

**Draft Phase I Remedial Investigation (RI) for the Ramsdell Quarry Landfill (RQL) at the  
Ravenna Army Ammunition Plant, Ravenna, Ohio  
Comment Response Table  
SEPTEMBER 20, 2005**

CMT #	OLD or NEW and PAGE #/ LINE #	COMMENT	RECOMMENDATION	RESPONSE
<b>OHIO EPA REVIEWERS: Todd R. Fisher, NEDO DERR and LAURIE MOORE, OFFO SWDO</b>				
1	New - general	<p>Only the redline/strikeout version of the report was reviewed (except for several revised charts and figures that were presented in the "clean" draft version). The final report will be compared to the redline/strikeout version.</p> <p><b>Any page references in this document are to the redline/strikeout version.</b></p>	<p>FYI only. No action needed. Consider not sending a "clean version" of the draft, but only a redline/strikeout version that contains revised tables (where columns are not cut-off) and figures also.</p>	<p>Clarification. The redline/strikeout was provided to facilitate review of modified items. The clean version is provided for public consumption as well as to facilitate a change page submittal to subsequently finalize the document assuming minimal comments on the draft.</p> <p>An attempt will be made to streamline the redline-markup process. It is difficult to accept track changes for only part of a document (i.e., tables) while leaving the remainder of the document in track change format. As the reviewer notes, track changes of any magnitude within a table render the formatting and readability of most tables useless.</p>
2	New - general	<p>It was observed that there were text changes in the revised document that were not requested by previous reviewer(s), or which did not result from the RTC meeting. For example, (definitely not all inclusive), one area of text on page 1-6, lines 4-12 that were deleted.)</p>	<p>If changes are made to the document that can not be attributed to a particular reviewer or the RTC meeting, it is requested that an additional form be submitted with the revised document which indicates the change, change location, the rationale for why it was changed, the name of the person initiating the change and on what basis was the change made.</p>	<p>Clarification. In most cases, a revision was made to all documents if a comment was made on a similar issue in one or more documents. This was especially true in attempting to update the introductory material (please also see response to Ohio EPA comment #5). In addition, minor editorial changes were made at the discretion of the technical editor.</p>
3	New-general	<p>Issue = consistency/terminology change per conference call on Aug 3, 2005. Please ensure that the term "multi-increment" is used instead of the term "multi-incremental" throughout the report. An example of where this change is needed is page 3-6, line 6.</p>	<p>Please revise all sections of the text accordingly.</p>	<p>Agree. Text will be globally searched and revised from "multi-incremental" to "multi-increment."</p>

**Draft Phase I Remedial Investigation (RI) for the Ramsdell Quarry Landfill (RQL) at the  
Ravenna Army Ammunition Plant, Ravenna, Ohio  
Comment Response Table  
SEPTEMBER 20, 2005**

CMT #	OLD or NEW and PAGE #/ LINE #	COMMENT	RECOMMENDATION	RESPONSE
4	New-general	Issue = CERCLA vs. RCRA terminology. Per conference call on Aug 3, 2005 and Aug 9, 2005, please use the term Preliminary PRGs when referring to the proposed chemical specific clean up levels for COCs identified in this risk assessment. The term "Remedial Action Objectives (RAO's)" should be used instead of "Remedial Goal Options (RGO's)" when discussing the written remediation objectives.	Text changes are needed in Section 6.7. Please revise other sections, where needed.	Acknowledged. Per the 01 Sept. 2005 RQL/CBP Draft RI Report CRT teleconference, RGO terminology will remain in RI Reports consistent with previous versions and other published documents.  SAIC will strictly adhere to utilization of CERCLA terminology in the FS with transitions clearly explained.
5	New -Section 1.2 General Facility Description Page 1-5	Issue = Consistency. As a result of the discussion on the August 3, 2005 conference call regarding the "Proposed General Facility Description" language (see email from Martha dated 08/03/2005 10:18am), this section may need to be replaced with standard language that has yet to be developed and circulated by SAIC to the Ravenna team for consensus. After the team reaches consensus on this issue, this section should be revised to reflect the agreed upon language.	Please revise the text accordingly.	Agree. Please see revised text attached to this CRT (Ohio EPA Comment #5). Section 1.2.1 has been updated with revised text.

