St. Juliens Creek Annex Restoration Advisory Board Meeting Summary: November 7, 2012 Meeting

Meeting Attendees

Krista Parra	Naval Facilities Engineering Command Mid-Atlantic
Robert Mann	Restoration Advisory Board Community Co-Chair
Robert Stroud	United States Environmental Protection Agency (Region 3)
Jim Cutler	Virginia Department of Environmental Quality
Pat Burns	Restoration Advisory Board Community Member
Kevin Lew	Restoration Advisory Board Community Member
Marty Costello	Restoration Advisory Board Community Member
Barbara Brumbaugh	City of Chesapeake
Janna Staszak	CH2M HILL
Adrienne Jones	CH2M HILL
Bill Squire	Shaw Environmental

Location: Major Hillard Library, Chesapeake, Virginia
Meeting Date: November 7, 2012
From: Adrienne Jones/CH2M HILL
Minutes Date: January 18, 2013

Restoration Advisory Board Welcome and Introductions

At 5:00 PM, Ms. Parra presented opening remarks and introductions to the Restoration Advisory Board (RAB). Ms. Parra explained that she recently assumed the role of the Naval Facilities Engineering Command (NAVFAC) Mid-Atlantic Remedial Project Manager for St. Juliens Creek Annex (SJCA), replacing Walter Bell. The other RAB members and guests introduced themselves. All presentation handouts were distributed.

Fiscal Year 2012 Goals

Ms. Parra led the presentation. The objectives of the presentation were to provide an overview of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process; provide an update of the Environmental Restoration Program (ERP) sites and Fiscal Year (FY) 2013 goals for the Installation Restoration Program (IRP) sites, Munitions Response Program (MRP) sites, and for facility-wide ERP activities; and answer any questions.

Ms. Parra reviewed the CERCLA process and ERP goals for SJCA. ERP goals for SJCA are established yearly by FY; FY 2013 started October 1, 2012, and ends September 30, 2013. The goals serve as a budgeting tool for allocating funds, as a prioritization tool to determine sequencing of sites to be investigated and remediated based on their potential risk to human health and the environment, and as a scheduling tool to keep remediation projects on schedule. FY 13 goals have been established for most of the active ERP sites. To date, 54 sites have been closed with no further action (NFA) required through desktop audits or investigations, and five sites are currently active in the ERP: four IRP sites (Sites 2, 4, 5, and 21) and one MRP site (Area UXO 1). A figure showing the locations of the ERP sites at SJCA was projected.

Ms. Parra reviewed the status of IRP Site 2 and presented the FY13 goals for the site. IRP Site 2, Waste Disposal Area B, is a 5.7-acre site that includes an unlined, former waste disposal area for construction debris, blast grit,

waste ordnance, and solvents. The area was used for waste disposal from 1921 to 1942. Investigations conducted at the site identified concerns from waste: chlorinated solvents, one polycyclic aromatic hydrocarbon (PAH), and one pesticide in the shallow aquifer groundwater; chlorinated solvents and metals in the surface water; and PAHs, pesticides, polychlorinated biphenyls (PCBs), and metals in the sediment and soil. The selected remedy to address the concerns consists of enhanced reductive dechlorination (ERD), monitored natural attenuation, a cover, land use controls (LUCs), and sediment excavation. The Remedial Action (RA) is currently in progress. The FY13 goals established for Site 2 are to finalize the Remedial Design (RD) Addendum for sediment excavation in St. Juliens Creek by March 31, 2013, and to finalize the RA Work Plan Addendum by March 31, 2013.

