ARF-022621

Department of Energy
Savannah River Operations Office
P.O. Box A
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MAR 17 2020

Ms. Susan B. Fulmer, P. G., Manager
Federal Remediation Section
Division of Site Assessment, Remediation and Revitalization
Bureau of Land and Waste Management
South Carolina Department of Health and Environmental Control
2600 Bull Street
Columbia, South Carolina 29201

Mr. Jon Richards
Acting Savannah River Site Remedial Project Manager
Superfund Division
U. S. Environmental Protection Agency, Region 4
61 Forsyth Street, SW
Atlanta, Georgia 30303

Dear Ms. Fulmer and Mr. Richards:

SUBJECT: Savannah River Site (SRS) Responses to Regulatory Comments on Performance Evaluation Report for the A-Area Miscellaneous Rubble Pile (731-6A) Operable Unit – April 2018 through April 2019 (U) (SRNS-RP-2019-00331, Revision 0, July 2019), SRS Responses to Regulatory Comments on Contaminant Migration Model for the A-Area Miscellaneous Rubble Pile (731-6A) Operable Unit (U) (SRNS-RP-2018-01190, Revision 0, January 2019) and Contaminant Migration Model for the A-Area Miscellaneous Rubble Pile (731-6A) Operable Unit (U) (SRNS-RP-2018-01190, Revision 1, March 2020) (Clean Copy) SEMS Number: 30

In accordance with the terms of the Federal Facility Agreement, the U. S. Department of Energy (DOE) is submitting the subject comment responses for your review. For the Performance Evaluation Report (PER), the South Carolina Department of Health and Environmental Control's (SCDHEC) approval and the U. S. Environmental Protection Agency's (EPA) comments on the Revision 0 document were received on November 14, 2019 and December 19, 2019, respectively. This report will not be revised; however, all comment responses will be included and/or addressed in the next report, as applicable. In addition, the SCDHEC and EPA provided comments on the Contaminant Migration Model on November 14, 2019 and December 19, 2019, respectively. The SRS responses to regulatory comments on the Contaminant Migration Model along with Revision 1 of the document is provided for your review. Please review the enclosures and provide your approval thirty (30) days from receipt. The time and effort that the SCDHEC and the EPA have given on the subject operable unit are greatly appreciated.

Questions from you or your staff concerning this matter may be directed to me at (803) 952-8365, or the DOE Federal Project Director, Ms. Karen Adams, at (803) 952-7871.

Sincerely,

Brian T. Hennessey
SRS Remedial Project Manager
Infrastructure and Area Completion Division

IACD-20-134

Enclosures:
1. SRS Responses to U.S. Environmental Protection Agency Comments on the Performance Evaluation Report for the A-Area Miscellaneous Rubble Pile (731-6A) Operable Unit – April 2018 through April 2019 (U) (SRNS-RP-2019-00331, Revision 0, July 2019) SEMS Number: 30
2. SRS Responses to U.S. Environmental Protection Agency Comments on the Contaminant Migration Model for the A-Area Miscellaneous Rubble Pile (731-6A) Operable Unit (U) (SRNS-RP-2018-01190, Revision 0, January 2019) SEMS Number: 30
3. SRS Responses to SCDHEC Comments on the Contaminant Migration Model for the A-Area Miscellaneous Rubble Pile (731-6A) Operable Unit (U) (SRNS-RP-2018-01190, Revision 0, January 2019) SEMS Number: 30
4. Contaminant Migration Model for the A-Area Miscellaneous Rubble Pile (731-6A) Operable Unit (U) (SRNS-RP-2018-01190, Revision 1, March 2020) SEMS Number: 30 (Clean Copy)

cc w/o encl:
D. Scaturo, SCDHEC-Columbia
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R. H. Pope, EPA-Atlanta

cc w/encl:
J. Tufts, EPA-Atlanta
M. McRae, TechLaw, Inc.

