9.2.RME</td> <td>Current</td> <td>Resident</td> <td>Child</td> </tr> <tr> <td>9.3.RME</td> <td>Current</td> <td>Fisher</td> <td>Adult</td> </tr> <tr> <td>9.4.RME</td> <td>Current</td> <td>Fisher</td> <td>Child</td> </tr> <tr> <td>9.5.RME</td> <td>Future</td> <td>Fisher</td> <td>Adult</td> </tr> <tr> <td>9.6.RME</td> <td>Future</td> <td>Fisher</td> <td>Child</td> </tr> </tbody> </table>	<u>Table Number</u>	<u>Scenario Timeframe</u>	<u>Receptor Population</u>	<u>Receptor Age</u>	9.1.RME	Current	Resident	Adult	9.2.RME	Current	Resident	Child	9.3.RME	Current	Fisher	Adult	9.4.RME	Current	Fisher	Child	9.5.RME	Future	Fisher	Adult	9.6.RME	Future	Fisher	Child	<p><i>It is possible that some tables may contain the same data associated with different descriptions in the Summary Box in the upper left corner.</i></p> <p><i>Separate tables are necessary to ensure transparency in data presentation and appropriate information transfer to CERCLIS 3 for each exposure pathway. Replication of information is readily accomplished using spreadsheet software.</i></p>
<u>Table Number</u>	<u>Scenario Timeframe</u>	<u>Receptor Population</u>	<u>Receptor Age</u>																										
9.1.RME	Current	Resident	Adult																										
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INSTRUCTIONS FOR TABLE 9

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs (continued)

GENERAL NOTES/INSTRUCTIONS FOR THIS TABLE:	
<ul style="list-style-type: none"> • Cancer risk and non-cancer hazard information for all COPCs and media/exposure points quantitatively evaluated is to be presented in Table 9. • All table entries are presented on Tables preceding Table 9. • Documentation of the non-cancer hazard values was presented on Table 7. • Documentation of the carcinogenic risk values was presented on Table 8. • Total cancer risks and non-cancer hazards associated with each receptor are to be presented for each exposure point, across all media and all exposure routes, and for each individual medium. 	
HOW TO COMPLETE/INTERPRET THE TABLE	
SUMMARY BOX IN UPPER LEFT CORNER	
Row 1 - Scenario Timeframe	
<p>Definition:</p> <ul style="list-style-type: none"> • The time period (current and/or future) being considered for the exposure pathway. 	
<p>Instructions:</p> <ul style="list-style-type: none"> • Choose from the picklist to the right. 	<p><i>Current</i> <i>Future</i> <i>Current/Future</i> <i>Not Documented</i></p>
Row 2 - Receptor Population	
<p>Definition:</p> <ul style="list-style-type: none"> • The exposed individual relative to the exposure pathway considered. 	<p><i>For example, a resident (receptor population) who drinks contaminated groundwater.</i></p>
<p>Instructions:</p> <ul style="list-style-type: none"> • Choose from the picklist to the right. 	<p><i>Resident</i> <i>Industrial Worker</i> <i>Commercial Worker</i> <i>Construction Worker</i> <i>Other Worker</i> <i>Golfer, Jogger, Fisher</i> <i>Hunter, Fisher/Hunter</i> <i>Swimmer</i> <i>Other Recreational Person</i> <i>Child at School/Daycare/</i> <i>Playground</i> <i>Trespasser/Visitor</i> <i>Farmer, Gardener</i> <i>Other</i></p>

INSTRUCTIONS FOR TABLE 9

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs (continued)

Row 3 - Receptor Age	
<p>Definition:</p> <ul style="list-style-type: none"> The description of the exposed individual, as defined by the Region or dictated by the site. 	<p><i>For example, an adult (receptor age) resident (receptor population) who drinks contaminated groundwater.</i></p>
<p>Instructions:</p> <ul style="list-style-type: none"> Choose from the picklist to the right. 	<p><i>Child Adult Adolescents (teens) Pre-Adolescents Not Documented Child/Adult Geriatric Sensitive Other Infant Toddler Pregnant</i></p>
BODY OF THE TABLE	
Column 1 - Medium	
<p>Definition:</p> <ul style="list-style-type: none"> The environmental substance (e.g., air, water, soil) which has been contaminated. 	
<p>Instructions:</p> <ul style="list-style-type: none"> Choose from the picklist to the right. 	<p><i>Groundwater Leachate Sediment Sludge Soil Surface Water Debris Other Liquid Waste Solid Waste Air Surface Soil Subsurface Soil</i></p>
Column 2 - Exposure Medium	
<p>Definition:</p> <ul style="list-style-type: none"> The contaminated environmental medium to which an individual is exposed. Includes the transfer of contaminants from one medium to another. <p><i>For example:</i></p> <ol style="list-style-type: none"> <i>Contaminants in Groundwater (the Medium) remain in Groundwater (the Exposure Medium) and are available for exposure to receptors.</i> <i>Contaminants in Groundwater (the Medium) may be transferred to Air (the Exposure Medium) and are available for exposure to receptors.</i> <i>Contaminants in Sediment (the Medium) may be transferred to Animal Tissue (the Exposure Medium) and are available for exposure to receptors.</i> 	

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SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs (continued)

