

The Bulletin DuPont Chambers Works

FUSRAP Site

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U. S. Army Corps
of Engineers
Philadelphia District

Our Environmental Picture Is Nearly Complete! Recent Field Sampling Programs Have Put the Final Pieces Together

George Bock, FUSRAP Project Manager

In this issue of *The Bulletin* I would like to discuss the progress our team has made this year at DuPont Chambers Works under the Formerly Utilized Sites Remedial Action Program (FUSRAP). In addition, I will share my goals for where our team will be in the next few years. As most of you already know this FUSRAP project focuses on identifying and possibly cleaning up residual radiological contamination resulting from our nation's early atomic energy program. In the 1940's DuPont, under contract to the Manhattan Engineer District (MED), supported this program by performing uranium processing activities.

This year we have focused our data collection efforts at Operable Unit (OU) 3 and selected areas in OUs 1 and 2, taking a careful look at this site's groundwater conditions as it relates to radiological contamination. It has always been our goal to define any MED-affected areas as precisely as possible in order to focus potential future cleanup activities.

In April and May 2006 we were in the field conducting a focused, supplemental investigation based on our team's review of the data collected in 2004/2005. The overall environmental picture of this FUSRAP site is almost complete. We have well defined areas where MED-related uranium impacts the soil and groundwater at the site, allowing us to focus any possible cleanup resources in these areas.

I thought it might be helpful to once again review the steps in the overall environmental cleanup process. As we focus on data collection and field programs, it is easy to forget the big picture and what's ahead of us. We will revisit the entire cleanup process – where we have been, where we are now, and where we are going. Each step is an important stop along our "Road to Cleanup", a required step-by-step process (see page 4) to arrive at a protective and cost effective cleanup solution for the DuPont Chambers Works FUSRAP site.



Rotasonic Drilling

Now, we are looking ahead and focused on completing the draft Remedial Investigation (RI) report. It will be completed after the team evaluates the results from this spring's supplemental investigation. I expect the draft report for all three OUs to be available for public review in Spring/Summer 2007. The RI, including an assessment of human health and ecological risks, is a very important stop on our cleanup journey. For that reason, I encourage you to get involved and work with us during the review of the RI report. It's easy:

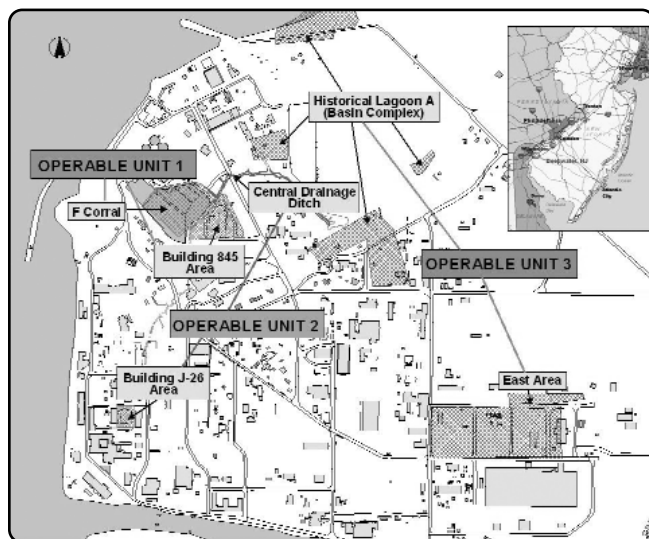
- Get on our mailing list (send in the attached reply card),
- Join us at an upcoming Restoration Advisory Board (RAB) meeting (page 2),
- Talk with your neighbors and friends that serve as Community RAB Members (back of mailer),
- Review and comment on technical documents,
- Contact our RAB coordinator, Ann Johnson, by phone at 410-332-8177 or by email, ajohnson@cabreraservices.com for information on community involvement activities, and
- Visit the Information Repository at Salem Community College Library and project website (<http://www.nap.usace.army.mil/fusrap>).

I look forward to meeting you and discussing our project activities at one of our future community meetings.



