



RELATIVE RISK SITE EVALUATION



Channel Islands Air National Guard Station, California

Introduction

The Department of Defense (DoD) identified certain per- and polyfluoroalkyl substances (PFAS) as emerging contaminants of concern which affected installations across the Air Force. When the term "Air Force" is used in this fact sheet, it includes Air National Guard (ANG). Specifically, perfluorooctane sulfonate (PFOS), perfluorooctanoic acid (PFOA), and perfluorobutanesulfonic acid (PFBS) are components of legacy Aqueous Film Forming Foam (AFFF) that the Air Force began using in the 1970s as a firefighting agent to extinguish petroleum fires. The U.S. Environmental Protection Agency (EPA) issued drinking water lifetime Health Advisories (HAs) for PFOS and PFOA, and health-based soil-based surface soil regional screening levels (RSLs) for PFOS, PFOA, and two RSLs, surface soil and drinking water for PFBS.

The Air Force is systematically evaluating potential AFFF releases on all Installations and former Installations. It began with the Preliminary Assessments (PAs) that identified potential release areas. Historical records were reviewed, and first responders, fire chiefs, and hangar staff were interviewed to determine where a release or a spill may have occurred on an Installation (for example, aircraft crash site or an accidental hangar AFFF release). Once the information in the PA was collected, Site Inspections (SIs) were initiated to collect soil and groundwater samples and analyze those media for 16 different PFAS at the potential release areas. The intent of the SI is to determine if a release has occurred and determine if there are impacts to soil and/or groundwater. The next step in the process is the Relative Risk Site Evaluation (RRSE). The RRSE is a DoD-wide methodology to evaluate the relative risks posed by chemicals present at a site in relation to other sites. The RRSE is a tool used to sequence funding for which installations have the highest priority to begin a Remedial Investigation (RI). The DoD premise in installation sequencing is "worst first," meaning the DoD Component shall address installations that pose a relatively greater potential risk to public safety, human health, or the environment before installations posing a lesser risk.

The Channel Islands ANG PFAS PA and SI can be found at the Air Force CERCLA Administrative Record (AR): <https://ar.afcec-cloud.af.mil/> Scroll to the bottom of the page and click on "Continue to site", then select Air National Guard, scroll down the Installation List and click on Channel Islands ANG Station, CA, then enter the AR Number 474990 in the "AR #" field for the PA. For the SI, enter the AR Number 585340. Then click "Search" at the bottom of the page. Click on the spy glass to view the document.

More information on the Air Force response to PFOS and PFOA can be found at: <https://www.afcec.af.mil/WhatWeDo/Environment/Perfluorinated-Compounds/>

Acronyms

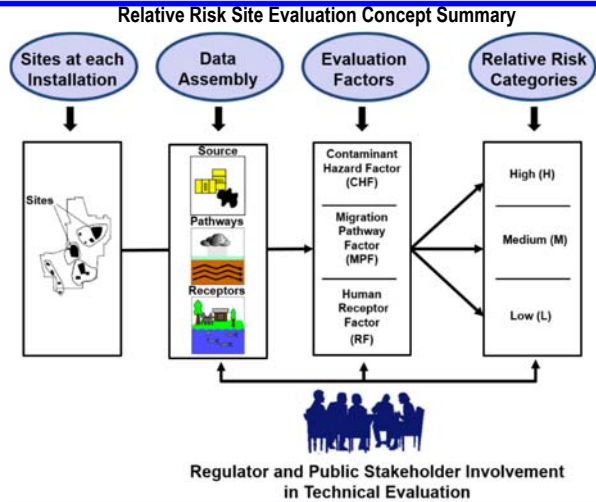
AFFF - Aqueous Film Forming Foam	PA – Preliminary Assessment
ANG - Air National Guard	PFAS - Per-and polyfluoroalkyl substances
ANGS - Air National Guard Station	PFBS – Perfluorobutanesulfonic acid
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act	PFOA - Perfluorooctanoic acid
CHF – Contaminant Hazard Factor	PFOS - Perfluorooctane sulfonate
DoD - Department of Defense	PRL - Potential Release Location
EPA – US Environmental Protection Agency	RI – Remedial Investigation
HA – Health Advisory	RRSE – Relative Risk Site Evaluation
	RSL -- Regional Screening Level
	SI – Site Inspection

