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NSWC INDIAN HEAD  
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INVESTIGATION SUMMARY FOR AGENT ORANGE AT SITE 21 NSWC INDIAN HEAD MD  
7/22/2009  
CH2MHILL

# Site 21 (Bronson Road Landfill) Agent Orange Investigation Summary

## Naval Support Facility, Indian Head, Indian Head, Maryland

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DATE: July 22, 2009

## 1.0 Introduction

This technical memorandum presents the results of an investigation performed for Agent Orange at Site 21 (Bronson Road Landfill) at the Naval Support Facility, Indian Head (NSF-IH), Indian Head, Maryland. The Agent Orange investigation at Site 21 was performed based on discussion and approval from the Indian Head Installation Restoration Team (IHIRT) on July 9, 2008.

The purpose of this technical memorandum is to provide the following information:

- Provide basic information on what Agent Orange is and the typical contaminants associated with Agent Orange.
- Provide the documentation history related to the reported disposal of Agent Orange at the Bronson Road Landfill (Site 21).
- Present the results from the Agent Orange investigation performed at Site 21 in August 2008.
- Present a recommended path forward for Agent Orange at Site 21 based on the information presented herein.

It should be noted that the Agent Orange investigation was performed concurrently with the Site 21 (Bronson Road Landfill) Manganese Investigation. The Site 21 Manganese Investigation objectives, results, and recommendations are documented in a separate

technical memorandum (*Site 21 (Bronson Road Landfill) Manganese Investigation*, CH2M HILL, March 2009) and are not discussed herein.

The remainder of this technical memorandum is organized as follows:

- Section 2 – Agent Orange General Information
- Section 3 – Reported Agent Orange Disposal at Site 21 Documentation History
- Section 4 – Results from Agent Orange Investigation (August 2008)
- Section 5 – Recommended Path Forward for Agent Orange at Site 21

## 2.0 Agent Orange General Information

Agent Orange is a trade name defoliant (herbicide) used by the United States military with extensive application during the Vietnam War (19 million gallons sprayed between 1961 and 1971).<sup>1</sup> The name “Agent Orange” came from the color of the stripe on the 55-gallon drum in which it was stored.

Agent Orange was composed of an equal mixture of two chlorinated herbicides:

- 2,4-Dichlorophenoxyacetic Acid (referred to as 2,4-D).
- 2,4,5-Trichlorophenoxyacetic Acid (referred to as 2,4,5-T).

In addition, dioxin, specifically 2,3,7,8-Tetrachlorodibenzo-para-dioxin (TCDD), is present in very high concentrations (milligrams per liter [mg/L] levels) in Agent Orange as a contaminant through the manufacturing process of 2,4,5-T.<sup>2</sup> Agent Orange is considered to be carcinogenic with TCDD identified as a known human carcinogen.<sup>3</sup>

## 3.0 Reported Agent Orange Disposal at Site 21 Documentation History

The following timeline for the documentation and correspondence associated with reported Agent Orange disposal at Site 21 is presented below beginning with a phone call to the Maryland Department of the Environment (MDE) on June 25, 2008:

- Anonymous Call to MDE on June 25, 2008 – Stating that Agent Orange drums were buried at Indian Head Naval Facility in the 1970s near Bronson Road Landfill. The coordinates provided for the burial location corresponded to the center of Site 21 (Bronson Road Landfill). This information was documented in an email from Mr. John Fairbank of MDE on June 26, 2008 (presented as Attachment A-1).

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<sup>1</sup> As presented in *Agent Orange – Information for Veterans Who Served in Vietnam, United States of America, Department of Veterans Affairs, Environmental Agents Service*, <http://www1.va.gov/agentorange/docs/aoib10-49jul03.pdf> (accessed April 1, 2009).

<sup>2</sup> As presented at the National Defence and the Canadian Forces website, <http://www.forces.gc.ca/site/reports-rapports/defoliant/hinfo2-eng.asp> (accessed April 1, 2009).

<sup>3</sup> As presented at the American Cancer Society website, [http://www.cancer.org/docroot/PED/content/PED\\_1\\_3x\\_Agent\\_Orange\\_and\\_Cancer.asp](http://www.cancer.org/docroot/PED/content/PED_1_3x_Agent_Orange_and_Cancer.asp) (accessed April 1, 2009).