Ms. Parra reviewed the status of IRP Site 4. IRP Site 4, Landfill D, is an 8.3-acre landfill that was operated from 1970 to 1981. Investigations conducted at the site identified concerns from waste; metals, PCBs, and PAHs in soil; and mercury in drainage sediment. The selected remedy to address the concerns consists of soil cover installation, drainage ditch sediment removal, and LUCs. The soil cover and sediment removal components have been completed. A Five-Year Review was completed for the site in 2010. The Five-Year Review incorporated the results of voluntary groundwater monitoring conducted following completion of the RA to evaluate the site's impact on groundwater quality. The review concluded that the remedy at Site 4 is protective of human health and the environment. Currently LUCs are maintained, annual inspections are conducted yearly, and Five-Year Reviews are conducted every five years, with the next scheduled for 2015. There are no FY12 goals for Site 4.

Ms. Parra reviewed the status of IRP Site 5 and presented the FY13 goals for the site. IRP Site 5, Burning Grounds, extends over approximately 23 acres, a portion of which was used as a burning ground from the 1930s to the 1970s. Various wastes were reportedly disposed of, including solvents, paint sludge, pesticides, and refuse. Investigations conducted at the site identified concerns from waste and metals, pesticides, and PAHs in the surface soil and drainage sediment. The selected removal action alternative to address the concerns consisted of excavation and offsite disposal. The removal action has been completed and the reporting is currently in progress. The FY13 goals established for Site 5 are to finalize the Confirmation Sampling Technical Memorandum by December 31, 2012; to finalize the removal action Construction Closeout Report by December 31, 2012; to finalize the Proposed Plan by June 30, 2013; and to finalize the Record of Decision (ROD) by September 30, 2013.

Ms. Parra reviewed the status of IRP Site 21 and presented the FY13 goals for the site. IRP Site 21, Industrial Area, comprises an industrial area of the base. Historically, buildings were used as maintenance and electrical shops and munitions loading facilities, outdoor areas were used for equipment and chemical storage, and a former fuel service station was operated. Investigations conducted at the site identified concerns from chlorinated solvents in the shallow aquifer groundwater and indoor air. The selected remedy to address the concerns consists of in situ chemical reduction (ISCR) and ERD. The RA is currently in the operation phase and consists of groundwater and vapor intrusion monitoring. The FY13 goals established for Site 21 are to finalize the RA-operation vapor intrusion monitoring event 2 report by March 31, 2013, and to finalize the RA-operation groundwater monitoring event 3 report by June 30, 2013.

Ms. Parra reviewed the status of MRP Area UXO 1 and presented the FY13 goal for the area. MRP Area UXO 1, Wharf Area Sediments, consists of approximately 2,230 linear feet of current or former wharf areas along the Southern Branch of the Elizabeth River. The northern wharf area was constructed in 1917 and used for loading and unloading ordnance, particularly Mark VI mines, until the mid 1920s. The wharf is no longer present, with the exception of some pilings. The southern wharf area was constructed in 1898 and used for ordnance loading until the early 1970s. The wharf is still in use, but no longer used for ordnance loading or unloading. A Preliminary Assessment completed for the area recommended further investigation. A Site Inspection (SI) was conducted and identified metallic debris in the river and recommended additional investigation to further assess the metallic debris. An Expanded SI (anomaly source investigation) was conducted in 2012 and is currently being reported. The FY13 goal established for MRP Area UXO 1 is to finalize the Expanded SI report by June 30, 2013.

The facility-wide goals established for FY13 are to draft a Site Management Plan by June 15, 2013, and to prepare a success story by September 30, 2013.

Ms. Parra asked if there were any questions or comments; none were received.

Installation Restoration Program Site 21 Remedial Action

Mr. Squire led the discussion. The purpose of the topic was to provide an update on the IRP Site 21 RA.

Mr. Squire reviewed the site background. Site 21 is located within a light industrial area of the facility. Historical activities at the site are associated with maintenance shops, ordnance loading, and a fuel service station. Current site activities include storage and maintenance. Building 1556 is the most active building and is used for warehousing and office space. Contamination at the site consists of trichloroethene (TCE) and its breakdown products [1,1-dichloroethene (DCE), cis-1,2-DCE, and vinyl chloride (VC)] in the shallow aquifer groundwater. The objectives of the RA are to reduce contaminants in shallow aquifer groundwater to the maximum extent practicable and to prevent exposures until concentrations allow for unlimited use and unrestricted exposure. The maximum concentrations and the cleanup goals of each contaminant were presented in a table. A figure showing the extent of the TCE plume in the groundwater at the time of the Remedial Investigation, conducted from 2005 to 2007, was projected.