I. GENERAL COMMENT

1. It is noted the Performance Evaluation Report (PER) for the A-Area Miscellaneous Rubble Pile (731-6A) Operable Unit, April 2018 through April 2019 (U), SEMS Number: 30, SRNS-RP-2019-00331, Revision 0, July 2019 (2019 PER) recommends that the remedial goals (RGs) for trichloroethylene (TCE) and tetrachloroethylene (PCE) be revised to reflect current conditions and recent vadose zone fate and transport modeling. Based on the results of the 2018 characterization data, the updated fate and transport model indicated that residual TCE and PCE contamination beneath the Trenches Area soil cover no longer pose a contaminant migration concern. As such, the 2019 PER recommends the respective TCE and PCE remedial goals (RGs) be revised based on the updated model. However, EPA has concerns with some of the model input parameter assumptions and are unsure if model results are representative of site geologic/hydrogeologic conditions (see EPA comments on the Contaminant Migration Model for the A-Area Miscellaneous Rubble Pile (731-6A) Operable Unit (U), SEMS Number: 30, SRNS-RP-2018-01190, Revision 0, January 2019). Once these issues are addressed, we can discuss path forward for the remedial action.

   Response: Agree. SRS agrees that the path forward for the remedial action can be discussed following Core Team agreement on the Contaminant Migration Model. SRS recommends that a Core Team discussion be scheduled in the near future to assess the model input parameters and assumptions. To aid in this discussion, an additional contaminant migration evaluation was performed and documented in the *Evaluation of Contaminant Migration and Remedial Goals for the A-Area Miscellaneous Rubble Pile (731-6A) Operable Unit Trenches Area (U),* SRNS-RP-2019-00621, Revision 0, September 2019. The contaminant migration report is included with this submittal. A schedule of possible discussion dates will be proposed in a follow-up email.

   No change to the current document is proposed.

   Responsible Party: John Bradley, 803-952-2301, john02.bradley@srs.gov

II. SPECIFIC COMMENTS

1. **<u>Section 2.0, Remedial Actions, Page 3 of 10</u>**

   The text in the last paragraph in Section 2.0 indicates the annual inspection of the A-Area Miscellaneous Rubble Pile (ARP) Operable Unit (OU) conducted on January 16, 2019 identified several issues and/or concerns that required corrective action to ensure the remedial action/institutional controls (ICs) maintain effectiveness and long-term protectiveness. However, only a summary of the issues/concerns and the resulting corrective actions were discussed in the 2019 PER and no further documentation (i.e., Field Inspection Checklist, photographs) were presented. For example, the text indicates pesticides were applied to active ant mounds observed on the Trenches Area soil cover. Additionally, the text indicates standing dead pine trees and trail vegetation were removed and one waste sign damaged by a fallen tree was replaced. However, no further information was presented in the 2019 PER documenting these site conditions and corrective actions that were taken. Revise the 2019 PER to address this issue to ensure the annual inspection evaluations are appropriately reported and documented.

Response: Clarification. The 2019 PER summary of the Field Inspection (Section 2.0) performed on January 16, 2019 adequately documents the site conditions and includes all corrective actions that were taken and the dates each action occurred. As per standard protocol, the issues and actions taken are summarized in the PER and are detailed in the 5 Year ROD review documentation.

No change to the current document is proposed.

Responsible Party: John Bradley, 803-952-2301, john02.bradley@srs.gov

2. **<u>Section 3.0, Conclusions/Recommendations, Pages 7and 8 of 10</u>**

The text indicates the fate and transport model for the ARP OU updated in 2019 indicates that TCE and PCE no longer pose a threat to human health and the environment based on changes to three primary factors that led to this result. It is noted the third primary factor that was changed in the model considers a lower water table elevation based on more recent water table data. As such, the lower water table elevation creates a greater vadose zone transport distance resulting in longer travel times and increased attenuation of contaminants. However, the 2019 PER does not present the current groundwater table elevation or state what increase in water table elevation would need to occur to invalidate the results of the fate and transport model and updated remedial goals for TCE and PCE. Revise the 2019 PER to address this issue to ensure the effectiveness and long-term protectiveness of the remedial action.