Q. What is the Relative Risk Site Evaluation (RRSE)?

A. RRSE is a methodology to sequence environmental restoration work used by the DoD. The RRSE process is used to evaluate the relative risk posed by an environmental restoration site in relation to other sites. The DoD fundamental premise in site prioritization is "worst first," meaning the DoD Component shall address sites that pose a relatively greater potential risk to public safety, human health, or the environment before sites posing a lesser risk. Relative risk is not the sole factor in determining the sequence of environmental restoration work, but it is an important consideration in the priority setting process. The methodology is described in the DoD, Relative Risk Site Evaluation Primer, Summer 1997 Revised Edition: <https://denix.osd.mil/references/dod/policy-guidance/relative-risk-site-evaluation-primer/>

Q. What is the RRSE framework?

A. The RRSE framework provides a DoD-wide approach for evaluating the relative risk to human health and the environment posed by contamination present at sites. The **Relative Risk Site Evaluation Concept Summary** (shown in the figure) illustrates the selection of sites, evaluation of the site data using three evaluation factors, and placement into high, medium, and low categories. The relative risk site evaluation framework is based on information fundamental to risk assessment: sources, pathways, and receptors to sequence restoration work. The RRSE is not a baseline risk assessment or health assessment in the CERCLA process. Regulators and public stakeholders in the environmental restoration process are provided the opportunity to participate in the process in accordance with the DoD Defense Environmental Restoration Program.



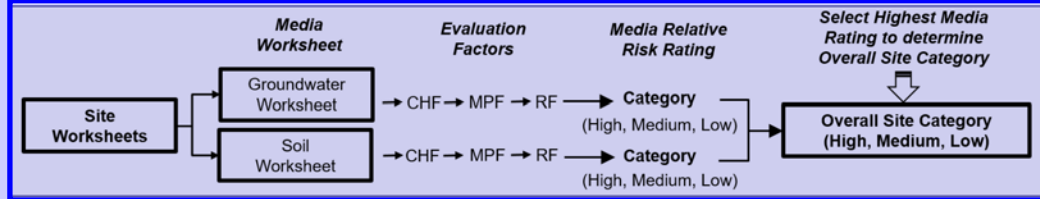
Sites at Each Installation

Q. What restoration sites are required to be evaluated in the RRSE process?



A. Restoration sites in CERCLA phases prior to remedy-in-place are evaluated in the process. Worksheets are developed for environmental media at each site. For consistency across all the Installations, only surface soil (0-1 foot deep) and groundwater media were evaluated in the RRSE.

The figure shows the process for a media to be evaluated using the contaminant hazard factor (CHF), the migration pathway factor (MPF), and the receptor factor (RF). Each media is scored to obtain a relative risk rating of High, Medium, or Low. The highest media rating determines the Overall Site Category.



Q. How is the Contaminant Hazard Factor (CHF) determined?



A. The CHF is determined by dividing the maximum level for a contaminant at each site by the approved screening values (i.e., risk-based comparison values). Contaminant concentration ratios are totaled to arrive at a CHF. A CHF sum of greater than 100 earns a **Significant (High)** ranking. **Moderate (Medium)** is when the total is 2 to 100. **Minimal (Low)** is when a CHF is less than two.

FOR MORE INFORMATION

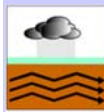
Air Force Civil Engineer Center
Environmental Restoration Program
www.afcec.af.mil

AFCEC CERCLA
Administrative Record (AR)
<https://ar.afcec-cloud.af.mil/>

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Q. How is the Migration Pathway Factor (MPF) determined?

