

Appendix P
Response to Comments

COMMENT RESPONSE TABLE
REVISION 0: 7-DECEMBER-2011

**Draft Historical Records Review Report for the 2010 Remedial Investigation
 Services at Compliance Restoration Sites
 (9 Areas of Concern)
 Ravenna Army Ammunition Plant
 Dated: October 3, 2011**

Comment Number	Page or Sheet	Comment	Recommendation	Response
<i>Ohio EPA (K. Palombo)</i>				
O-1.	General	It was noted that each chapter of the document contains two Sections titled Hydrogeologic Setting. This can be confusing.	Since the second Hydrogeologic Setting section in each chapter relates to surface water issues, it should be changed to Hydrologic Setting.	Agree. Each of the Section X.7.2.1 titles will be revised to "Hydrologic Setting."
O-2.	Report Documentation Page	Section 14, Abstract, is cut off. The description of only one of the nine AOCs is able to be read.	Expand the Abstract Section 14, so that all descriptions can be viewed. Provide additional pages as necessary.	Agree. Text has been revised to allow the reader to view all descriptions within Section 14.
O-3.	Page 1-8, Section 1.4.4.2, Line 33	Section 1.4.4.2 states all but four groundwater production wells were permanently abandoned in 1992. In recent meetings with the USACE, numerous water supply wells were shown that need to be evaluated for proper abandonment.	Verify with USACE that all but four production wells need to be evaluated for abandonment.	Clarification. The text referring to permanent abandonment of former production wells is unclear and has been revised to state: "...with the majority of the wells screened in the Sharon Conglomerate. The Army discontinued use of groundwater production wells prior to 1993, when RVAAP was placed in modified caretaker status. The status of plugging and abandonment of former groundwater production wells is currently under evaluation by the Army. All but four production wells were permanently abandoned in 1992. Currently, one of the four remaining original groundwater production wells remains in use by the Army. This well, located in the Administration Area..."

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				<p>Note that evaluation of former production wells for proper abandonment is beyond the scope of the Phase I historical records review and would be addressed by the Army under a separate future task by the Army.</p>
O-4.	Page 2-1, Section 2.1	The section should describe number and type of buildings that currently remain at each substation location.	Provide a description and number of buildings that are currently present at each location.	<p>Agree. A brief introduction to include buildings associated with the electric substations will be provided. Additional information on buildings and structures is provided in subsequent sections. Text has been revised as follows:</p> <p>“CC-RVAAP-68: Electric Substations consists of three separate inactive properties located throughout the facility. The East and West Substations were located adjacent to brick operational support buildings. The former East Substation is located adjacent to Building 25-27, the former West Substation is located near rehabilitated Building 28-28, and former Substation No. 3 did not have an associated with an operational support structure. Each former substation is inactive and all associated equipment from operation, including transformers and capacitors, have has been removed.”</p>
O-5.	Page 2-7, Section 2.7.1.1, Line 20, 21	The estimated elevation of the groundwater table at the East Substation is based on the potentiometric surface of the bedrock aquifer.	First water is from the unconsolidated aquifer. Provide an estimated elevation based on unconsolidated aquifer on Figure 1.5 or include both.	<p>Clarification. The unconsolidated groundwater aquifer is missing at the East Substation. This feature is illustrated on Figure 1-5. Text has been revised as follows:</p> <p>“...southeast within the Load Line 2 AOC. The unconsolidated aquifer is not present within the vicinity of the East Substation (Figure 1-5). The elevation of the groundwater table at the East Substation is estimated to be approximately 1,000 ft amsl based on the generalized potentiometric surface of the bedrock aquifer (Figure 1-6)...”</p>