Response: Clarification. The 2019 PER does not include the modeling details that are presented in the Contaminant Migration Model. As discussed in the response to General Comment #1, an additional contaminant migration evaluation for the A-Area Miscellaneous Rubble Pile was performed and is included with this submittal to support further Core Team discussion.

No change to the current document is proposed.

Responsible Party: John Bradley, 803-952-2301, john02.bradley@srs.gov

I. GENERAL COMMENT

The predictive modeling results of the Vadose Zone Contaminant Migration Model Multi Layered (VZCOMML) indicate tetrachloroethylene (PCE) and trichloroethylene (TCE) would be below Maximum Contaminant Levels (MCLs) at the downgradient receptor (i.e., monitoring well located at the edge of the waste unit). However, the conclusion that the A-Area Rubble Pile (ARP) Operable Unit (OU) Trenches Area no longer pose a threat to human health and the environment is uncertain based on the following concerns:

- The VZCOMML model incorporates soil properties based on the United States Department of Agriculture (USDA) soil classification system and not according to the Unified Soil Classification System (USCS). It is noted the USDA soil classification system is based generally on particle size whereas the USCS is based on additional soil properties (i.e., plasticity and compressibility). As such, any predictive modeling based on particle size alone could produce misleading results as physical properties of the finest soil fractions depend on many factors which potentially impacts contaminant fate and transport other than particle size (e.g., plasticity). Therefore, it is not certain whether similar results would be produced if the VZCOMML incorporated the USCS soil properties rather than the USDA soil properties.

Response: Clarification. The USDA Soil Classification system is employed in VZCOMML in order to estimate water velocity through the vadose zone. Field Geologist determined percentages of sand, silt, and clay, are used in conjunction with the USDA soil classification triangle to establish the soil texture (as was previously performed in SESOIL). The selection of a soil class in the model (e.g., USDA sandy loam) defines hydraulic conductivity, porosity, and moisture contents of each soil layer. The value of these parameters are from 1) US Environmental Protection Agency, 1996. Soil Screening Guidance: Technical Background Document, EPA/640/R-95/128 (Clapp and Hornberger) and 2.) US Nuclear Regulatory Commission, Uncertainty Analyses of Infiltration and Subsurface Flow and Transport for SDMP Sites, NUREG/CR-6565, 1997. The use of the USDA soil classification system is the preferred method to establish soil texture in estimating infiltration rate as specified by USEPA Soil Screening Guidance: User's Guide. Note that depending on the Field Geologist, some cores (not MSS12B) are classified through USCS and would be converted to USDA through the geologist notes and the classification triangle.

The additional soil properties (i.e., plasticity and compressibility) are captured within the hydraulic conductivity and porosity parameters in regard to contaminant transport. Therefore, the model is not based on particle size alone. Because unsaturated (and

saturated) flow in the subsurface is largely dependent on hydraulic conductivity and porosity, further lab analysis to determine site specific plasticity and compressibility parameters would have minimal impact on the model results.

No change to the document is proposed.

- It is not clearly understood what soil classification system and description methods were used in the field to log the soil boring MSS12SB. Additionally, it is unclear what soil classification system was utilized for or any of the previous soil borings installed at the ARP OU or for the previous vadose zone Seasonal Soil Compartment Model (SESOIL, WSRC, 2000). Furthermore, it is unclear whether the USDA soil classification and description methods incorporated in the VZCOMML were determined in the field or in the laboratory. Since soil properties are based on a particular soil classification system, failure to consistently follow standard soil classification and description methods or indiscriminately using different classification systems could result in their misuse and/or poor quality data. For example, there is a significant difference between a USCS silty clay and a USDA silty clay. Laboratory soil testing/classification results should be used for modeling purposes.

Response: Clarification. Please refer to response to General Comment 1. No change to the document is proposed.