**Draft Phase I Remedial Investigation (RI) for the Ramsdell Quarry Landfill (RQL) at the  
Ravenna Army Ammunition Plant, Ravenna, Ohio  
Comment Response Table  
SEPTEMBER 20, 2005**

CMT #	OLD or NEW and PAGE #/ LINE #	COMMENT	RECOMMENDATION	RESPONSE
6	New, Table 3-1, page 3-4	Issue = Consistency. Revise text in table, first column to "biased" soil samples per CRT #13.	Please revise the text accordingly.	<p>Clarification. The original comment #13 was specific to Section 3.1.2.1 and requested clarification since the heading was titled discrete sampling but the text discussed both discrete and composite sampling (i.e., composite samples for explosives intermixed with the discussion of discrete sampling for other analytes).</p> <p>During 01 Sept. 2005 RQL/CBP Draft RI Report CRT teleconference it was agreed that Section 3.1.2.1 would be further revised for clarity, and that the term discrete would be retained throughout the text. Updated Section 3.1.2.1 text is attached to this CRT – please see reference to Ohio EPA Comment #6.</p> <p>Section 3.1.2.1 has been updated with revised text. In addition, per subsequent input from the Army, the following text has been inserted in Section 1.3.4 (surface soil bullet):</p> <p>“In subsequent investigations, the emphasis may be shifted to the population mean achieved through multi-increment sampling, as the contaminant population mean transfers to reasonable maximum exposure for contaminant risk characterization.”</p>
7	New, Section 6.2, Data Evaluation	Please include a table that lists the sample ID and corresponding depth for each exposure medium, similar to tables 6-1 to 6-6 in the Central Burn Pits RI Report. This will help clarify what analytical results comprise the human health risk assessment database for each receptor being evaluated.	Please revise the text accordingly.	<p>Agree. Four new tables (6-1 through 6-4) have been incorporated into the text. These tables are attached. Please see reference to Ohio EPA Comment #7.</p> <p>All subsequent table numbers and table callouts will be revised accordingly in Chapter 6.</p>

**Draft Phase I Remedial Investigation (RI) for the Ramsdell Quarry Landfill (RQL) at the  
Ravenna Army Ammunition Plant, Ravenna, Ohio  
Comment Response Table  
SEPTEMBER 20, 2005**

CMT #	OLD or NEW and PAGE #/ LINE #	COMMENT	RECOMMENDATION	RESPONSE
8	New, Section 6.2, page 6-1, lines 30-32	Issue = language/consistency. Please change text from “discrete” to “biased” and “multi-incremental” to “multi-increment”.	Please revise the text accordingly.	<p>Clarification. Please see response to Ohio EPA Comment #6. The term discrete has been retained throughout the text to avoid confusion.</p> <p>Agree. Text will be globally searched and revised from “multi-incremental” to “multi-increment.”</p>
9	New - Section 6.3.2, Potentially Exposed Popul., Exposure Media, and Exposure Pathways	Issue = Inclusion of the Juvenile Trespasser. Ohio EPA has not received an addendum to the Facility Wide Risk Assessment Manual regarding the development of exposure assumptions for the trespasser receptor as requested per email sent on June 1, 2005 to USACE (Dave Brancato) regarding the Development of the Trespasser Receptor for Ravenna.	Therefore, this receptor and all references to this receptor should be removed from the risk assessment evaluation until an addendum is provided to Ohio EPA for review and team consensus is reached on the specifics of this evaluation.	Per 01 Sept. 2005 RQL/CBP Draft RI Report CRT teleconference, the trespasser scenario will be removed from the Draft RI Report and will be included in the FS as an appendix. Ohio EPA will raise the topic to dispute for resolution starting with the Tiger Team.