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O-6.	General	Depths to bedrock and groundwater surfaces have been inconsistently applied in Section 2.7.1.1 to Substations, East West and Substation No. 3.	Provide estimates of bedrock and ground water surfaces for all three locations.	<p>Agree. Groundwater surfaces will be more consistently discussed. Section 2.7.1.1 has been revised as follows:</p> <p>“The nearest facility-wide groundwater monitoring well is LL2mw-270, located approximately 1,750 ft to the southeast within the Load Line 2 AOC. The unconsolidated aquifer is not present within the vicinity of the East Substation (Figure 1-5). The elevation of the groundwater table at the East Substation is estimated to be approximately 1,000 ft amsl based on the generalized potentiometric surface of the bedrock aquifer (Figure 1-6), and the generalized regional groundwater flow direction in the vicinity of the East Substation is assumed to be to the east.</p> <p>Several groundwater monitoring wells are present on Fuze and Booster Area close to the West Substation. No facility-wide groundwater monitoring wells are located at the West Substation AOC. The nearest facility-wide groundwater monitoring well is SCFmw-001, a bedrock aquifer monitoring well, located approximately 150 ft west of the West Substation (Figure 2-2). The generalized regional groundwater flow direction in the vicinity of the West Substation is to the southeast and the depth to groundwater based on the closest unconsolidated groundwater monitoring well, LL6mw-001, is estimated to be approximately 13.64 ft below top of casing (btoc) (1,107.38 ft amsl). The closest unconsolidated groundwater monitoring well, LL6mw-001, is located approximately 640 ft southwest of the West Substation (Figure 2-2). The elevation of the groundwater table at the West Substation is estimated to be approximately 1,110 ft amsl based on the generalized potentiometric surface of the unconsolidated aquifer (Figure 1-5). Depth to groundwater The elevation of the potentiometric surface within the</p>

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				<p>bedrock aquifer based on the closest bedrock groundwater monitoring well, SCFmw-001, is estimated to be approximately 89 ft btoe (1,030.94 1,031 ft amsl) (Figure 1-6). The generalized regional groundwater flow direction in the vicinity of the West Substation is to the southeast.</p> <p>No facility-wide groundwater monitoring wells are located at the Substation No. 3 AOC. The nearest facility-wide groundwater monitoring well is LL11mw-001, approximately 1,350 ft northwest of the Substation No. 3 AOC. The elevation of the groundwater table at the East Substation is estimated to be approximately 1,075 ft amsl based on the generalized potentiometric surface of the unconsolidated aquifer (Figure 1-5), and the generalized groundwater flow direction is assumed to be to the east. The closest bedrock groundwater monitoring well to Substation No. 3 is LL9mw-002 approximately 2,000 ft to the east. The elevation of the potentiometric surface within the bedrock aquifer is estimated to be approximately 1110 ft amsl, based on the generalized potentiometric surface for the bedrock aquifer (Figure 1-6)."</p>
O-7.	Page 3-2, Section 3.2.1, Line 9	Line 9 states,"...where carbon tet. was to have been discharged..."	Change to "was reported by former employees to have been discharged."	<p>Agree. Section 3.1.3 has been revised as follows: "The area behind Building 1048, where carbon tetrachloride was reported by former employees to have been discharged, is a relatively flat, grassy field."</p> <p>Section 3.1 line 12-13 has also been revised as follows: "The acreage where carbon tetrachloride was reported by former employees to have been discharged is not accurately defined but is assumed to be less than one acre..."</p>

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O-8.	Page 3-1, Section 3.1.2, Line 29 and 30, and Page 3-3, Section 3.4, Line 35	Inconsistency? Section 3.1.2, Description of fire house and adjacent buildings mentions small arms storage and Section 3.4 states no documented military munitions were found.	Clarify where military munitions were found or not found in both sections.	<p>Agree. Reference to the small arms storage was included based on historical information related to former guard headquarters located in an adjacent building (Building 1048A). The guard headquarters are not part of the compliance restoration site and small arms storage for security staff located in an adjacent building is not germane to the former fire station discussion. Text will be revised as follows:</p> <p>Section 3.1.2: Adjacent buildings also contained security force quarters with a small arms storage area and a key shop and an ambulance garage.</p>
O-9.	Page 3-4, Section 3.7.1.1	This section states that depth to groundwater cannot be estimated with accuracy. Also, no estimate of depth to bedrock was provided.	Provide general estimates based on potentiometric maps provided in Figures 1-5 and 1-6 and available site depth to bedrock information.	<p>Agree. To clarify depth to groundwater, Section 3.7.1.1 has been revised as follows:</p> <p>“...The nearest facility-wide groundwater monitoring well is LL5mw-004, located over 3,300 ft northwest of the Building 1048 Fire Station. Groundwater potentiometric data in the unconsolidated aquifer is not available within the Administration Area. Based on the inferred facility-wide potentiometric surface within the unconsolidated aquifer (Figure 1-5), the elevation of the groundwater surface ranges from 1025 to 1050 ft amsl. The groundwater elevation in the bedrock aquifer within the Administration Area is estimated to be approximately 965 ft amsl based on well installation logs for groundwater supply wells at Buildings 1067 and 1068. The generalized regional groundwater flow direction in the Administration Area is to the southeast toward a tributary to the west branch of the Mahoning River located southeast of the CR site. Due to lack of groundwater monitoring wells in the area, the depth to groundwater cannot be estimated with reasonable accuracy.”</p>