- IHIRT Meeting on July 9, 2008 – Decision made by IHIRT to perform groundwater sampling for Agent Orange-related constituents (chlorinated herbicides 2,4-D and 2,4,5-T; TCDD dioxin) at nine wells at Site 21 during the manganese investigation in August 2008 to assess the presence of Agent Orange-related constituents within or adjacent to the landfill.
- Anonymous Call to MDE on July 17, 2008 – Stating that a former employee, now retired (Walter Carr), should be located and questioned regarding the burial location of Agent Orange drums. The caller indicated that he would not talk to the Navy. This information was documented in an email from Ms. Paula Gilbertson of Naval Facilities Engineering Command (NAVFAC) Washington on July 17, 2008 (presented as Attachment A-2).
- Phone Conversation between Navy (Mr. Joe Rail) and Mr. Walter Carr on August 19, 2008 – Mr. Walter Carr is not retired and still works at NSF-IH. Mr. Carr did not recall any activities where drums containing Agent Orange were buried. Mr. Carr did recall that back in the 1970s there was a program effort to incinerate Agent Orange, but he did not know whether or not it was ever implemented (or to what extent). Mr. Carr checked his office files and found an empty folder labeled “herbicide orange”. This information was documented in an email from Mr. Joseph Rail of NAVFAC Washington on August 19, 2008 (presented as Attachment A-3).

The groundwater samples from the nine wells at Site 21 were collected on August 4-6, 2009. Results are discussed in Section 4 below.

## 4.0 Results from Agent Orange Investigation (August 2008)

Groundwater samples were collected from a total of nine wells consisting of eight monitoring wells (IS21MW01 through IS21MW08) and one piezometer (IS21PZ01) located within the landfill from the locations shown in Figure 1.

All nine wells were sampled for the following Agent Orange-related constituents:

- Chlorinated Herbicides 2,4-D and 2,4,5-T using U.S. Environmental Protection Agency (EPA) SW-846 Method 8151A.<sup>4</sup>
- Dioxin TCDD using EPA SW-846 Method 8290. TCDD was analyzed for both total and filtered fractions.

Table 1 presents the groundwater analytical results for Agent Orange-related constituents within the nine wells.

No constituents (2,4-D; 2,4,5-T; or TCDD) were detected in any of the nine groundwater samples. Typical detection limits for 2,4-D and 2,4,5-T were 5 micrograms per liter ( $\mu\text{g}/\text{L}$ ) and  $1 \times 10^{-6} \mu\text{g}/\text{L}$  for TCDD, below the respective tap water screening levels:<sup>5</sup>

- 2,4-D = 70  $\mu\text{g}/\text{L}$  (Federal Maximum Contaminant Level).

<sup>4</sup> As provided in EPA's *Test Methods for Evaluating Solid Waste (SW-846)*, November 1986, as updated.

<sup>5</sup> As provided in Regional Screening Table at [http://www.epa.gov/reg3hwmd/risk/human/rb-concentration\\_table/Generic\\_Tables/index.htm](http://www.epa.gov/reg3hwmd/risk/human/rb-concentration_table/Generic_Tables/index.htm) (accessed April 1, 2009).

- 2,4,5-T = 370 µg/L (Regional Screening Level).
- TCDD =  $3 \times 10^{-5}$  µg/L (Federal Maximum Contaminant Level).

## 5.0 Recommended Path Forward for Agent Orange at Site 21

No further action related to Agent Orange at Site 21 is recommended based on the following considerations:

- The analytical results presented in Section 4 do not indicate the presence of Agent Orange-related constituents in groundwater within, or adjacent to, Site 21 (Bronson Road Landfill). There is no information supporting a release of Agent Orange constituents to the environment at Site 21.
- The reference (Mr. Walter Carr) provided by the anonymous caller regarding the burial of the Agent Orange drums within the Bronson Road Landfill did not recall or confirm any activities where Agent Orange drums were buried.

Attachment B contains a signature page signed by the Navy and EPA Region III with MDE concurrence in support of no further action regarding Agent Orange at Site 21 (Bronson Road Landfill) based on the information presented herein.