**Draft Phase I Remedial Investigation (RI) for the Ramsdell Quarry Landfill (RQL) at the  
Ravenna Army Ammunition Plant, Ravenna, Ohio  
Comment Response Table  
SEPTEMBER 20, 2005**

CMT #	OLD or NEW and PAGE #/ LINE #	COMMENT	RECOMMENDATION	RESPONSE
10	New - Section 7.3.1.5, and Table 7-2	Several species are no longer on the State Endangered Species List. These include, but are not limited to: 1) Common barn owl; 2.) Little Blue Heron, 3.) Canada warbler, 4) Northern river otter, etc.)	Please confirm with Ohio Department of Natural Resources, Division of Wildlife and Tim Morgan (RTLS) which species are on the State Endangered List, State Potential Threatened List, Rare Plant List, and Species of Special Concern, etc. and update the text and revise Table 7-2 accordingly.	Agree. The list of rare species list has been upgraded. The latest list from Tim Morgan (RTLS) is dated May 9, 2005 and, in turn, is based on the latest information from the Ohio Department of Natural Resources, Division of Wildlife. Not only does the list contain slightly different categories, but also slightly different species and species in different categories from previously published lists. The list is a living list and changes with new information. For example, the May 9, 2005 list recognizes the following categories: state endangered species, state threatened species, state potentially threatened plants, state species of concern, and state special interest species. Further, the Common Barn Owl (a species mentioned in the comment) has been moved from being a state endangered species to a different category of state threatened species. And the Little Blue Heron has been moved from a state endangered species to a state special interest species. These and other species have changed categories and yet others have been added or deleted. There are a number of changes and thus, the text in Section 7.3.1.5 has been adjusted to conform with the May 9, 2005 list. Please see text attached to this CRT...see reference to Ohio EPA Comment #10. Section 7.3.1.5 has been updated with revised text. Please note that instead of adding Table 7-2, a reference to Table 2-1 was cited in the updated RI Report text.

**Draft Phase I Remedial Investigation (RI) for the Ramsdell Quarry Landfill (RQL) at the  
Ravenna Army Ammunition Plant, Ravenna, Ohio  
Comment Response Table  
SEPTEMBER 20, 2005**

CMT #	OLD or NEW and PAGE #/ LINE #	COMMENT	RECOMMENDATION	RESPONSE
11	Old, CRT #13	Issue = Consistency. Revisions still needed in some areas.	Revise text in Line 24 to “biased” soil samples per comment response. Ensure that the change in terminology is made throughout the report.	Clarification. Please see response to Ohio EPA Comment #6.
12	Old, CRT #29	CRT #29 - Change made in revised report and text per comment response. Please note terminology changes needed from RGO’s to Preliminary PRGs throughout the report.	Please revise the text accordingly.	Clarification. Please see response to Ohio EPA Comment # 4.
13	Old, CRT #36, Issue 3	Response indicates that text has been added to Section 3.2.4. This is incorrect.	Please update CRT to indicate that text was added to Section 3.2.3	Disagree. Preliminary Draft CRT will not be reissued or updated to reflect the correct section number (Section 3.2.3); however, it is agreed that the correct section is Section 3.2.3, as the reviewer noted.

**Draft Phase I Remedial Investigation (RI) for the Ramsdell Quarry Landfill (RQL) at the  
Ravenna Army Ammunition Plant, Ravenna, Ohio  
Comment Response Table  
SEPTEMBER 20, 2005**