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				<p>For depth to bedrock, Section 3.7.3.1 has been revised as follows:</p> <p>“...building footprint (USDA 2010). The bedrock formation at the Administration Area, based on groundwater well installation logs, is the Pennsylvanian-age Pottsville Formation, Sharon Shale member. The elevation of the Sharon Shale member in the Administration Area is 986 to 1006 ft amsl based on available well installation logs. The Sharon Sandstone member, informally referred to as the Sharon Conglomerate is observed in the eastern portions of the Administration Area (Winslow et al. 1966).”</p>
O-10.	Page 4-3, Section 4.2.2.2, Line 35	Line 35 states, “As noted in previous sections, 4 ASTs were located...”	This is the first time the number of ASTs is mentioned. Please remove statement or revise previous section.	<p>Clarification. The four ASTs were initially referenced in Section 4.1.2. To provide clarity to the reader, text has been revised as follows:</p> <p>“As noted in previous sections Section 4.1.2, four ASTs were located...”</p>
O-11.	Page 4-5, Section 4.7.1.1	This section states that depth to groundwater cannot be estimated with accuracy. Also, no estimate of depth to bedrock was provided.	Provide general estimates based on potentiometric maps provided in Figures 1-5 and 1-6 and available site information on the depth to bedrock.	<p>Agree. For depth to groundwater Section 4.7.1.1, has been revised as follows:</p> <p>“...the nearest facility-wide groundwater monitoring well is SCFmw-005, a bedrock well located upgradient approximately 2,300 ft west of the East Classification Yard. No unconsolidated aquifer groundwater monitoring wells exist in the vicinity of the East Classification Yard. As no monitoring wells exist in the area, the groundwater elevation cannot be estimated with reasonable accuracy. Based on the inferred facility-wide potentiometric surface within the unconsolidated aquifer (Figure 1-5), the elevation of the groundwater surface is estimated to be slightly less than 950 ft amsl. The groundwater elevation within the</p>

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				<p>bedrock aquifer in the vicinity of the East Classification Yard is estimated to be 945 ft amsl based on surrounding facility-wide groundwater monitoring well data. As no monitoring wells exist in the area the groundwater elevation cannot be estimated with detailed accuracy. The generalized regional groundwater flow direction in the East Classification Yard is to the southeast to a tributary to the west branch of the Mahoning River located southeast of the CR site. Due to lack of groundwater monitoring wells in the area, the depth to groundwater cannot be estimated with reasonable accuracy."</p> <p>For depth to bedrock Section 4.7.3.1 has been revised as follows:</p> <p>"...building footprint (USDA 2010). The inferred bedrock formation at the East Classification Yard is the Pennsylvanian age Pottsville Formation, Sharon Sandstone member, informally referred to as the Sharon Conglomerate (Winslow et al. 1966). The Sharon Conglomerate bedrock interface in the East Classification Yard is estimated to be from 900 to 950 ft amsl based on ODNR bedrock topography maps (Figure 1-2). The Sharon Sandstone member, informally referred to as the Sharon Conglomerate is observed in the eastern portions of the Administration Area (Winslow et al. 1966)."</p>
O-12.	Page 5-3, Section 5.3, Line 5	This section states, "...almost all of the USTs have been closed by proper..."	Instead of "almost all," provide the actual number of USTs that have been closed properly.	Agree. Page 5-3 Section 5.2 Line 5 has been revised as follows: "A thorough review of available records suggests documents that almost all 42 of the 58 USTs have been closed by proper removal, and the tanks have been disposed off-site."
O-13.	Page 5-16, Section 5.5, Line	Line 14 -16 states that several USTs were removed based on	Provide a brief description of the pump test. Is it a	Agree. Text in Section 5.5 has been revised as follows: "Several USTs were removed based on the failure of pump tank