- The ARP OU hydrogeologic conceptual model (HCM) indicates once in the vadose zone, contaminants are vertically directed downwards by gravity through the vadose zone with the attenuation of the leachate controlled by properties of each of the contaminants and soils. The updated HCM is based on lithologic information obtained only from soil boring MSS12SB and resulted in five modeled layers instead of two. As such, the VZCOMML was generated based on the updated HCM using five modeled layers to simulate the vertical migration of contaminants through the vadose zone. However, it is noted MSS12SB is located approximately 80-ft and 100-ft west of the unit boundary and Trenches Area boundary, respectively. Therefore, it cannot be assumed the soil type(s) at one site is/are comparable to another site based on the origin of geologic material (or proximity). Currently, is it uncertain whether the five modeled layers based on the lithologic descriptions at MSS12SB only, are representative of lithologic soil conditions as previously described for areas directly beneath the Trenches Area.

Response: Clarification. Core from MSS12SB was used to determine the soil layering beneath the unit since it was the closest available boring that went to the water table. Cores taken from similar borings nearby, MSS11SB (270 ft west of the unit) and MSS13SB (190 ft southwest of the unit) have similar layering as observed at MSS12SB. Well cluster MSB035, 700-ft east of the unit, has a gamma log consistent with the layering seen in

MSS12SB. As such, SRS believes the use of MSS12SB for soil layering beneath the unit is valid.

No change to the document is proposed.

- It is noted the third primary factor that was changed in the model considers a lower water table elevation based on more recent water table data. The text indicates the lower water table elevation creates a greater vadose zone transport distance resulting in longer travel times and increased attenuation of contaminants. Currently, no historical or recent groundwater table elevation data is presented. As such, it is not known what increase in water table elevation would need to occur to invalidate the results of the current fate and transport model. Since the mixing zone thickness would likely change as the water table elevation changes, it is not clear if the updated remedial goals for TCE and PCE would remain effective and protective in the long-term.

Response: Clarification. The discussion of water elevation as a primary factor was to establish the difference between the 2000 and 2019 models. This change has a relatively minor effect on the results in comparison to the other two factors considered in the updated 2019 model (i.e., more detailed representation of localized stratigraphy and need to evaluate only the Trenches Area). Further, the mixing zone, a noted sensitive parameter, was defined from the water table to the local green clay confining unit (16.5 ft) in the Upper Lost Lake aquifer zone. The green clay is a poor confining unit and allows some vertical transport between the M-Area aquifer and the Lost Lake aquifer, which is about 50 feet thick. Therefore, the use of the green clay as a confining unit and, as a result, the 16.5-foot thickness of the mixing zone is conservative to account for any fluctuations in water table elevations. This conservatism ensures the remedial goals would remain effective and protective in the long term in respect to mixing zone thickness.

No change to the document is proposed.

Responsible Party: William Jolin, 803-952-6122, william.jolin@srs.gov

II. SPECIFIC COMMENTS

1. **Section 1.0 Introduction, Page 2 of 42**

The text states the domed 0.3-meter (1-foot) soil cover also limits infiltration, reducing the source mass flux from the ash zone to the unsaturated zone. However, according to Figure 1-3. ARP OU SVE and Vadose Zone Monitoring Well Locations, Page 7 of 42, not only is the extent/location of the soil cover shown but also the location/extent of a soil cap as defined by the black dotted line drawn around the Trenches Areas. However, the existence of a soil cap installed over the trenches area is not discussed in the text. Revise the text as appropriate to address this issue.

Response: Agree. A small vegetative cap was installed to improve performance of the shallow SVE wells in the vadose zone. This cap is not included in the model as its only purpose is SVE improvement. For clarity, Section 1.0 Introduction will be revised as follows:

"Source zone mass removal continues via extraction by the passive SVE system. In addition, the domed 0.3-m (1-ft) soil cover limits infiltration, reducing the source mass flux from the ash zone to the unsaturated zone. A small vegetative cap was installed to improve performance of the shallow SVE wells in the vadose zone. This cap is not included in the model as its only purpose is SVE improvement with limited impact to overall infiltration into the unit compared to background conditions."