Cmt. No.	Comment	Recommendation	Response
<b>Army Reviewers (Brancato, Druck, Jent, Watson, Zorko)</b>			
1	Recommend the use of CERCLA language Remedial Action Objective (RAO) in lieu of Remedial Goal Option (RGO). As a general reminder, adherence to CERCLA terminology is a programmatic requirement.	Needs team discussion; decision will be applicable throughout the program	Acknowledged. Per the 01 Sept. 2005 RQL/CBP Draft RI Report CRT teleconference, RGO terminology will remain in RI Reports consistent with previous versions and other published documents.  SAIC will strictly adhere to utilization of CERCLA terminology in the FS with transitions clearly explained.
2	Page xvi, line 17: Should “toe” be substituted for “tow”?		Agree. Text revised as follows: “The upgradient well (RQLmw-006) and two other wells (RQLmw-007 and -008) located at the toe of the landfill typically had the highest percentages of detected contaminants.”
3	Page 1-1, line 35: Change HHRC to HHRA (human health risk assessment).		Agree. Text revised as follows: “The scope of this investigation is to complete the assessment of the extent of contamination and to complete a human health risk assessment (HHRA) and ecological risk assessment (ERA) for the purpose of reaching a remedial action decision.”
4	Figures 1-3, 2-2, and 2-3 are missing.		Comment noted. These figures were present in the file copy. More attention will be given to QA prior to transmitting reproduced document copies. Figures will be provided in FINAL transmittal.
5	Page 1-5, line13 (also p. 1-41, line 26—there are others; please search the document): Correct term is “multi-incremental,” not multi-increment.		Disagree. Discussions during the Preliminary Draft comment response meeting as well as the FS kick-off meeting have indicated “multi-increment” is the preferred term. Please see Response to Ohio EPA Comment #3.

**Draft Phase I Remedial Investigation (RI) for the Ramsdell Quarry Landfill (RQL) at the  
Ravenna Army Ammunition Plant, Ravenna, Ohio  
Comment Response Table  
SEPTEMBER 20, 2005**

Cmt. No.	Comment	Recommendation	Response
6	Are the monitoring wells and sampling activities for post-closure requirements separate from the monitoring wells and sampling activities for the remedial investigation? Please clarify.		Clarification. Per 01 Sept. 2005 RQL/CBP Draft RI Report CRT teleconference and subsequent input from the Army, the following text has been added to the end of Section 1.3.2 to provide further clarification: "Future post-closure monitoring requirements were transferred to the Facility-Wide Groundwater Monitoring Plan when the Director's Final Findings and Orders was issued June 10, 2004. Under these orders, groundwater monitoring will continue for a minimum of 3 years following completion of all environmental investigations at the facility (Ohio EPA 2004)."
7	Page 2-19, lines 29-31: If an adequate cover exists on this landfill, wouldn't it also prevent migration of contaminants? Shouldn't that be added?		Clarification. An adequate cover will reduce migration of contaminants downward via infiltration from rainfall, but the shallow water table often displays periods of groundwater flow reversals, inundating the landfill from below and drawing contamination downward from underneath the surface of the landfill. No text change.
9	Page 3-5, Section 3.1.2.1: A description of "biased" soil sampling would be appropriate to let the reader know how hard we searched for any trace of contamination.		Clarification. We have recommended against the global use of the term "biased" (Please see response to Ohio EPA Comment #6). Section 3.1.1 indicates that the sample locations were pre-located by the sampling crew with the support of MEC technicians.
10	Page 3-5, line 35: Multi-incremental sampling should not be described as composite.		Agree. The text revised as follows: "A minimum of 30 aliquots was collected from each sample area to provide statistical confidence that the average concentration of a particular constituent within a designated area was represented by the composite sample."



**Draft Phase I Remedial Investigation (RI) for the Ramsdell Quarry Landfill (RQL) at the  
Ravenna Army Ammunition Plant, Ravenna, Ohio  
Comment Response Table  
SEPTEMBER 20, 2005**

<b>Cmt. No.</b>	<b>Comment</b>	<b>Recommendation</b>	<b>Response</b>
11	Sections 7, 8, and 9 reference the Land Reuse Plan. When reference is made, the March 2003 date should be mentioned as well.		Agree. References to the Land Reuse Plan prepared by OHARNG have been updated to include the March 2003 date as appropriate in Chapters 7, 8, and 9. The text also will be searched for "and attendant Land Use Controls Assurance Plan." This phrase will be deleted as DoD no longer prepares that document.