A. The movement of contamination at a site is evaluated and assigned a MPF rating.



Ratings for MPFs are designated as: **evident**, **potential**, or **confined** (for High, Medium, and Low). **Evident** exposure means the contamination is at a point where exposure to humans or the environment can occur, such as at a drinking water well. **Potential** ratings are given to sites where exposure may happen. A **confined** rating is given to sites where a low possibility for exposure may occur.

Q. How is the Receptor Factor (RF) determined?

A. The RF is determined by a receptor's, such as humans, potential to come into contact with contaminated media. RFs are designated as: identified, potential, or limited (**High, Medium, and Low**).



Identified rating is given when receptors are in contact or threat of contact with contaminated media. **Potential** is given when receptor may contact contaminated media. **Limited** is given when there is little or no contact with contaminated media.

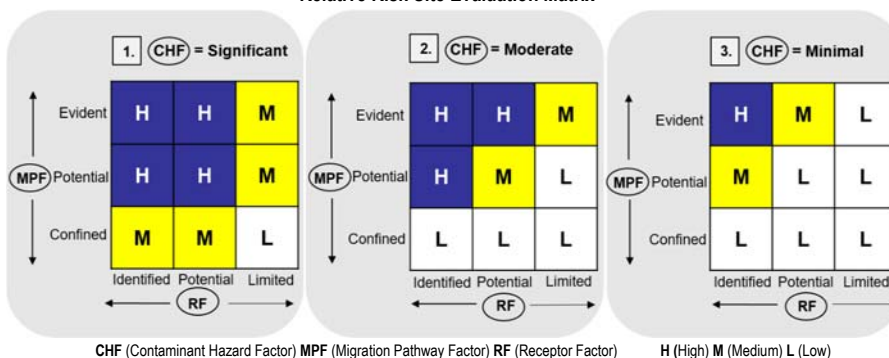
RELATIVE RISK SITE EVALUTION, cont.

Media Relative Risk Rating

Q. How is the media relative risk rating determined?

A. Use the chart to determine the relative risk rating for each media evaluated. Start by choosing the **CHF** result of the evaluation. If the **CHF** is **Significant**, use **box 1.**; if **Moderate**, use **box 2.**; if **Minimal**, use **box 3.** Then find the **MPF** and **RF** results and move to the square where the results meet. That square indicates the media relative risk rating. For example, if the **CHF** is **Significant** (go to **box 1.**), the **MPF** is **Potential** and the **RF** is **Identified**, then the rating is **High (H)**.

Relative Risk Site Evaluation Matrix



Overall Site Category

Q. How do I determine the Overall Site Category?

A. The highest relative risk media rating becomes the **Overall Site Category** for the site. For example, if a site has a groundwater relative risk rating of **High**, and soil relative risk rating of **Low**, then the Overall Site Category rating for the site is **High**.