Operable Unit/Area of Concern/ Description	Status
<p>Operable Unit 1 (former MED production areas)</p> <ul style="list-style-type: none"> • Area of Concern (AOC) 1, Former Building 845 Area: (4- story, 50,000 square foot building) • AOC 2, F Parking Corral: 150' x 175' paved parking lot, former location of Building 708, used for uranium processing 	<ul style="list-style-type: none"> • Building 845 demolished and structural steel removed in 1999 • Completed field investigation in 2002 • Completed draft RI report in late 2003 • Uranium contaminated soil may require cleanup • Groundwater investigation in 2004 confirmed uranium in groundwater in isolated soil-contaminated areas; however, groundwater is not moving off site • Phase 2 groundwater investigation ongoing/draft report in progress
<p>Operable Unit 2 (drainage ditches leading away from production areas)</p> <ul style="list-style-type: none"> • AOC 3, Central Drainage Ditch: drainage area located between the F Corral and Building 845 • AOC 5, Building J-26: built on the former Building J-16 site, a former research laboratory 	<ul style="list-style-type: none"> • Completed field investigation in 2003 • Results indicate no significant radiological contamination at OU2. No remediation expected • Completed draft report • Phase 2 groundwater investigation ongoing/draft report in progress
<p>Operable Unit 3 (disposal areas for MED waste and rubble)</p> <ul style="list-style-type: none"> • AOC 4, Historical Lagoon A (Basin Complex): former wastewater lagoons • AOC 6, East Area: site of former MED buildings that were not used for uranium production and former waste disposal area 	<ul style="list-style-type: none"> • Completed Phase I field investigation in 2004 (MED-uranium found in two areas) • Phase 2 soil investigation completed in 2005. • Supplemental Field Investigation completed in spring 2006. • Groundwater investigation in 2004 confirmed uranium in groundwater in isolated soil-contaminated areas • Phase 2 groundwater investigation ongoing/draft report in progress • OU3 draft report in progress

Site Map



What is FUSRAP?

The Department of Energy (DOE) created the Formerly Utilized Sites Remedial Action Program, commonly referred to as "FUSRAP". This program addresses potential residual radiological contamination at sites used by the Manhattan Engineer District (MED) and the Atomic Energy Commission (AEC) during the early atomic energy program (1940s through the 1960s). FUSRAP was transferred from the DOE to the U.S. Army Corps of Engineers in 1998. There are currently 23 FUSRAP sites in nine states across the country being evaluated and cleaned up by the Corps of Engineers.

For more information visit
<http://www.nap.usace.army.mil/fusrap>

Next Dupont Chambers Works RAB Meeting
Thursday, October 19, 2006 at 7:00 p.m., Hampton Inn, Pennsville, NJ



Focused Field Investigations

Over the last year the project team has been busy completing the following three focused field investigations:

- Phase 2 Soil Investigation (OU 3)
- Phase 2 Groundwater Investigation (OU 1 and OU 3)
- Supplemental Field Investigation (OU 3)

Additional data was needed to characterize site conditions at OU 3, and to further delineate the extent of uranium contamination in groundwater at OUs 1 and 3. At OU 3 four areas were further evaluated:

- SWMU 5 (AOC4)
- East side of Basin A (AOC 4),
- East Road area (AOC 6), and
- Fire Training Area (AOC 6)

The team installed soil borings using rotasonic drilling because of the large amount of rubble and debris in this area. Rotasonic drilling rods vibrate at very high speeds and cut through most materials in order to get a complete sample. Samples were scanned to detect radiation using a field instrument called the FIDLER. This allowed the team to evaluate both the vertical and horizontal extent of contamination while out in the field and tailor field activities based on real time data. Monitoring wells were then installed based on this field data.

Previous investigations confirmed uranium in groundwater at OU 1 so the team installed eight new monitoring wells there, collected soil, sediment, and groundwater samples, and profiled the “A” (shallow) and “B” (deeper) aquifers (water-bearing soil or rock formations). As in previous investigations low-flow sampling techniques were used and samples were analyzed for uranium and metals. Preliminary results show limited uranium impact to groundwater in the shallow aquifers (A and B) that extend approximately 18 feet below ground surface and no impact to the deeper C aquifer. The shallow (A and B) aquifers are not used for any public water supply. In addition the groundwater studies have shown that the uranium in groundwater at OU 1 is not moving. The uranium drops out of solution quite easily and has stayed in the same location over the last several decades.



Low-flow groundwater sampling allows representative samples to be collected.



Environmental samples are scanned with an instrument to detect radiation.



Rotasonic Drilling - The team used this method at OU 3. It is effective in areas with a lot of rubble, concrete, and debris.



“Safety First” - The safety of site workers and the public (DuPont employees) is the team’s number one priority during site investigations. The team sets up exclusion zones to limit access to the drilling/work areas and monitors air and dust for organic vapors and radiation.

Low-Flow Groundwater Sampling

Low-flow groundwater sampling involves the use of groundwater sampling pumps that remove water very slowly from a monitoring well prior to taking a sample. By pumping from the monitoring well slowly excessive movement of water into the well (turbulent flow) is minimized. This “low stress” method draws water from the soils around the well and the sample represents groundwater conditions in the area.