Responsible Party: William Jolin, 803-952-6122, william.jolin@srs.gov

2. **Figure 1-2 ARP OU (731-6A) Subunits, Page 6 of 42**

The symbols designating the locations of RWM-6 and MS S-12SB in the figure have not been defined in the figure legend. The text indicates RWM-6 is a recovery well and MS S-12SB is a soil boring. Revise the figure legend to address this issue to ensure the purpose of RWM-6 and MS S-12SB is clearly defined and understood.

Response: Agree. The figure legend will be revised to identify RWM-6 as a recovery well and MS S-12SB as a soil boring. The corrected Figure 1-2 will be included in the final report.

Responsible Party: William Jolin, 803-952-6122, william.jolin@srs.gov

3. **Section 2.2.1 Infiltration and Surface Runoff, Page 11 of 42**

The text states the average annual infiltration is 43 centimeters (cm) or 17 inches (in), which is calculated by using the measured annual rainfall of 122 cm or 48 in (measured in 1991 at the Savannah River Technology Center gauging station in the A/M Area). It is not clearly understood why the 1991 annual rainfall value of 122 cm or 48 inches was utilized to calculate the average annual infiltration rate rather than more recent rainfall data. Revise the Model Report to address this issue to ensure the most appropriate annual rainfall values are utilized.

Response: Clarification. The 1991 average infiltration and rainfall was used in the 2019 model to be consistent with the 2000 model. The average annual rainfall over the last 20 years is 46.58 in, lower than the value used in the model. The use of 48 inches provides consistency between the models with a negligible effect on results.

Section 2.2.1 will be revised as follows:

"The average annual rainfall for the area over the last 20 years is 118.3 cm (46.58 in, SRNL, 2017), however, a value of 122 cm (48 in, measured in 1991 at the Savannah River Technology Center gauging station in the A/M Area) is used to be consistent with the previous SESOIL model. Therefore, the average annual infiltration is 43 cm (17 in), which is calculated by taking an annual rainfall of 122 cm (48 in) less 78 cm (31 in) of evapotranspiration (based on discussion below)."

Responsible Party: William Jolin, 803-952-6122, william.jolin@srs.gov

4. **Section 2.2.3 Subsurface Flow System, Page 12 of 42**

The text indicates the ARP is within the zone of capture of recovery well RWM-6, located approximately 15 meters (50 feet) west of ARP and adjacent to the A-014 Outfall. The text also indicates groundwater flow in the M-Area aquifer zone beneath the ARP is to the west toward the recovery well when it is actively pumping. Based on the text, the M-Area groundwater flow direction is being influenced by the actively pumping recovery well. Currently, the Model Report does not present a potentiometric surface map with flow directions prepared for the M-Area aquifer water table. Additionally, it is not known whether the pumping recovery well is also impacting and potentially facilitating contaminant migration from the vadose zone to the water table mixing zone and if this issue was considered in the updated model. Revise the Model Report to address this issue.

Response: Clarification. Groundwater has little effect on vadose zone transport except in defining the mixing zone beneath the unit. Groundwater beneath the unit is only slightly impacted by the remediation system. Therefore, hydraulic gradient was set to pre-system installation values. Use of pre-recovery conditions provides a conservative estimate for the model as hydraulic gradient is smaller resulting in less dilution and

higher groundwater concentrations. As such, Section 2.2.3 was revised as follows to minimize confusion:

"Groundwater at the A/M Area, which includes the ARP, is being addressed under a corrective action program. This remediation program was instituted in 1985 and consisted of groundwater extraction and treatment systems (air strippers) supplied by networks of recovery wells. Groundwater beneath the unit is only slightly impacted by the remediation system in place so the hydraulic gradient was set to pre-system installation values. Use of pre-recovery conditions provides a conservative estimate for the model as hydraulic gradient is smaller resulting in less dilution and higher groundwater concentrations. ~~The ARP is within the zone of capture of recovery well RWM-6, located approximately 15 m (50 ft) west of ARP and adjacent to the A-014 Outfall. As a result, groundwater flow in the M Area aquifer zone beneath the ARP is to the west toward the recovery well when it is actively pumping. Prior to startup of the recovery system, groundwater flow direction was west- southwest and the water table was located at an approximate elevation of 75 m (245 ft) (Marine and Bledsoe 1984).~~"