**Draft Phase I Remedial Investigation (RI) for the Ramsdell Quarry Landfill (RQL) at the  
Ravenna Army Ammunition Plant, Ravenna, Ohio  
Comment Response Table  
SEPTEMBER 20, 2005**

Page 10 of 14

**Ohio EPA Comment #5:** Updated per 01 Sept. 2005 RQL/CBP Draft RI Report CRT teleconference ~ “short version” recommended to encompass first two paragraphs.

RVAAP is a 1,481-acre portion of the 21,419-acre Ravenna Training and Logistics Site (RTLS) of the Ohio Army National Guard (OHARNG). A total of 19,938 acres of the former 21,419-acre RVAAP was transferred to the United States Property and Fiscal Officer (USP&FO) for Ohio in 1996 and 1999 for use by the OHARNG as a military training site. The current RVAAP consists of 1,481 acres in several distinct parcels scattered throughout the confines of the Ohio Army National Guard (OHARNG) Ravenna Training and Logistics Site (RTLS). The RVAAP and RTLS are co-located on contiguous parcels of property and the RTLS perimeter fence encloses both installations. Since the Installation Restoration Program (IRP) encompasses past activities over the entire 21,419 acres of the former RVAAP, the site description of the RVAAP includes the combined RTLS and RVAAP properties. The RVAAP was previously operated as a government-owned, contractor-operated (GOCO) U.S. Army facility. Currently, the installation is jointly operated by the U.S. Army Rock Island BRAC Field Office and the OHARNG.

The RVAAP is located within the confines of the RTLS which is in northeastern Ohio within Portage and Trumbull counties, approximately 4.8 kilometers (3 miles) east northeast of the town of Ravenna and approximately 1.6 kilometers (1 mile) northwest of the town of Newton Falls. The RVAAP portions of the installation are solely located within Portage County. The installation consists of a 17.7-kilometer (11-mile) long, 5.6-kilometer (3.5-mile)-wide tract bounded by State Route 5, the Michael J. Kirwan Reservoir, and the CSX System Railroad on the south; Garrett, McCormick and Berry roads on the west; State Route 534 to the east, and the Norfolk Southern Railroad on the north (see Figures 1-1 and 1-2). The installation is surrounded by several communities: Windham on the north, Garrettsville 9.6 kilometers (6 miles) to the northwest, Newton Falls 1.6 kilometers (1 mile) to the east, Charlestown to the southwest, and Wayland 4.8 kilometers (3 miles) southeast.

Industrial operations at RVAAP consisted of 12 munitions-assembly facilities referred to as “load lines.” Load Lines 1 through 4 were used to melt and load 2,4,6-trinitrotoluene (2,4,6-TNT) and Composition B into large-caliber shells and bombs. The operations on the load lines produced explosive dust, spills, and vapors that collected on the floors and walls of each building. Periodically, the floors and walls were cleaned with water and steam. The liquid, containing 2,4,6-TNT and Composition B, was known as “pink water” for its characteristic color. Pink water was collected in concrete holding tanks, filtered, and pumped into unlined ditches for transport to earthen settling ponds. Load Lines 5 through 7 were used to manufacture fuzes, primers, and boosters. Potential contaminants in these load lines include lead compounds, mercury compounds, and explosives. From 1946 to 1949, Load Line 12 was used to produce ammonium nitrate for explosives and fertilizers prior to its use as a weapons demilitarization facility.

In 1950, the facility was placed in standby status and operations were limited to renovation, demilitarization, and normal maintenance of equipment, along with storage of munitions. Production activities were resumed during the Korean Conflict (July 1954 to October 1957) and again during the Vietnam Conflict (May 1968 to August 1972). In addition to production missions, various demilitarization activities were conducted at facilities constructed at Load Lines 1, 2, 3, and 12. Demilitarization activities included disassembly of munitions and explosives melt-out and recovery operations using hot water and steam processes. Periodic demilitarization of various munitions continued through 1992.