Regulatory and Stakeholder Involvement

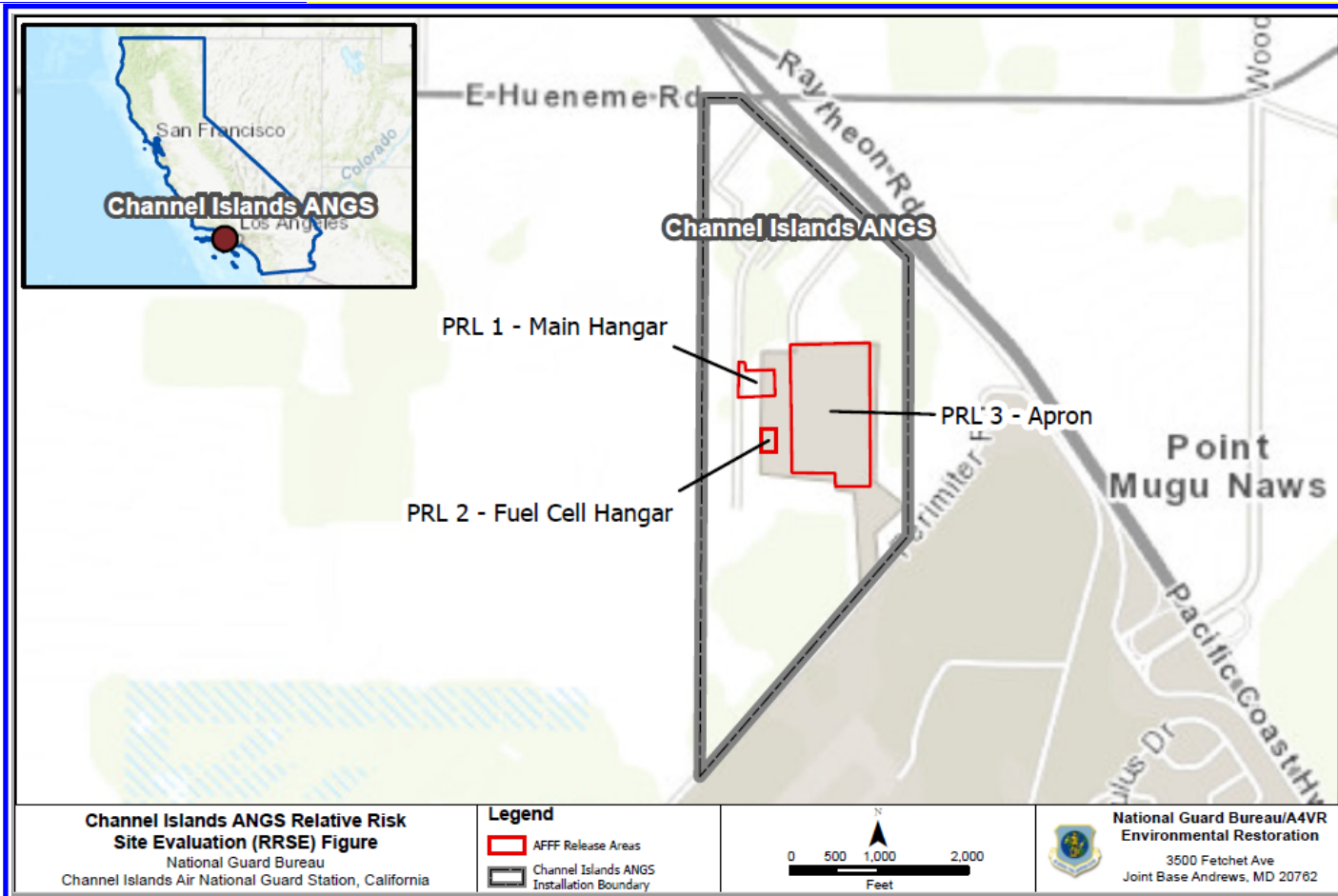
Q. How do I participate as Stakeholder?



A. To offer opportunity to participate in RRSE, the Air Force announces a public comment period in your local newspaper. There is also opportunity to participate during installation Restoration Advisory Committees where active. Installation Restoration Advisory Committee meetings are also announced in your local newspaper.

Relative Risk Site Evaluation Summary Channel Islands ANG, CA

Overall Site Category	Site Name (Sites are shown on the map below and RRSE Worksheets are attached)
HIGH	N/A
MEDIUM	N/A
LOW	PRL 1, PRL 2, PRL 3



Site Background Information			
Installation:	Channel Islands ANGS	Date:	10/14/2021
Location (State):	California	Media Evaluated:	Soil
Site Name and ID:	Main Hangar - PRL 1	Phase of Execution (e.g., RI, Record of Decision (ROD)):	N/A
RPM's Name:	Mark Dickerson	Agreement Status (e.g., Federal Facility Agreement date signed):	N/A
OVERALL SITE CATEGORY: LOW			