<p>Instructions:</p> <ul style="list-style-type: none"> Choose from the picklist to the right. 	<p><i>Groundwater</i> <i>Leachate</i> <i>Sediment</i> <i>Sludge</i> <i>Soil</i> <i>Surface Water</i> <i>Debris</i> <i>Other</i> <i>Liquid Waste</i> <i>Solid Waste</i> <i>Air</i> <i>Plant Tissue</i> <i>Animal Tissue</i> <i>Spring Water</i> <i>Surface Soil</i> <i>Subsurface Soil</i> <i>Particulates</i> <i>Vapors</i></p>
Column 3 - Exposure Point	
<p>Definition:</p> <ul style="list-style-type: none"> An exact location of potential contact between a person and a chemical within an exposure medium. <p><i>For example:</i></p> <ol style="list-style-type: none"> <i>Contaminants are in Groundwater (the Medium and the Exposure Medium) and exposure to Aquifer 1 - Tap Water (the Exposure Point) is evaluated.</i> <i>Contaminants in Groundwater (the Medium) may be transferred to Air (the Exposure Medium) and exposure to Aquifer 1 - Water Vapors at Showerhead (the Exposure Point) is evaluated.</i> <i>Contaminants in Sediment (the Medium) may be transferred to Animal Tissue (the Exposure Medium) and Trout from Dean's Creek (the Exposure Point) is evaluated.</i> 	
<p>Instructions:</p> <ul style="list-style-type: none"> Provide the information as text in the Table (not to exceed 80 characters). 	<p><i>The text in the Table can not exceed 80 characters.</i></p>
Column 4 - Chemical	
<p>Definition:</p> <ul style="list-style-type: none"> The COPCs quantitatively considered in the risk characterization. The last entry in this column is the term "Total" which refers to a row of totals for the four columns. 	
<p>Instructions:</p> <ul style="list-style-type: none"> Enter the COPCs from previous tables. Enter the term "Total" at the end of the list of chemicals for each exposure point. 	

INSTRUCTIONS FOR TABLE 9

SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs (continued)

Columns 5, 6, and 7 - Carcinogenic Risk - Ingestion, Inhalation, Dermal	
<p>Definition:</p> <ul style="list-style-type: none"> The cancer risk value calculated by receptor for each COPC for each exposure route for each exposure point. 	<p><i>The value at the bottom of each column presents the cancer risk by exposure route for each exposure point.</i></p>
<p>Instructions:</p> <ul style="list-style-type: none"> Enter the cancer risk value calculated by receptor for each exposure route for each exposure point. Enter the cancer risk totals for each exposure route in the last row, corresponding to the term "Total" in Column 4. 	
Column 8 - Carcinogenic Risk - Exposure Routes Total	
<p>Definition:</p> <ul style="list-style-type: none"> The total cancer risk for each COPC across all exposure routes at each exposure point. 	
<p>Instructions:</p> <ul style="list-style-type: none"> Enter the sum of cancer risks across the three exposure routes for Columns 5, 6, and 7. Enter the sum of the cancer risks across exposure routes for each COPC. Enter the sum of the cancer risks in this column for each exposure point. Enter the total cancer risk across all media and all exposure routes. Enter the total cancer risk for each individual medium. 	
Column 9 - Chemical	
<p>Definition:</p> <ul style="list-style-type: none"> The COPCs quantitatively considered in the risk characterization. The last entry in this column is the term "Total" which refers to a row of Totals for Columns 11, 12, 13 and 14. 	
<p>Instructions:</p> <ul style="list-style-type: none"> Enter the COPCs from previous tables. Enter the term "Total" at the end of the list of chemicals for each exposure point. 	

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SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs (continued)

Column 10 - Non-Carcinogenic Hazard Quotient - Primary Target Organ	
<p>Definition:</p> <ul style="list-style-type: none"> The primary effect reported as a primary target organ effect in IRIS and HEAST. 	
<p>Instructions:</p> <ul style="list-style-type: none"> Enter the primary target organ effect as reported in IRIS and/or HEAST. 	<i>Refer to Regional guidance to determine if multiple effects should be provided.</i>
Columns 11, 12, and 13 - Non-Carcinogenic Hazard Quotient - Ingestion, Inhalation, Dermal	
<p>Definition:</p> <ul style="list-style-type: none"> The non-cancer hazard calculated by receptor for each COPC for each exposure route for each exposure point. 	<i>The value at the bottom of each column presents the non-cancer hazard by exposure route for each exposure point, for all effects considered together.</i>
<p>Instructions:</p> <ul style="list-style-type: none"> Enter the non-cancer hazard value calculated by receptor for each COPC for each exposure route for each exposure point. Enter the non-cancer hazard totals for each exposure route in last row, corresponding to the term "Total" in Column 9. 	<i>Refer to Regional guidance for summing hazard quotients.</i>
Column 14 - Non-Carcinogenic Hazard Quotient - Exposure Routes Total	
<p>Definition:</p> <ul style="list-style-type: none"> The total non-cancer hazard calculated for each COPC across all exposure routes at each exposure point. 	<i>The Totals in each column present the total non-cancer hazards across all exposure routes for each exposure point. The values at the bottom of this column present hazard quotients for target organs.</i>

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SUMMARY OF RECEPTOR RISKS AND HAZARDS FOR COPCs (continued)

<p>Instructions:</p> <ul style="list-style-type: none">• Enter the sum of non-cancer hazards across the three exposure routes in Columns 11, 12, and 13.• Enter the sum of the non-cancer hazards across exposure routes for each COPC and primary target organ.• Enter the sum of the non-cancer hazards in this column for each exposure point.• Enter the total hazard index across all media and all exposure routes.• Enter the total hazard index for primary target organs.• Sum the hazard quotient target organ effects by target organ and enter into the appropriate boxes.	<p><i>Refer to Regional guidance for specific instructions in summing hazard quotients.</i></p>
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