Responsible Party: William Jolin, 803-952-6122, william.jolin@srs.gov

SRS Responses to
SOUTH CAROLINA DEPARTMENT OF HEALTH AND ENVIRONMENTAL CONTROL
Comments on
Contaminant Migration Model for the A-Area Miscellaneous Rubble Pile (731-6A) Operable Unit (U)
SEMS Number: 30, SRNS-RP-2018-01190, Revision 0, January 2019
Savannah River Site, Aiken, South Carolina

Comments Received: December 19, 2019

I. GENERAL COMMENT

1. The document provides much detail about the various factors and input variables that were used in the different VZCOMML contaminant migration models, but neglects to provide basic information such as VOC source soil concentrations and predicted groundwater concentrations. Sections 3.3.1 and 3.3.2 discuss results of Tier I and Tier II screening results, indicating several COPCs identified for the Tier I screening and PCE and TCE as exceeding Tier II MLSSL1/2 levels; but without source soil and groundwater concentrations provided in Figures 3-3 and 3-4, these results and conclusions are not evident. These figures should be revised to include all pertinent information that may clearly show these results and conclusions.

   Response: Clarification. An incorrect version of Figure 3-3 Results of Tier I Screening Using VZCOMML Model was included in the report. The corrected Figure 3-3 has soil concentrations for all COPCs identified and correct concentrations for TCE and PCE (4.39 mg/kg and 4.22 mg/kg, respectively). Groundwater concentrations are not included in Figure 3-4 since the values are below 0.00001 μg/L as indicated in the footnotes for the figure.

   The correct Figure 3-3 is attached below and will be included in the revised document.

   Responsible Party: William Jolin, 803-952-6122, william.jolin@srs.gov

II. SPECIFIC COMMENT

1. **<u>Figure 3-3 Site-Specific User Input, and Model Calculated Data, page 25:</u>**

   The source soil concentrations listed for PCE and TCE in Table 3-3 are 4.39 mg/kg and 4.22 mg/kg, respectively; Figure 3-3 lists source soil concentrations of 4,390 mg/kg and 4,170 mg/kg. Please correct these discrepancies and ensure that the correct source soil concentrations were used in all evaluations.

   Response: Agree. See response to General Comment 1.