In Spring 2006 the team returned to the site to collect supplemental data at a few locations where uranium was found in groundwater. Uranium in low concentrations was found at two locations in OU3. The ongoing investigations will further delineate the extent of uranium in groundwater at these locations.



6 Steps to Cleanup!

The Environmental Cleanup Process

The Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), better known as Superfund, establishes procedures for investigating and cleaning up contaminated sites. Although not directly regulated under the Superfund law, the FUSRAP program follows the same guidelines and procedures.

The FUSRAP program follows the "Road to Cleanup" (Figure 1), making the following stops along the way:

Stop 1: Historical Site Assessment (HSA)

A preliminary evaluation of site records and existing information assesses potential sources of site contamination, potential risks to human health and the environment, and the need for further investigation.

Stop 2: Remedial Investigation (RI)

A detailed field program characterizes site conditions by collecting environmental samples for laboratory analysis. It evaluates site contaminants, how serious the contamination is, and potential risks to the community. As part of the RI a risk assessment is prepared to identify potential adverse effects of any radiological contamination present.

Stop 3: Feasibility Study (FS)

A detailed engineering study identifies and evaluates potential cleanup methods for the radiological contamination present.

Stop 4: Proposed Plan and Public Comment

The Army Corps of Engineers issues a proposed plan

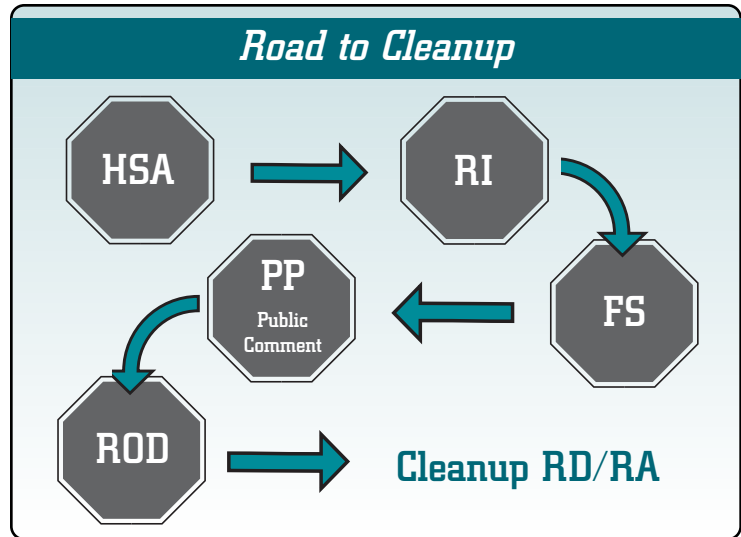


Figure 1

that details site cleanup alternatives that were evaluated and recommends a preferred way to cleanup the radiological contamination present. The public reviews the proposed plan and provides comments to the Corps either at community meetings or through written correspondence

Stop 5: Record of Decision (ROD)

After public and regulatory agency review, the Army Corps of Engineers issues a Record of Decision detailing the selected cleanup method. A summary of public comments received during the comment period is included in the Record of Decision.

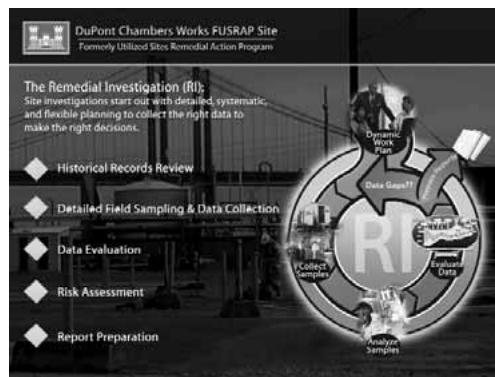
Stop 6: Remedial Design (RD) and Remedial Action (RA) - Site Cleanup

The Remedial Design specifies the precise methods for the selected cleanup actions. The remedial action is the actual cleanup of the site and the cleanup action is implemented.

Step 2: The Remedial Investigation (RI)

This is where we are now...

The Army Corps of Engineers is traveling on the "Road to Cleanup" as shown in Figure 1. Right now we are reviewing data to finish the Remedial Investigation (Step 2). The RI is a flexible process tailored to specific circum-



stances at the site. The extensive field sampling program is nearly complete, with the team preparing the draft RI report including a baseline human health and ecological risk assessment for NJDEP, EPA, and DuPont's review.



After their review the draft RI report will be available for the public's review.