In addition to production and demilitarization activities at the load lines, other facilities at RVAAP include sites that were used for the burning, demolition, and testing of munitions. These burning and demolition grounds consist of large parcels of open space or abandoned quarries. Potential contaminants at these AOCs include explosives, propellants, metals, waste oils, and sanitary waste. Other types of AOCs present at RVAAP include landfills, an aircraft fuel tank testing facility, and various general industrial support and maintenance facilities.

**Ohio EPA Comment #6:**

**Draft Phase I Remedial Investigation (RI) for the Ramsdell Quarry Landfill (RQL) at the  
Ravenna Army Ammunition Plant, Ravenna, Ohio  
Comment Response Table  
SEPTEMBER 20, 2005**

Page 11 of 14

**3.1.2.1 Discrete soil samples**

Discrete surface soil samples were collected using a stainless steel hand auger in accordance with Section 4.5.2.1.1 of the Facility-wide SAP.

For explosives and propellants analyses, surface soils were collected from three subsamples located approximately 3 ft from one another in a roughly equilateral triangle pattern and homogenized in order to obtain a representative sample. Equal portions of soil from the three soil subsamples were placed into a decontaminated stainless steel bowl and mixed thoroughly with a decontaminated stainless steel spoon before placement into appropriate sample containers.

Surface soil samples for all analyses other than explosives or propellants (i.e., inorganics, SVOCs, VOCs, etc.) were collected from a point in the approximate center of the triangle from which the explosives and propellant samples noted above were collected. Soil samples for VOCs were collected from the center of the triangle and placed directly into sample containers without mixing the soil. The remaining soil collected from the center of the triangle was placed into a decontaminated stainless steel bowl, mixed thoroughly with a decontaminated stainless steel spoon, and placed into appropriate sample containers.

Field screening of discrete soil samples for organic vapors was performed using a photoionization detector (PID). No elevated PID readings were noted during the Phase I RI. Samples for headspace analysis were not collected.

**Draft Phase I Remedial Investigation (RI) for the Ramsdell Quarry Landfill (RQL) at the  
Ravenna Army Ammunition Plant, Ravenna, Ohio  
Comment Response Table  
SEPTEMBER 20, 2005**

**Ohio EPA Comment #7 (Tables 6-1 through 6-4):**

**Table 6-1. Human Health Risk Assessment Data Set for Groundwater**

Station	Sample ID
RQLmw-012	RQ0139
RQLmw-013	RQ0140
RQLmw-014	RQ0141
RQLmw-015	RQ0142
RQLmw-016	RQ0143
RQLmw-017	RQ0144

**Table 6-2. Human Health Risk Assessment Data Set for Surface Soil**

Station	Sample ID	Depth (ft bgs)
RQL-024	RQ0124	0 - 1
RQL-025	RQ0125	0 - 1
RQL-026	RQ0126	0 - 1
RQL-027	RQ0127	0 - 1
RQL-028	RQ0128	0 - 1
RQL-029	RQ0129	0 - 1
RQL-030	RQ0130	0 - 1
RQL-031	RQ0131	0 - 1
RQL-032	RQ0132	0 - 1
RQL-033	RQ0133	0 - 1
RQLsd-012	RQ0064	0 - 0
RQLsd-012	RQ0023	0 - 0.5
RQLsd-013	RQ0032	0 - 0.5
RQLsd-013	RQ0033	0.5 - 1.25
RQLsd-019	RQ0029	0 - 0.5

**Table 6-3. Human Health Risk Assessment Data Set for Sediment**

Station	Sample ID	Depth (ft bgs)
RQLsd-014	RQ0035	0 - 0.5
RQLsd-015	RQ0044	0 - 0.5
RQLsd-018	RQ0026	0 - 0.5
RQLsd-022	RQ0038	0 - 0.5
RQLsd-023	RQ0041	0 - 0.5

**Draft Phase I Remedial Investigation (RI) for the Ramsdell Quarry Landfill (RQL) at the  
Ravenna Army Ammunition Plant, Ravenna, Ohio  
Comment Response Table  
SEPTEMBER 20, 2005**