Mr. Squire reviewed the selected remedy to address shallow aquifer groundwater contamination. The selected remedy consists of ISCR and ERD. ISCR was conducted through direct injection of zero valent iron (ZVI) into the shallow aquifer where higher concentrations of TCE were present in order to break down TCE and its daughter products. ERD was conducted through direct injection of emulsified vegetable oil (EVO) into the shallow aquifer in the areas of the site where lower concentrations of TCE were present in order to break down TCE and its daughter products. Figures showing the injection layouts were projected; Mr. Squire noted that the horizontal injection wells shown on the EVO injection layout figure were not installed because of technical problems encountered during the RA.

Mr. Squire summarized the results of the RA activities conducted to date. In November 2010, 12 groundwater monitoring wells were installed and all 30 site monitoring wells were sampled to generate a baseline data set prior to initiation of ZVI or EVO injections. The ZVI injections were conducted from December 2010 through February 2011. The EVO injections were conducted from April 2011 through September 2011. Post-ZVI injection performance groundwater monitoring of eight monitoring wells was conducted in March 2011 and again in May 2011. The first semi-annual groundwater monitoring was conducted in December 2011 and the second semi-annual groundwater monitoring was conducted in May 2012.

Mr. Squire reviewed the groundwater monitoring results previously presented to the RAB. The post-ZVI injection monitoring indicated significant reductions in the TCE levels; four of the eight monitoring wells sampled had a 99 percent reduction. The TCE concentration at the sample location with the maximum sitewide TCE concentration during the Remedial Investigation, 16,000 micrograms per liter (µg/L), had been reduced by an order of magnitude to 7,320 µg/L. Other performance indicators of the treatment, such as increases in iron levels and decreases in DCE and VC concentrations, also showed positive results. Figures depicting the configuration of the baseline TCE plume and the TCE plume following the ZVI injections were projected. The overall reductions in the concentrations were not evident in the plume figures because only eight of the site wells were sampled during the post-ZVI monitoring event; therefore, the baseline conditions for the other wells were taken into consideration when the post-ZVI plume was drawn. The results of the first semi-annual monitoring conducted in December 2011 continued to show overall reductions in concentrations and indicated significant reductions in TCE levels in the lower concentration areas in addition to the higher concentration areas.

Mr. Squire presented the results of the second semi-annual groundwater monitoring event, conducted in May 2012, which was not conducted in time to present during the last RAB meeting. The results indicated that the TCE reductions in the ZVI treatment area have been maintained. All eight of the monitoring wells in the ZVI area had TCE concentrations at or near the TCE cleanup goal of 5 µg/L. TCE was not detected in the monitoring well in which the maximum baseline TCE concentration of 13,000 µg/L had been detected. The new sitewide maximum TCE concentration was 445 µg/L. All of the cleanup goals, except for VC, had been achieved in 17 of the 30 monitoring wells. The TCE cleanup goal had been achieved in 21 of the 30 monitoring wells, and four additional monitoring wells had TCE concentrations near the goal. Figures depicting the changes in the individual

contaminant plumes and the overall plume extent were projected. VC concentrations had increased in some locations; however, the increase is expected as the breakdown process progresses.

Mr. Squire explained the future RA activities that will be conducted. Semi-annual groundwater and storm sewer monitoring will be conducted. The groundwater monitoring will continue until the cleanup goals have been achieved but the monitoring well network and monitoring frequency may be revised as the site achieves the cleanup goals. The next monitoring event is scheduled for the week of November 12, 2012. The storm sewer monitoring will be conducted in the spring of 2013 to determine if groundwater from the site is infiltrating the storm sewer that runs through the site and discharging into a storm water detention pond being constructed as part of the Site 2 RA.