Risk Assessment

An important part of the RI

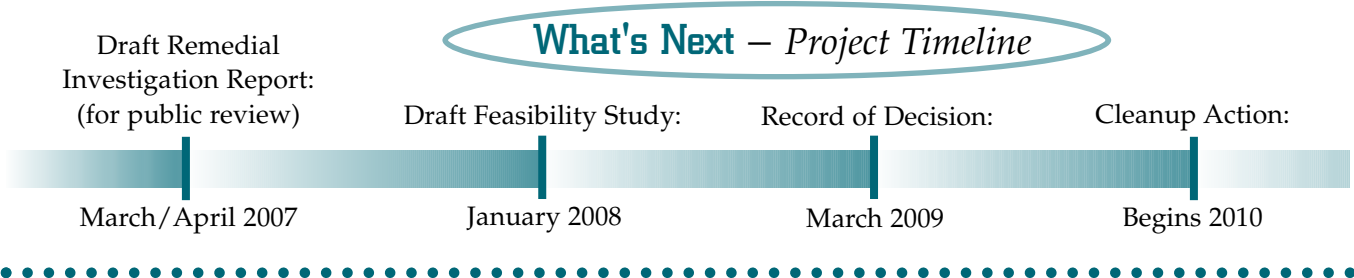
As part of the RI, a scientific study called a baseline risk assessment is conducted to help the project team evaluate potential risks to human health, plants, animals, or the environment resulting from exposure to site contaminants. The risk is estimated by using mathematical models and by making certain assumptions to predict the potential risk to people or the environment if no cleanup action is done at the site.

The risk assessment uses data collected during the RI to identify what contaminants are present, estimate how and to what extent people, animals, and plants might be exposed to them, and assess any health or ecological effects associated with these contaminants. The project team is currently working on the human health and environmental risk assessments for the Chambers

Risk Assessment Steps

- Hazard Identification: identify potential hazards/contaminants
- Exposure Assessment: estimate exposure to contaminants
- Dose-Response (Toxicity) Assessment: assess potential health effects
- Risk Characterization: characterize the site risk

Works facility. The primary contaminant of concern is MED-related uranium and uranium compounds in soil. The team is defining specific Exposure Areas based on uranium levels in soils. Once defined, the risk assessment team will then evaluate the potential risks from exposure to uranium in these areas. More information on risk assessments, the methodology and preliminary results will be discussed at RAB meetings early next year (March 2007) as well as in future newsletters.



Next RAB Meeting: Thursday, October 19, 2006 at 7:00 p.m.

How to Contact Us for More Information

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 Salem Community College Library
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 Phone: 856-351-2653

Project Website
<http://www.nap.usace.army.mil/programs/fusrap>

Community Involvement

Thinking About Getting Involved??

Here's One Way - Attend a RAB Meeting

Answer just a few questions and ask yourself if you may want to join us at a regularly scheduled Restoration Advisory Board (RAB) meeting....

- Do you enjoy reading this newsletter and hearing about the environmental activities?
- Are you interested in environmental cleanup techniques and technologies?
- Do you have an interest in the DuPont Chambers Works facility and its history?
- Is the environment and community service important to you?

If you answered yes to these questions then consider joining us at a RAB meeting. The RAB meets three to four times a year to discuss and plan the environmental activities at this FUSRAP site. The RAB meetings start at 7:00 pm at the Hampton Inn in Pennsville, NJ. Meeting announcements are sent to those on our RAB mailing list and are placed in Today's Sunbeam on the Sunday before the meeting as well as on the day before the meeting. RAB meetings are open to the public and are the best way to hear the latest status of the investigations.



US Army Corps of Engineers

Philadelphia District

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RAB Members

Agency and Dupont Representatives:

George Bock, USACE, Government Co-Chair
Al Boettler, DuPont
Frank Faranca, NJDEP
Andrew Park, EPA, Region II
Stephen Rogers, DuPont Chambers Works

Community RAB Members:

Janet Agnew, Community Member
Mel Beals, Pennsville Township
Robert Bender, Penns Grove School District,
Community Member
John Clemente, Jr., Community Member
H. Glen Donelson, Community Co-Chair,
Pennsville School District
Francis Faunt, Community Member
Armando Fernandez, Community Member
Mack Lake, Mayor, Carneys Point
Charles Morris, Community
Paul Morris, Mayor, Penns Grove
John Prigger, Community
James Warner, Salem County Rep., Alternate
Community Co-Chair



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DuPONT CHAMBERS WORKS FUSRAP SITE**

Join our community mailing list. It is kept confidential and only used to distribute information about the DuPont Chambers Works FUSRAP project. When returning this card be sure to provide mailing and email addresses below. Thank you.

Yes, I'd like to remain on the mailing list to receive future newsletters, meeting announcements, and project information.

Yes, I'd prefer to receive meeting announcements and project information via email.

Yes, please take my name off the mailing list.

Name: _____

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Suggested topics/comments: _____



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