Site Summary	
Brief Site Description:	<p>The Main Hangar is used for aircraft maintenance and was constructed in 1988. The existing aqueous film forming foam (AFFF) fire suppression system (FSS) within the Main Hangar consists of underwing cannons. The Main Hangar is supplied with AFFF by two aboveground storage tanks (ASTs) located outside of the Main Hangar containing 3% AFFF with a total capacity of approximately 1,500 gallons. Trench drains connected to the sanitary sewer are located within the Main Hangar doors with stormwater catch basins located outside of the Main Hangar doors that lead to the Retention Tank #1 (PRL 4) and Retention Tank #2 (PRL 5). An accidental release of AFFF at the Main Hangar occurred in January 2016. The Main Hangar was filled to a depth of approximately two feet (ft.) and was flushed into the inner trench drains and outer stormwater catch basins. Any AFFF that escaped those drains was flushed onto the grassy area to the east of the Main Hangar and allowed to dissipate.</p> <p>The groundwater samples collected at this PRL were all non-detect.</p>
Brief Description of Pathways:	<p>There are three primary water-bearing zones beneath the station. A semi-perched aquifer and clay cap unit is exposed on-station at the surface, below which lies the Oxnard and Mugu aquifers of the Upper Pleistocene. The Hueneme, Fox Canyon, and Grimes Canyon aquifers of the Lower Pleistocene San Pedro Formation lie below as the third water-bearing zone. The clay unit below the semi-perched aquifer is laterally continuous and acts as an aquitard that restricts transport to underlying aquifers. The shallow semi-perched aquifer can be found at a depth of 7 to 15 ft. below ground surface (bgs) and extends to approximately 150 ft. bgs. The semi-perched aquifers, as well as the Oxnard and Mugu aquifers are not used for drinking water. The regional groundwater flow direction is generally to the southwest within the semi-perched aquifer, but can be locally influenced by irrigation patterns causing groundwater to flow to the east or northeast. Groundwater elevations measured in 2018 indicate easterly localized groundwater flow near the area of concern (AOC). PFAS were detected in surface soils during the site investigation (SI). PFAS were not detected in groundwater during the SI. Surface water from the base flows through stormdrains into retention tanks along the SE border of the property. Surface water from agricultural land to the west of the station drains towards the Pacific Ocean.</p>
Brief Description of Receptors:	<p>Channel Islands ANGS is supplied potable water from the City of Port Hueneme public water system; as such, groundwater is not used as a source of drinking water at the Channel Islands ANGS. According to the preliminary assessment (PA) Report, 37 wells were found to be located within a one-mile radius of the Channel Islands ANGS. As stated in the PA Report, the use of the wells are as follows: 16 United States Geological Survey wells, 3 irrigation wells, 5 observation wells, 3 privately owned water wells, 3 water wells owned by the U.S. Navy, and 7 wells with unknown use. No public water supply wells were found within a 1 mile radius of Channel Islands ANGS. Channel Islands ANGS includes paved and landscaped areas and, as such, there are limited pathways to soil and air migration from disturbed soils under normal operating conditions. The areas adjacent to the Main Hangar include paved areas and a large grassy area immediately east of the Hangar. During excavation, a worker could be exposed to soil and dust from soil.</p>

Groundwater Worksheet

Installation Channel Islands ANGB

Site ID: PRL 1

AFFF Release Area #: AFFF 1

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	Not Detected	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		NA	
Migratory Pathway Factor				
Evident	Analytical data or direct observation indicates that contamination in the groundwater has moved to a point of exposure (e.g., well)			
Potential	Contamination in the groundwater has moved beyond the source or insufficient information available to make a determination of Evident or Confined			
Confined	Analytical data or direct observation indicates that the potential for contaminant migration from the source via groundwater is limited (possibly due to geological structures or physical controls)		L	
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		L	
Receptor Factor				
Identified	Impacted drinking water well with detected contaminants or existing downgradient water supply well within 4 miles and groundwater is current source of drinking water (EPA Class I or IIA groundwater)			
Potential	Existing downgradient drinking water well beyond 4 miles with no contaminant detection(s) or no known drinking water wells downgradient and groundwater is currently or potentially usable for drinking water (i.e., EPA Class I or II groundwater) or other beneficial use (e.g., agricultural)		M	
Limited	No known water supply wells downgradient and groundwater is not considered potential drinking water source and is of limited beneficial use (Class III)			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
Groundwater Category			NA	