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	14,15, and 16	failure of pump tests and refers reader to Appendix S.	pressure test on tanks/lines? Did not see pressure test references in Appendix S.	<p>tightness tests. A tank tightness test is a requirement of Ohio Administrative Code 1301:7-9-07 as a method of release detection. USTs that failed...”</p> <p>When relevant, Appendix S referenced failure of the tank tightness test in the “Evidence of Spills” section. Reference to the word “pump tests” has been replaced with “tank tightness tests” throughout Section 5 for consistency.</p>
O-14.	Page 6-9, Section 6.7.1.2, Line 6 and 7	Line 6 states there are no public...groundwater supply wells within RVAAP.	Earlier Sections of the document, i.e., Section 1.4.4.2, states there are GW supply wells. Provide an explanation or change.	<p>Agree. Section 1.4.4.2, 2nd paragraph has been revised as follows:</p> <p>“In addition as of April 2011, OHANRG has installed...There is also one inactive non-potable groundwater supply well just south of Winklepeck Burning Grounds along the east side of George Road, which was formerly used to supply water for environmental restoration activities. These groundwater supply wells are used solely for onsite activities and are not used for public distribution, livestock, or commercial groundwater potable supply.”</p>
O-15.	Page 7-4, Section 7.7.1.1	This section states that depth to groundwater cannot be estimated with accuracy. Also, no estimate of depth to bedrock was provided.	Provide general estimates based on potentiometric maps provided in Figures 1-5 and 1-6 and available site information on the depth to bedrock.	<p>Agree. For depth to groundwater, Section 7.7.1.1 has been revised as follows:</p> <p>“...The nearest facility-wide groundwater monitoring well is LL5mw-004, located over 4,300 ft to the northwest of the Building 1034 Motor Pool. Groundwater potentiometric data in the unconsolidated aquifer is not available within the Administration Area. Based on the inferred facility-wide potentiometric surface within the unconsolidated aquifer (Figure 1-5), the elevation of the groundwater surface ranges from 1025 to 1050 ft amsl. The groundwater elevation in the bedrock aquifer within the Administration Area is estimated to</p>

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				<p>be approximately 965 ft amsl based on well installation logs for groundwater supply wells at Buildings 1067 and 1068. The generalized regional groundwater flow direction in the Administration Area is to the southeast toward a tributary to the west branch of the Mahoning River located southeast of the CR site. Due to lack of groundwater monitoring wells in the area, the depth to groundwater cannot be estimated with reasonable accuracy.</p> <p>For depth to bedrock, Section 7.7.3.1 has been revised as follows:</p> <p>“...building footprint (USDA 2010). The bedrock formation at the Administration Area based on groundwater well installation logs is the Pennsylvanian-age Pottsville Formation, Sharon Shale member. The elevation of the Sharon Shale member in the Administration Area is 986 to 1006 ft amsl based on available well installation logs. The Sharon Sandstone member, informally referred to as the Sharon Conglomerate is observed in the eastern portions of the Administration Area (Winslow et al. 1966).”</p>
O-16.	Page 8-4, Section 8.7.1.1	This section does not include estimates on depth to ground water or bedrock	Provide general estimates based on potentiometric maps provided in Figures 1-5 and 1-6 and available site information on the depth to bedrock.	<p>Agree. For depth to groundwater, Section 8.7.1.1 has been revised as follows:</p> <p>“...The nearest facility-wide groundwater monitoring well is LL9mw-004, located approximately 5,500 ft to the northwest of the George Road Sewage Treatment Plant. As no monitoring wells exist in the area, the groundwater elevation cannot be estimated with reasonable accuracy. Based on the inferred facility-wide potentiometric surface within the unconsolidated aquifer (Figure 1-5), the elevation of the groundwater surface ranges from 1000 to 1025 ft amsl. Groundwater elevations in the bedrock aquifer within the Administration Area is</p>