**Ohio EPA Comment #7 (Tables 6-1 through 6-4) (continued):**

**Table 6-4. Human Health Risk Assessment Data Set for Surface Water**

Station	Sample ID
RQL <sub>sw</sub> -012	RQ0018
RQL <sub>sw</sub> -013	RQ0019
RQL <sub>sw</sub> -014	RQ0020
RQL <sub>sw</sub> -015	RQ0021
RQL <sub>sw</sub> -015	RQ0073
RQL <sub>sw</sub> -015	RQ0123
RQL <sub>sw</sub> -015	RQ0116
RQL <sub>sw</sub> -015	RQ0109
RQL <sub>sw</sub> -015	RQ0102

**Ohio EPA Comment #10:**

**7.3.1.5 Threatened and endangered species**

The relative isolation and protection of habitat at RVAAP has created an important area of refuge for a number of plant and animal species considered rare by the state of Ohio. To date, 74 state-listed species are confirmed to be on the RVAAP property. None of these are known to exist within RQL (Morgan 2005). See Table 7-2 for a list of T&E species at RTLS/RVAAP.

**Federal**

There are no federally listed plants or animals currently known to occur at RVAAP. Site-wide bat surveys were performed in 1999 and 2004 (ODNR 1999, ES&I 2005). Bat species captured included little brown bats, big brown bats, northern long-eared bats, red bats, and hoary bats, and eastern pipistrelle. Although the federally listed endangered Indiana bat (*Myotis sodalis*) has been documented nearby, the Indiana bat was not identified during any surveys and does not occur on RVAAP or at RQL (OHARNG 2001).

Several species listed as under Federal Observation (formerly Federal Candidate Species, Category 2) occur on RVAAP. These species include the Cerulean Warbler (*Dendroica cerulea*), henslow's Sparrow (*Ammodramus henslowii*), and butternut trees (*Juglans cinerea*) (ODNR 1997). None of these species has been documented at RQL (Morgan 2005).

**State**

State-listed endangered species include six birds [American bittern (*Botaurus lentiginosus*) (migrant), Northern harrier (*Circus cyaneus*), Yellow-bellied Sapsucker (*Sphyrapicus varius*), Golden-winged warbler (*Vermivora chrysoptera*), Osprey (*Pandion haliaetus*) (migrant), and Trumpeter swan (*Cygnus buccinator*) (migrant)], a lamprey [Mountain Brook Lamprey (*Ichthyomyzon greeleyi*)], a butterfly [Graceful Underwing (*Catocala gracilis*)], two plants [Ovate Spikerush (*Eleocharis ovata*) (Blunt spike-rush) and Tufted Moisture-loving Moss (*Philonotis fontana* var. *caespitosa*)], and one mammal [Bobcat (*Felis rufus*)]. None of these species has been documented at RQL (Morgan 2005).

State-listed threatened species include five birds [Barn owl (*Tyto alba*), Dark-eyed junco (*Junco hyemalis*) (migrant), Hermit thrush (*Catharus guttatus*) (migrant), Least bittern (*Ixobrychus exilis*), and Least flycatcher (*Empidonax minimus*)], one insect [Psilotreta indecisa (caddisfly)] and two plants [Simple willow-herb (*Epilobium strictum*) and Woodland Horsetail (*Equisetum sylvaticum*)]. None of these species has been documented at RQL (Morgan 2005).