Soil Worksheet

Installation Channel Islands ANGB

Site ID: PRL 1

AFFF Release Area #: AFFF 1

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios	
PFOS	0.0072	0.126	0.1	
PFOA	0.00077	0.126	0.0	
PFBS	0.0024	1.9	0.0	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	0.1	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		L	
<u>Migratory Pathway Factor</u>				
Evident	Analytical data or observable evidence that contamination is present at a point of exposure			
Potential	Contamination has moved beyond the source, could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined		M	
Confined	Low possibility for contamination to be present at or migrate to a point of exposure			
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
<u>Receptor Factor</u>				
Identified	Receptors identified that have access to contaminated soil			
Potential	Potential for receptors to have access to contaminated soil		M	
Limited	No potential for receptors to have access to contaminated soil			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
Soil Category			LOW	

Site Background Information			
Installation:	Channel Islands ANGS	Date:	10/14/2021
Location (State):	California	Media Evaluated:	Soil
Site Name and ID:	Fuel Cell Hangar - PRL 2	Phase of Execution (e.g., RI, Record of Decision (ROD)):	N/A
RPM's Name:	Mark Dickerson	Agreement Status (e.g., Federal Facility Agreement date signed):	N/A
OVERALL SITE CATEGORY: LOW			

Site Summary	
Brief Site Description:	<p>The Fuel Cell Hangar is equipped with an AFFF cannon FSS supplied by two ASTs located outside of the Fuel Cell Hangar with an approximate total capacity of 2,000 gallons. Built in 1988, the Fuel Cell Hangar is used for aircraft maintenance and is equipped with trench drains leading to the sanitary sewer. The PA Report did not identify records of FSS testing or accidental releases of AFFF, and no known releases have occurred at the Fuel Cell Hangar.</p> <p>The groundwater samples collected at this PRL were all non-detect.</p>
Brief Description of Pathways:	<p>There are three primary water-bearing zones beneath the station. A semi-perched aquifer and clay cap unit is exposed on-station at the surface, below which lies the Oxnard and Mugu aquifers of the Upper Pleistocene. The Hueneme, Fox Canyon, and Grimes Canyon aquifers of the Lower Pleistocene San Pedro Formation lie below as the third water-bearing zone. The clay unit below the semi-perched aquifer is laterally continuous and acts as an aquitard that restricts transport to underlying aquifers. The shallow semi-perched aquifer can be found at a depth of 7 to 15 ft. bgs and extends to approximately 150 ft. bgs. The semi-perched aquifers, as well as the Oxnard and Mugu aquifers are not used for drinking water. The regional groundwater flow direction is generally to the southwest within the semi-perched aquifer, but can be locally influenced by irrigation patterns causing groundwater to flow to the east or northeast. Groundwater elevations measured in 2018 indicate easterly localized groundwater flow near the AOC. No PFAS were detected in groundwater; PFAS were detected in surface soil.</p>
Brief Description of Receptors:	<p>Channel Islands ANGS is supplied potable water from the City of Port Hueneme public water system; as such, groundwater is not used as a source of drinking water at the Channel Islands ANGS. According to the PA Report, 37 wells were found to be located within a one-mile radius of the Channel Islands ANGS. As stated in the PA Report, the use of the wells are as follows: 16 United States Geological Survey wells, 3 irrigation wells, 5 observation wells, 3 privately owned water wells, 3 water wells owned by the U.S. Navy, and 7 wells with unknown use. No public water supply wells were found within a 1 mile radius of Channel Islands ANGS. Channel Islands ANGS includes paved and landscaped areas and, as such, there are limited pathways to soil and air migration from disturbed soils under normal operating conditions. The areas adjacent to the Fuel Hangar include paved areas and a large grassy area immediately east of the Hangar. During excavation, a worker could be exposed to soil and dust from soil.</p>