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				<p>estimated to be approximately 965 ft amsl based on well installation logs for groundwater supply wells at Buildings 1067 and 1068, approximately 2,000 ft east of the George Road Sewage Treatment Plant. As no monitoring wells exist in the area the groundwater elevation cannot be estimated with detailed accuracy. The generalized regional groundwater flow direction in the vicinity is to the southeast to a tributary of the west branch of the Mahoning River located southeast of the CR site. Due to lack of groundwater monitoring wells in the area, the depth to groundwater cannot be estimated with reasonable accuracy.</p> <p>For depth to bedrock, Section 3.7.3.1 has been revised as follows:</p> <p>“...building footprint (USDA 2010). The inferred bedrock formation in the vicinity of the George Road Sewage Treatment Plant is the Pennsylvanian age Pottsville Formation, Sharon Sandstone member, informally referred to as the Sharon Conglomerate (Winslow et al. 1966). The Sharon Conglomerate bedrock interface in the George Road Sewage Treatment Plant is estimated to be approximately 950 ft amsl based on ODNR bedrock topography maps (Figure 1-2).”</p>
O-17.	Page 9-4, 9.2.2.2, Line 17	Line 17 states that 11 USTs were known to have been located in the Depot area. Were these included in the Facility wide USTs, RVAAP-72?	Provide a clarifying statement in section 9.2.2.2.	<p>Agree. Text has been revised as recommended:</p> <p>“Eleven USTs were known to have been located within the Depot Area. These USTs are evaluated as part of CC-RVAAP-72. Table 5-1...”</p>

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O-18.	Page 9-6, Section 9.6.1.1	Section states that depth to groundwater cannot be estimated with accuracy. Also, no estimate of depth to bedrock was provided.	Provide general estimates based on potentiometric maps provided in Figures 1-5 and 1-6 and available site information on the depth to bedrock.	<p>Agree. Text has been revised as follows.</p> <p>For depth to groundwater, Section 10.7.1.1 has been revised as follows:</p> <p>“...The nearest facility-wide groundwater monitoring well is BKGmw-016, located approximately 2,300 ft southeast of the Depot Area. As no monitoring wells exist in the Depot Area, the groundwater elevation cannot be estimated with reasonable accuracy. Based on the inferred facility-wide potentiometric surface within the unconsolidated aquifer (Figure 1-5), the elevation of the groundwater surface ranges from 1025 to 1050 ft amsl in the central portions of the Depot Area. No data exist respective to potentiometric elevations in the bedrock aquifer in the western portions of RVAAP (Figure 1-6). As no monitoring wells exist in the area the depth to groundwater cannot be estimated with detailed accuracy.—The generalized regional flow direction for shallow groundwater in the Depot Area is the southeast toward Hinkley Creek, consistent with surface water flow directions. Due to lack of facility wide groundwater monitoring wells in the area, the depth to groundwater cannot be estimated with reasonable accuracy.—</p> <p>For depth to bedrock Section 9.7.3.1 is revised as follows:</p> <p>“...Route 80 (USDA 2010). The inferred bedrock formation at the Depot Area is the Pennsylvanian age Pottsville Formation, Mercer member (Winslow et al. 1966). The Mercer Member bedrock interface in the Depot Area is estimated to be approximately 900 ft amsl based on ODNR bedrock topography maps (Figure 1-2). Descriptions...”</p>