Portage County has more rare species, especially plants, than any other county in Ohio. This is reflected in the number of species occurring on RVAAP that are listed as State Potentially Threatened. These species include four tree species [Gray Birch (*Betula populifolia*), Butternut (*Juglans cinerea*), Arbor Vitae (*Thuja occidentalis*), and American Chestnut

**Draft Phase I Remedial Investigation (RI) for the Ramsdell Quarry Landfill (RQL) at the  
Ravenna Army Ammunition Plant, Ravenna, Ohio  
Comment Response Table  
SEPTEMBER 20, 2005**

Page 14 of 14

(*Castanea dentata*), two woody species [Northern rose azalea (*Rhododendron nudiflorum* var. *roseum*) and Hobblebush (*Viburnum alnifolium*)], and seven herbaceous species [Pale sedge (*Carex pallescens*), Long Beech Fern (*Phegopteris connectilis*), Straw sedge (*Carex straminea*), Water avens (*Geum rivale*), Tall St. John's wort (*Hypericum majus*), Swamp oats (*Sphenopholis pensylvanica*), and Shining ladies'-tresses (*Spiranthes lucida*). None of these species has been documented at RQL (Morgan 2005).

Species that are state-listed as of Special Concern [listed by either Ohio Department of Wildlife (ODOW) or the Heritage Program (Heritage)] include three mammals [Pygmy shrew (*Sorex hovi*), Star-nosed mole (*Condylura cristata*), and Woodland jumping mouse (*Napaeozapus insignis*)], eleven birds [Sharp-shinned hawk (*Accipiter striatus*), Marsh wren (*Cistothorus palustris*), Henslow's sparrow (*Ammodramus henslowii*), Cerulean warbler (*Dendroica cerulean*), Prothonotary warbler (*Protonotaria citrea*), Bobolink (*Dolichonyx oryzivorus*), Northern bobwhite (*Colinus virginianus*), Common moorhen (*Gallinula chloropus*), Great egret (*Casmerodius albus*), Sora (*Porzana Carolina*), and Virginia Rail (*Rallus limicola*)], one freshwater mussel [Creek heelsplitter (*Lasmigona compressa*)], one reptile [Eastern box turtle (*Terrapene Carolina*)], one amphibian [Four-toed Salamander (*Hemidactylum scutatum*)], and three insects [Stenonema *ithica* (mayfly), *Apamea mixta* (moth), and *Brachylomia algens* (moth)]. None of these species has been documented at RQL (Morgan 2005).

Species that are state listed as Special Interest include 21 birds [Canada warbler (*Wilsonia Canadensis*), Little blue heron (*Egretta caerulea*), Magnolia warbler (*Dendroica magnolia*), Northern waterthrush (*Seiurus noveboracensis*), Winter wren (*Troglodytes troglodytes*), Back-throated blue warbler (*Dendroica caerulescens*), Brown creeper (*Certhia Americana*), Mourning warbler (*Oporornis Philadelphia*), Pine siskin (*Carduelis pinus*), Purple finch (*Carpodacus purpureus*), Red-breasted nuthatch (*Sitta canadensis*), Golden-crowned kinglet (*Regulus satrapa*), Blackburnian warbler (*Dendroica fusca*), Blue grosbeak (*Guiraca caerulea*), Common snipe (*Gallinago gallinago*), American wigeon (*Anas Americana*), Gadwall (*Anas strepera*), Green-winged teal (*Anas crecca*), Northern shoveler (*Anas clypeata*), Redhead duck (*Aythya americana*), and Ruddy duck (*Oxyura jamaicensis*)] and one plant [Pohlia *elongata* var. *elongata* (No Common Name, Bryophyte)]. None of these species has been documented at RQL (Morgan 2005).

Note that there are currently no federally listed species or critical habitat on the RTLS/RVAAP property. Thus, there are no known legally protected species to require special consideration.”

Note that the May 9, 2005 table is the same one as Table 2-1 in the version of the RQL report that has been reviewed. Therefore, that table that will be ~~referenced and published as Table 7-2~~ is not repeated in this response to comment.

Note also that language about a bat survey was added to the text for clarification. The reference associated with this text addition is: ES&I (Environmental Solutions & Innovations). 2005. Site-Wide Survey for the Indiana Bat (*Myotis sodalis*) at the Ravenna Training and Logistics Site (RTLS), Portage and Trumbull Counties, Ohio, Jason A. Duffy and Virgil Brack, Jr., Ph.D., Environmental Solutions & Innovations, Inc., in association with Environmental Quality Management, Inc., 31 January 2005.