Groundwater Worksheet

Installation Channel Islands ANGB

Site ID: PRL 2

AFFF Release Area #: AFFF 2

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	Not Detected	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		NA	
Migratory Pathway Factor				
Evident	Analytical data or direct observation indicates that contamination in the groundwater has moved to a point of exposure (e.g., well)			
Potential	Contamination in the groundwater has moved beyond the source or insufficient information available to make a determination of Evident or Confined			
Confined	Analytical data or direct observation indicates that the potential for contaminant migration from the source via groundwater is limited (possibly due to geological structures or physical controls)		L	
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		L	
Receptor Factor				
Identified	Impacted drinking water well with detected contaminants or existing downgradient water supply well within 4 miles and groundwater is current source of drinking water (EPA Class I or IIA groundwater)			
Potential	Existing downgradient drinking water well beyond 4 miles with no contaminant detection(s) or no known drinking water wells downgradient and groundwater is currently or potentially usable for drinking water (i.e., EPA Class I or II groundwater) or other beneficial use (e.g., agricultural)		M	
Limited	No known water supply wells downgradient and groundwater is not considered potential drinking water source and is of limited beneficial use (Class III)			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
Groundwater Category			NA	

Soil Worksheet

Installation Channel Islands ANGB

Site ID: PRL 2

AFFF Release Area #: AFFF 2

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios
PFOS	0.024	0.126	0.2
PFOA	0.00067	0.126	0.0
PFBS	0.00039	1.9	0.0
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	0.2
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$	
100 > CHF > 2	M (Medium)		
2 > CHF	L (Low)		
CHF Value	CHF VALUE		L
<u>Migratory Pathway Factor</u>			
Evident	Analytical data or observable evidence that contamination is present at a point of exposure		
Potential	Contamination has moved beyond the source, could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined		M
Confined	Low possibility for contamination to be present at or migrate to a point of exposure		
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M
<u>Receptor Factor</u>			
Identified	Receptors identified that have access to contaminated soil		
Potential	Potential for receptors to have access to contaminated soil		M
Limited	No potential for receptors to have access to contaminated soil		
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M
Soil Category			LOW

Site Background Information			
Installation:	Channel Islands ANGB	Date:	10/14/2021
Location (State):	California	Media Evaluated:	Soil
Site Name and ID:	Apron - PRL 3	Phase of Execution (e.g., RI, Record of Decision (ROD)):	N/A
RPM's Name:	Mark Dickerson	Agreement Status (e.g., Federal Facility Agreement date signed):	N/A
OVERALL SITE CATEGORY: LOW			

Site Summary	
Brief Site Description:	<p>The Apron is utilized for aircraft parking and has considerable aircraft operations. Drainage within this area is characterized by sheet flow into grassy, vegetated areas to the east of the Apron, as well as numerous storm drains within the area of the apron. Although there are not any documented spills of AFFF to the aircraft parking apron, this area was included as a PRL in the PA Report due to the potential use and discharge of AFFF associated with operations in this area and the proximity of the Apron to the Main Hangar (PRL 1) where a January 2016 release of AFFF occurred.</p> <p>The groundwater samples collected at this PRL were all non-detect.</p>
Brief Description of Pathways:	<p>There are three primary water-bearing zones beneath the station. A semi-perched aquifer and clay cap unit is exposed on-station at the surface, below which lies the Oxnard and Mugu aquifers of the Upper Pleistocene. The Hueneme, Fox Canyon, and Grimes Canyon aquifers of the Lower Pleistocene San Pedro Formation lie below as the third water-bearing zone. The clay unit below the semi-perched aquifer is laterally continuous and acts as an aquitard that restricts transport to underlying aquifers. The shallow semi-perched aquifer can be found at a depth of 7 to 15 ft. bgs and extends to approximately 150 ft. bgs. The semi-perched aquifers, as well as the Oxnard and Mugu aquifers are not used for drinking water. The regional groundwater flow direction is generally to the southwest within the semi-perched aquifer, but can be locally influenced by irrigation patterns causing groundwater to flow to the east or northeast. Groundwater elevations measured in 2018 indicate easterly localized groundwater flow near the AOC. No PFAS were detected in groundwater; PFAS were detected in surface soil.</p>
Brief Description of Receptors:	<p>Channel Islands ANGS is supplied potable water from the City of Port Hueneme public water system; as such, groundwater is not used as a source of drinking water at the Channel Islands ANGS. According to the PA Report, 37 wells were found to be located within a one-mile radius of the Channel Islands ANGS. As stated in the PA Report, the use of the wells are as follows: 16 United States Geological Survey wells, 3 irrigation wells, 5 observation wells, 3 privately owned water wells, 3 water wells owned by the U.S. Navy, and 7 wells with unknown use. No public water supply wells were found within a 1 mile radius of Channel Islands ANGS. Channel Islands ANGS includes paved and landscaped areas and, as such, there are limited pathways to soil and air migration from disturbed soils under normal operating conditions. The areas adjacent to the Apron include paved areas and some grassy areas. During excavation, a worker could be exposed to soil and dust from soil.</p>