Mr. Squire asked if there were any questions or comments; none were received.

Installation Restoration Program Site 2 Remedial Action Status

Mr. Squire led the discussion. The purpose of the discussion was to provide an update on the status of the RA being conducted at Site 2.

Mr. Squire reviewed the site background and results of previous investigations. The historic activities associated with contamination at the site include waste disposal, open burning, and stormwater discharge from Site 21. Site 2 contains a tidal inlet/wetland area that discharges to St. Juliens Creek. A map showing the location and features of the site was projected. Risks to human health and/or the environment were identified from exposure to volatile organic compounds (VOCs), a semi-volatile organic compound (SVOC) (naphthalene), and a pesticide (heptachlor epoxide) in the shallow aquifer groundwater; VOCs and metals in the surface water; and SVOCs, pesticides, PCBs, and metals in the sediment and soil. Cleanup goals were established for the contaminants of concern with concentrations contributing to unacceptable human health and ecological risks in soil, sediment, and groundwater. The RA Objectives were projected for each of the site media.

Mr. Squire reviewed the components of the selected remedy for the site. The RA consists of installation of a soil cover over the waste and impacted soil and inlet sediment; excavation of the impacted sediment in St. Juliens Creek located at the Site 2 outfall; in situ shallow aquifer groundwater treatment through injection of EVO in high-concentration VOC areas followed by performance monitoring; monitored natural attenuation in the low-concentration VOC, naphthalene, and heptachlor epoxide areas; and LUCs to prevent incompatible future land and groundwater uses.

Mr. Squire discussed the wetland mitigation area, which is one of the preparatory construction activities required to implement the remedy components. Because Site 2 contains a wetland that would be destroyed by installation of the soil cover, a wetland mitigation area was created at former IRP Site 19, which was previously closed with NFA. It was an ideal choice for a mitigation area because of its proximity to Site 2 and its location along existing wetlands of Blow's Creek which, like St. Juliens Creek, is a tributary to the Southern Branch of the Elizabeth River. Construction of the wetland mitigation area was completed in early October 2012. The soil excavated at former Site 19 was transported to Site 2 to be used in the soil cover. Hurricane Sandy flooded the area shortly after the wetland plants were planted in the upland area; however, the plants were rinsed with freshwater to limit damage and the plants appear to be unharmed.

Mr. Squire discussed the Enhanced Extended Detention Basin (EEDB), which is another one of the preparatory construction activities required to implement the remedy components. An EEDB is being constructed in an undeveloped area of the facility, located across the street from Site 2. The purpose of the EEDB is to handle the stormwater that currently flows through the Site 2 inlet. The EEDB is essentially an engineered wetland. The soil that is excavated to construct the EEDB will be used in the soil cover at Site 2. The land clearing and utility work associated with construction of the EEDB was completed in September 2012 and the primary excavation was completed in October 2012. The final details and planting will be conducted in December 2012. Work on the storm water redirect associated with the EEDB began in November 2012 and will be completed in December 2012. The storm water redirect work consists of installing storm sewer piping so that storm water discharges to the EEDB instead of at Site 2 and constructing a new storm water outfall from the EEDB.

Mr. Squire discussed the soil cover component of the RA. The soil cover will be constructed so that there is a minimum of 2 feet of soil cover over all of the waste and impacted soil and sediment onsite. Some areas will have up to 10 feet of soil cover to ensure proper drainage. Broken up concrete will be used to stabilize the subgrade in the wet areas of the site. The construction activities associated with the soil cover that have been completed to date consist of vegetation clearing and demolition of a building foundation, which occurred in October 2012. The subgrade stabilization will take place in early January 2013 and soil cover construction will take place January through February 2013.