**Table 1. Agent Orange-related Constituents Analytical Results  
Site 21 Agent Orange Investigation  
August 2008**

Station ID	IS21MW01	IS21MW02	IS21MW03	IS21MW04	IS21MW05	IS21MW06	IS21MW07		IS21MW08	IS21PZ01
Sample ID	IS21MW010808	IS21MW020808	IS21MW030808	IS21MW040808	IS21MW050808	IS21MW060808	IS21MW070808	IS21MW070808P	IS21MW080808	IS21PZ010808
Sample Date	08/05/08	08/05/08	08/05/08	08/06/08	08/06/08	08/06/08	08/05/08	08/05/08	08/04/08	08/06/08
Chemical Name										
Herbicides (UG/L)										
2,4,5-T	5.3 U	5 U	5.1 U	5.3 U	5.4 U	5.4 U	5 U	5.6 U	5.4 U	5.4 U
2,4-D	5.3 U	5 U	5.1 U	5.3 U	5.4 U	5.4 U	5 U	5.6 U	5.4 U	5.4 U
Dioxin/Furans (UG/L)										
2,3,7,8-TCDD (dioxin)	3.70E-07 U	5.90E-07 U	4.40E-07 U	3.00E-07 U	3.90E-07 U	5.10E-07 U	3.80E-07 U	4.00E-07 U	4.20E-07 U	3.43E-07 U
Dissolved Dioxins/Furans (UG/L)										
2,3,7,8-TCDD (dioxin)	2.40E-07 U	1.65E-06 U	1.42E-06 U	1.23E-06 U	1.96E-06 U	1.02E-06 U	1.77E-06 U	1.96E-06 U	1.76E-06 U	6.50E-07 U

**Notes:**

- NA - Not analyzed
- U - The material was analyzed for, but not detected
- UG/L - Micrograms per liter



**Legend**

- Monitoring Well
- Piezometer
- Contours (5ft)
- Contours (1ft)
- Road
- Railroad
- Buildings
- Wooded Area
- Approximate Site Boundary
- Installation Boundary

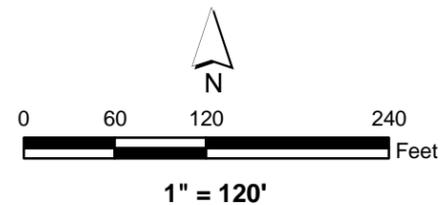


Figure 1  
 Site 21 Monitoring Well/Piezometer Network  
 Site 21 Agent Orange Investigation  
 Indian Head, Maryland

## Attachment A – Emails regarding Agent Orange Disposal at Site 21

- Attachment A-1: Email from Mr. John Fairbank of MDE on June 26, 2008.
- Attachment A-2: Email from Ms. Paula Gilbertson of NAVFAC Washington on July 17, 2008.
- Attachment A-3: Email from Mr. Joseph Rail of NAVFAC Washington on August 19, 2008.

# Attachment A-1

-----Original Message-----

From: John Fairbank [<mailto:jfairbank@mde.state.md.us>]  
Sent: Thursday, June 26, 2008 5:56  
To: Harold Dye  
Cc: Dennis Orenshaw; Hank Sokolowski; Curtis DeTore; Rail, Joseph P CIV NAVFAC Washington; Gilbertson, Paula A CIV NAVFAC Washington  
Subject: Report of call reference Indian Head Naval Facility

John Y. Fairbank  
Chief, Federal Facilities Division  
Hazardous Waste Program  
Maryland Department of the Environment

(410) 537-3344

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The information contained in this communication may be confidential, is intended only for the use of the recipient named above, and may be legally privileged.  
If the reader of this message is not the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication, or any of its contents, is strictly prohibited.  
If you have received this communication in error, please re-send this communication to the sender and delete the original message and any copy of it from your computer system. Thank you.

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<<<<GWIASIG 0.07>>>>

Report of call: 25 June 2008, 15:20 hours

Anonymous Caller – Identified himself only as former Navy employee.

Stated that drums (unknown quantity) were buried on the Indian Head Naval Facility in the 1970's. Reportedly the drums contained 'Agent Orange.' The caller provided the following coordinates for the burial - 38° 34' 40.38" North and 77° 10' 47.23" West. It appears that this location is near the area referred to as the 'Bronson Road Landfill.'

The Indian Head facility is on National Priorities List. EPA is the Lead Regulator, the Navy is the Lead Agent for the site. Without specific information regarding the time of the disposal (pre or post RCRA), the information will be provided to the Navy and the EPA.