Groundwater Worksheet

Installation Channel Islands ANGB

Site ID: PRL 3

AFFF Release Area #: AFFF 3

Contaminant	Maximum Concentration (ug/L)	Comparison Value (ug/L)	Ratios	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	Not Detected	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		NA	
Migratory Pathway Factor				
Evident	Analytical data or direct observation indicates that contamination in the groundwater has moved to a point of exposure (e.g., well)			
Potential	Contamination in the groundwater has moved beyond the source or insufficient information available to make a determination of Evident or Confined			
Confined	Analytical data or direct observation indicates that the potential for contaminant migration from the source via groundwater is limited (possibly due to geological structures or physical controls)		L	
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		L	
Receptor Factor				
Identified	Impacted drinking water well with detected contaminants or existing downgradient water supply well within 4 miles and groundwater is current source of drinking water (EPA Class I or IIA groundwater)			
Potential	Existing downgradient drinking water well beyond 4 miles with no contaminant detection(s) or no known drinking water wells downgradient and groundwater is currently or potentially usable for drinking water (i.e., EPA Class I or II groundwater) or other beneficial use (e.g., agricultural)		M	
Limited	No known water supply wells downgradient and groundwater is not considered potential drinking water source and is of limited beneficial use (Class III)			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
Groundwater Category			NA	

Soil Worksheet

Installation Channel Islands ANGB

Site ID: PRL 3

AFFF Release Area #: AFFF 3

Contaminant	Maximum Concentration (mg/kg)	Comparison Value (mg/kg)	Ratios	
PFOS	0.0046	0.126	0.0	
PFOA	0.00046	0.126	0.0	
CHF Scale	CHF Value	Contamination Hazard Factor (CHF)	0.0	
CHF > 100	H (High)	$CHF = \sum \frac{[\text{Maximum Concentration of Contaminant}]}{[\text{Comparison Value for Contaminant}]}$		
100 > CHF > 2	M (Medium)			
2 > CHF	L (Low)			
CHF Value	CHF VALUE		L	
Migratory Pathway Factor				
Evident	Analytical data or observable evidence that contamination is present at a point of exposure			
Potential	Contamination has moved beyond the source, could move but is not moving appreciably, or information is not sufficient to make a determination of Evident or Confined		M	
Confined	Low possibility for contamination to be present at or migrate to a point of exposure			
Migratory Pathway Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
Receptor Factor				
Identified	Receptors identified that have access to contaminated soil			
Potential	Potential for receptors to have access to contaminated soil		M	
Limited	No potential for receptors to have access to contaminated soil			
Receptor Factor	DIRECTIONS: Record the single highest value from above in the box to the right (maximum value = H).		M	
Soil Category			LOW	