Mr. Squire explained the following opportunities for materials reuse and recycling that have been identified during the RA:

- 480 cubic yards (CY) of timber and stumps from the EEDB and former Site 19 were sent offsite for recycling.
- 850 CY of wood chips from the EEDB and former Site 19 were stockpiled for re-use at the EDDB or Site 2.
- 975 CY of wood chips from Site 2 have been stockpiled for reuse at the site.
- 25,800 pounds (lb) of rebar steel, 3,080 lb of guard rail steel, and 3,460 lbs of copper wire from the EEDB and former Site 19 have been recycled by the Navy.
- 90,000 lb of rebar from the building demolition at Site 2 is pending recycling by the Navy.
- 600 CY of concrete from former Site 19 and 325 CY of concrete from the building demolition at Site 2 have been stockpiled for subgrade stabilization of the soil cover at Site 2.
- 550 CY of topsoil was stripped from former Site 19—525 CY was reused at the site and the remaining 25 CY was transported to the EEDB for reuse. Mr. Mann asked why topsoil would be stripped and reused at the same site. Mr. Squire responded that the topsoil was reused to establish the final grade at the site.
- 950 CY of topsoil was stripped from the EEDB area and stockpiled for reuse at the site.
- 6,500 CY of common fill was excavated from former Site 19 and 8,000 CY of common fill has been excavated from the EEDB area to date; the fill will be reused at Site 2.

Mr. Squire summarized the RA schedule. The EEDB will be completed in December 2012. Installation of the soil cover will be conducted in February 2013. During March and April 2013, the topsoil for the soil cover will be placed, a maintenance road will be constructed at the site, the soil cover will be seeded, and the sediment excavation in St Juliens Creek will be conducted. Monitoring of the groundwater flow direction will be conducted during the spring and summer of 2013. The groundwater injections will take place in the fall of 2013.

Mr. Squire asked if there were any questions or comments. Mr. Mann asked if sediment excavation was going to be performed in St. Juliens Creek; Mr. Squire responded that it would. Mr. Costello asked if the plume at Site 2 extends under St. Juliens Creek to the other side of the creek. Ms. Staszak explained that groundwater at Site 2 is not impacting the groundwater on the other side of the creek and that a presentation on the topic was included in a previous RAB meeting.

Roundtable / Question and Answer

Ms. Parra asked if there were any general questions or comments for discussion. Mr. Costello asked if the bushes that were planted at former Site 19 are saltwater bushes. Mr. Squire responded that he was unsure and would have to look into it. Mr. Costello explained that he was interested in what type of bushes had been planted because of his involvement with a boat ramp improvement project along St. Juliens Creek. He explained that he had applied for permits with the U.S. Army Corp of Engineers, but the permits were denied because one of the neighbors with property adjacent to the boat ramp did not disclose that a portion of the area was private property. Ms. Staszak listed the plants that were planted at former Site 19, and explained that the type of plants that were chosen was based on how often they will be inundated by water.

Ms. Staszak indicated that a public meeting to discuss the Site 5 Proposed Plan will be held on February 27, 2013, and that a public notice will be published in the newspaper closer to that time. Mr. Lew asked if an email could

also be sent to the RAB members as an additional reminder of the Site 5 Proposed Plan public meeting; Ms. Parra responded that a reminder email will be sent. Ms. Parra asked the RAB members if they would like to receive final meeting minutes via an email with a link to the SJCA ERP public web site; the RAB members responded that they would.

Mr. Costello asked if there were any light industrial companies showing interest in the SJCA area; Ms. Brumbaugh responded that she was not aware of any.

Next Meeting

Ms. Parra indicated that the next RAB meeting will be held in approximately 6 months, in May 2013. Ms. Staszak asked if there were any topics that the RAB members would like to be included in the next meeting. Ms. Brumbaugh asked if a RAB site visit was being planned for the future. Ms. Parra responded that a site visit was not currently being planned, but that one could be scheduled in conjunction with the May RAB meeting. The meeting attendees agreed that a site visit in May would be conducted in replacement of the next library RAB meeting. Ms. Parra indicated that she will contact the RAB members individually to coordinate access when it is closer to the time of the site visit. No additional agenda items were suggested.

Meeting Adjourned