   Responsible Party: William Jolin, 803-952-6122, william.jolin@srs.gov

ANALYTE	SOURCE ZONE CONCENTRATION Ct	Tier I SOURCE SPECIFIC SSL	Tier I MASS LIMIT SSL	ANALYTES >=SSL	SOIL SATURATION LIMIT (Csat)[22]	ANALYTES >=Csat
	(mg/kg)				(mg/L)	
1,1,1-Trichloroethane	2.63E-02	7.03E-01	8.46E-01		7.44E+02	
1,1,2,2-Tetrachloroethane		1.42E-04	2.83E-04		1.01E+03	
1,1,2-Trichoro-1,2,2-trifluoroethane (Freon-113)		5.53E+02	2.49E+02		2.53E+02	
1,1,2-Trichloroethane		1.04E-02	2.11E-02		1.46E+03	
1,1-Dichloroethane		4.42E-03	1.01E-02		1.48E+03	
1,1-Dichloroethylene	1.81E-03	1.81E-02	2.96E-02		9.26E+02	
1,2-Dichloroethane		7.29E-03	2.11E-02		1.98E+03	
1,2,3-Trichlorobenzene		NA	NA		NA	NA
1,2-Dibromomethane		6.37E-05	2.11E-04		1.73E+03	
1,2-Dibromo-3-chloropropane		8.29E-04	8.46E-04		7.91E+02	
1,2-Dichloroethylene mixed isomers		6.80E-01	1.40E+00		2.07E+03	
1,2-Dichloropropane		8.29E-03	2.11E-02		7.39E+02	
1,4-Dioxane		5.22E-03	2.58E-02		5.87E+04	
2-Hexanone (Methyl butyl ketone)		NA	NA		6.25E+03	NA
Acetone	3.26E-01	1.84E+01	9.30E+01		1.33E+05	
Benzene	7.43E-03	9.89E-03	2.11E-02		5.51E+02	
Bromochloromethane		NA	NA		3.47E+03	NA
Bromodichloromethane		1.94E-03	4.65E-03		1.89E+03	
Bromoform		2.48E-02	3.59E-02		1.44E+03	
Bromomethane (Methyl bromide)	5.39E-02	9.70E-03	3.68E-02	Bromomethane (Methyl bromide)	2.70E+03	
Carbon disulfide	2.38E-02	2.51E+00	4.23E+00		4.76E+02	
Carbon tetrachloride		2.08E-02	2.11E-02		5.25E+02	
Chlorobenzene	1.22E-02	4.64E-01	4.23E-01		3.49E+02	
Chloroethane		5.07E-03	1.95E-02		1.01E+03	
Chloroethene (Vinyl chloride)		3.32E-03	8.46E-03		7.30E+02	
Chloroform	5.46E-03	3.37E-04	8.03E-04	Chloroform	2.23E+03	
Chloromethane (Methyl chloride)	3.88E-02	2.08E-03	7.61E-03	Chloromethane (Methyl chloride)	1.19E+03	
cis-1,2-Dichloroethene		1.21E-01	2.96E-01		9.61E+02	
cis-1,3-Dichloropropene		7.42E-04	1.82E-03		7.69E+02	
Cyclohexane		1.83E+02	5.50E+01		1.23E+02	
Dibromochloromethane	5.96E-03	2.17E-03	3.38E-03	Dibromochloromethane	1.96E+03	
Dichloromethane (Methylene chloride)	7.33E-03	5.12E-03	2.11E-02		2.12E+03	
Dichlorodifluoromethane		4.26E+00	1.65E+00		4.86E+02	
Ethylbenzene		3.09E+00	2.96E+00		1.19E+02	
Isopropylbenzene (Cumene)		2.77E+01	2.88E+00		3.95E+02	
Methyl Acetate		3.09E+01	1.56E+02		3.32E+04	
Methyl ethyl ketone (2-Butanone)		6.20E+00	3.00E+01		3.73E+04	
Methyl isobutyl ketone		2.23E+00	8.46E+00		3.38E+03	
Methyl tert-butyly ether (MTBE)		1.22E-02	5.07E-02		8.27E+03	
Methylcyclohexane		6.55E+03	2.20E+01		2.80E+03	
Styrene		1.61E+00	4.23E-01		7.95E+02	
Tetrachloroethylene	4.39E+00	1.94E-02	2.11E-02	Tetrachloroethylene	1.24E+02	
Toluene	1.00E-02	3.32E+00	4.23E+00		2.78E+02	
trans-1,2-Dichloroethene		1.68E-01	4.23E-01		1.69E+03	
trans-1,3-Dichloropropene		7.03E-04	1.82E-03		7.28E+02	
Trichloroethylene	4.22E+00	1.92E-02	2.11E-02	Trichloroethylene	6.74E+02	
Trichlorofluromethane		6.53E+00	5.50E+00		8.79E+02	
Vinyl acetate		4.49E-01	1.73E+00		3.48E+03	
m-Xylene		5.98E+00	5.92E+00		1.09E+02	
o-Xylene		6.95E+00	5.92E+00		1.41E+02	
p-Xylene		9.30E+00	6.34E+00		1.83E+02	
Xylenes	7.82E-03	4.91E+01	4.23E+01		1.26E+02	

Figure 3-3. Results of Tier I Screening Using VZCOMML Model