# Attachment A-2

-----Original Message-----

From: Gilbertson, Paula A CIV NAVFAC Washington  
[<mailto:paula.gilbertson@navy.mil>]  
Sent: Thursday, July 17, 2008 12:22 PM  
To: Rail, Joseph P CIV NAVFAC Washington  
Cc: Dennis Orenshaw; Hank Sokolowski; Curtis DeTore; Kasim, Margaret/WDC; Delong, Nathan CIV NAVFAC Washington, EV; Dolph, James CIV PORTS, 100H; Lewis, Thomas CIV NAVFAC WASHINGTON, ENV; John Fairbank; Bossart, Jeffrey C CIV NAVFAC Washington, Environmental Dept  
Subject: RE: Report of call reference Indian Head Naval Facility

John Fairbank, MDE got another call today from the same gentleman who called earlier and John relayed the following additional info to me:

\*\*\*\*\*

Caller recommends we locate and question a former Biatzi Plant employee named Walter Carr (retired). Caller also says that a Bill McConnell at the IH safety office may be able to locate him. 301 744-2443 and possibly some old files in the IH Safety Office.

Caller says we should look under "the area with NO VEGETATION". He says that's where the drums were buried. He says its near the extrusion plant across from were the calibration facility is/was.

\*\*\*\*\*

May want to coordinate our sampling with another geophysics effort in this area if it makes sense. He told John he will NOT talk to the Navy but our guess is that he will call John again to see what action is being taken, so we should compile a list of questions so John can ask him the right things if/when he calls again. Let's try to get some questions ready and get them to John as soon as practical and keep me informed on what you find out.

Paula

# Attachment A-3

Woodward, Jeff/WDC

**From:** Rail, Joseph P CIV NAVFAC Washington [joseph.rail@navy.mil]  
**Sent:** Tuesday, August 19, 2008 1:44 PM  
**To:** cdetore@mde.state.md.us; orenshaw.dennis@epamail.epa.gov; Kasim, Margaret/WDC; nathan.delong@navy.mil; Dolph, James CIV PORTS, 100H; Woodward, Jeff/WDC  
**Cc:** Bossart, Jeffrey C CIV NAVFAC Washington, Environmental Dept; Gilbertson, Paula A CIV NAVFAC Washington; Humphreys, James K CIV NAVFAC Washington, Environmental Dept  
**Subject:** RE: Report of call reference Indian Head Naval Facility

FYI: I spoke to Walter Carr today as identified from the anonymous caller. He is not retired and still works at the base. He didn't recall any activities where drums containing agent orange were buried. He said that back in the 70's there was a program effort to incinerate agent orange, but he's not sure whether or not it was ever implemented (or to what extent) as he didn't work in that area at the time. Walter checked his offices' files and found an empty folder labeled "herbicide orange." No other documentation was found. He said if he discovers any additional information, he'll call me.

-----Original Message-----

**From:** Humphreys, James K CIV NAVFAC Washington, Environmental Dept  
**Sent:** Monday, August 11, 2008 8:27  
**To:** Rail, Joseph P CIV NAVFAC Washington  
**Cc:** Bossart, Jeffrey C CIV NAVFAC Washington, Environmental Dept; Gilbertson, Paula A CIV NAVFAC Washington  
**Subject:** RE: Report of call reference Indian Head Naval Facility

Joe,

I have spoken to Bill McConnell who said Walter Carr still works on base, his phone number is (301)744-2445. Bill was not aware of any issues with drums disposed of at that location. Please let me know if you need further assistance.

R/  
Jim

-----Original Message-----

**From:** Rail, Joseph P CIV NAVFAC Washington  
**Sent:** Thursday, July 31, 2008 8:35  
**To:** Humphreys, James K CIV NAVFAC Washington, Environmental Dept  
**Cc:** Bossart, Jeffrey C CIV NAVFAC Washington, Environmental Dept  
**Subject:** FW: Report of call reference Indian Head Naval Facility

Jim: read the message below concerning anonymous calls about agent orange. This is in the middle of Site 21-Bronson Road Landfill. We'd like to follow up on the lead with the safety office to try and get a phone number for Walter Carr, if possible. Is this something you want to coordinate or should my office handle it? (Don't want to step on anyone's toes.) The attached message documents what was said in the original call.

-----Original Message-----

**From:** Gilbertson, Paula A CIV NAVFAC Washington  
**Sent:** Thursday, July 31, 2008 8:24

To: Rail, Joseph P CIV NAVFAC Washington  
Cc: Delong, Nathan CIV NAVFAC Washington, EV; Dolph, James CIV PORTS, 100H;  
'John Fairbank'; Bossart, Jeffrey C CIV NAVFAC Washington, Environmental Dept  
Subject: RE: Report of call reference Indian Head Naval Facility

Joe,

The guy called again and asked John Fairbank to just get the contact info for Mr Carr and have the regulators call him directly. Can you please follow-up with Jeff (and Mr McConnell at safety) to find out how to get this info.