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O-19.	General	A standard sentence is used in the Groundwater Target section of each chapter that states there are no public... groundwater supply wells within RVAAP.	It is stated elsewhere in the document that there are water supply wells used by OHARNG. Please clarify.	See Comment O-14 for response.
O-20.	Page 11-6, Table 11-1	Re. Fire Station, Groundwater Conclusions stated in Section 3.7.1.3 that leaching of potential soil contaminants to groundwater is potential migration pathway, which may require evaluation.	Table 11-1 recommends only surface soil sampling. Provide the rationale for the decision not to sample groundwater.	See Comment O-21 for response.
O-21.	General Table 11-1	Based on review of Summary Table 11-1, groundwater will not be evaluated at any of the nine compliance restoration sites, associated sites or numerous UST and former coal pile locations. Ohio EPA does not concur that groundwater pathway will be completely ignored or eliminated without additional information. Groundwater modeling or certain soil contamination triggers will have to be set up to allow for		Clarification. Evaluation of groundwater for the 9 CR Sites will be conducted under a separate project addressing the RVAAP-66 Facility-Wide Groundwater AOC. Documents are in preparation and review addressing plans and recommendations for additional wells, development of a facility-wide groundwater conceptual site model, contaminant fate and transport, and risk/exposure pathway assessment. To clarify the scope of the 9 CR Sites Phase I historical records review with respect to groundwater recommendations, the last paragraph of Section ES.1 has been revised as follows: “Planning and performance of all elements of the project scope...No sampling was conducted as part of the scope for this project. Recommendations for further investigation of soil, sediment, and surface water media are provided based on the historical records review. If further action is necessary, subsequent sampling activities ”

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		groundwater evaluation as appropriate. Additionally, the installation of monitoring wells may be warranted at various AOCs. These decisions will be made subsequent to additional work conducted by ECC and not at the completion of this HRR.		<p>to the Phase I RI will performed under a future scope of work. Recommendations for further investigation of these media will be evaluated by the RVAAP stakeholder team and implemented, as applicable, under a separate project. Recommendations related to investigation of groundwater in this report are limited to identifying potential contaminant releases to soil that could migrate to groundwater. Installation of monitoring wells and completion of an RI for groundwater will be addressed separately as part of future RI activities for the RVAAP-66 Facility-Wide Groundwater AOC. This text has also been added at the end of Section 1.1 (Purpose and Scope), 1st paragraph.</p>
<i>Additional Proposed SAIC Changes</i>				
SAIC-1	Section 9 General			A second level section header for Section 9.7 - Pathway and Environmental Hazard Assessment has been added after Section 9.6. Sections 9.6.1, 9.6.2, and 9.6.3, and associated subsections, have been renumbered as 9.7.1, 9.7.2, and 9.7.3.
SAIC-2	Page 10-4, Section 10.7.1.1			<p>To provide consistency based on previous comments, general estimates of depth to bedrock and groundwater have also been included in Section 10.7.1.1. Revised text has been included as follows: For depth to groundwater Section 10.7.1.1 revised as follows: “...The nearest facility-wide groundwater monitoring well is LL5mw-004, located over 4,000 ft to the northwest of the Building 1037 Waste Water Laundry Sump. Groundwater potentiometric data in the unconsolidated aquifer is not available within the Administration Area. Due to lack of groundwater monitoring wells in the area, the depth to groundwater cannot be estimated with reasonable accuracy. Based on the inferred facility-wide potentiometric surface within the</p>

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				<p>unconsolidated aquifer (Figure 1-5), the elevation of the groundwater surface ranges from 1025 to 1050 ft amsl. The groundwater elevation in the bedrock aquifer within the Administration Area is estimated to be approximately 965 ft amsl based on well installation logs for groundwater supply wells at Buildings 1067 and 1068. The generalized regional groundwater flow direction in the Administration Area is to the southeast toward a tributary to the west branch of the Mahoning River located southeast of the CR site. Due to lack of groundwater monitoring wells in the area, the depth to groundwater cannot be estimated with reasonable accuracy.</p> <p>For depth to bedrock, Section 10.7.3.1 has been revised as follows:</p> <p>“...building footprint (USDA 2010). The bedrock formation at the Administration Area based on groundwater well installation logs is the Pennsylvanian-age Pottsville Formation, Sharon Shale member. The elevation of the Sharon Shale member in the Administration Area is 986 to 1006 ft amsl based on available well installation logs. The Sharon Sandstone member, informally referred to as the Sharon Conglomerate is observed in the eastern portions of the Administration Area (Winslow et al. 1966).”</p>