Paula

-----Original Message-----

From: Gilbertson, Paula A CIV NAVFAC Washington  
Sent: Thursday, July 17, 2008 12:22  
To: Rail, Joseph P CIV NAVFAC Washington  
Cc: 'Dennis Orenshaw'; 'Hank Sokolowski'; 'Curtis DeTore'; mkasim@CH2M.com;  
DeLong, Nathan CIV NAVFAC Washington, EV; Dolph, James CIV PORTS, 100H; Lewis,  
Thomas CIV NAVFAC WASHINGTON, ENV; 'John Fairbank'; Bossart, Jeffrey C CIV  
NAVFAC Washington, Environmental Dept  
Subject: RE: Report of call reference Indian Head Naval Facility

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Caller says we should look under "the area with NO VEGETATION". He says that's where the drums were buried. He says its near the extrusion plant across from where the calibration facility is/was.

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May want to coordinate our sampling with another geophysics effort in this area if it makes sense. He told John he will NOT talk to the Navy but our guess is that he will call John again to see what action is being taken, so we should compile a list of questions so John can ask him the right things if/when he calls again. Let's try to get some questions ready and get them to John as soon as practical and keep me informed on what you find out.

Paula

-----Original Message-----

From: Rail, Joseph P CIV NAVFAC Washington  
Sent: Tuesday, July 15, 2008 13:59  
To: John Fairbank; Harold Dye  
Cc: Dennis Orenshaw; Hank Sokolowski; Curtis DeTore; Gilbertson, Paula A CIV NAVFAC Washington; mkasim@CH2M.com; Delong, Nathan CIV NAVFAC Washington, EV  
Subject: RE: Report of call reference Indian Head Naval Facility

FYI: during our Indian Head partnering meeting on July 9th, we discussed a

course of action for the anonymous call concerning the disposal of Agent Orange. The coordinates given are in the middle of Site 21-Bronson Road Landfill. The timing is good in that we already had a sampling event planned for the site this month. We agreed to include sampling for analytes and dioxins typically found in Agent Orange. Any further action will depend on the results.

-----Original Message-----

From: John Fairbank [mailto:jfairbank@mde.state.md.us]

Sent: Thursday, June 26, 2008 5:56

To: Harold Dye

Cc: Dennis Orenshaw; Hank Sokolowski; Curtis DeTore; Rail, Joseph P CIV NAVFAC Washington; Gilbertson, Paula A CIV NAVFAC Washington

Subject: Report of call reference Indian Head Naval Facility

John Y. Fairbank  
Chief, Federal Facilities Division  
Hazardous Waste Program  
Maryland Department of the Environment

(410) 537-3344

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The information contained in this communication may be confidential, is intended only for the use of the recipient named above, and may be legally privileged. If the reader of this message is not the intended recipient, you are hereby notified that any dissemination, distribution, or copying of this communication, or any of its contents, is strictly prohibited.

If you have received this communication in error, please re-send this communication to the sender and delete the original message and any copy of it from your computer system. Thank you.

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<<<<GWIASIG 0.07>>>>

Attachment B – Signature Page for No Further Action  
regarding Agent Orange at Site 21

CONCURRENCE FOR NO FURTHER ACTION  
SIGNATURE PAGE

Agent Orange at Site 21 - Bronson Road Landfill  
Naval Support Facility, Indian Head  
Indian Head, Maryland

In 2009, in partnership with the United States Environmental Protection Agency (USEPA) Region III and the Maryland Department of the Environment (MDE), the Navy prepared a tech memo for Agent Orange at Site 21 (Bronson Road Landfill) at the Naval Support Facility Indian Head in Indian Head, Maryland. Based upon a review of available information, it is the consensus of the Department of the Navy (DoN), the USEPA Region III, with concurrence from the MDE, and members of the Indian Head Installation Restoration Team (IHIRT), that Agent Orange at Site 21 requires no further action under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), as amended. As appropriate, constituent concentrations were evaluated and historical site data reviewed which provided no evidence of the presence of Agent Orange. In the event that contamination posing an unacceptable risk to human health or the environment is discovered after execution of this agreement, the IHIRT agrees to reevaluate Agent Orange at Site 21 as deemed necessary

  
Dennis Orenshaw  
Remedial Project Manager  
USEPA Region III

9/3/09  
Date

  
Joseph Rail  
Remedial Project Manager  
NAVFAC Washington

9/3/09  
Date

  
Nathan Delong  
Remedial Project Manager  
NAVFAC Washington

9/3/09  
Date