

**FINAL
SURFACE WATER AND SEDIMENT REPORT
AREA IV RADIOLOGICAL STUDY
SANTA SUSANA FIELD LABORATORY
VENTURA COUNTY, CALIFORNIA**

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LIST OF ACRONYMS AND ABBREVIATIONS

Ag	silver
Am	americium
AOC	Administrative Order on Consent
Ba	barium
bgs	below ground surface
BTV	background threshold value
Cf	californium
Cm	curium
Cs	cesium
DOE	Department of Energy
DQO	data quality objective
DTSC	Department of Toxic Substance Control
EDD	electronic data deliverable
ETEC	Energy Technology Engineering Center
FAL	Field Action Level
FSP	Field Sampling Plan
GEL	GEL Laboratories, LLC
GPS	global positioning system
GRAY	gamma radiation anomaly
HGL	HydroGeoLogic, Inc.
HSA	Historical Site Assessment
MARLAP	Multi-Agency Radiological Laboratories Analytical Protocols
MCL	maximum contaminant level
MDC	minimum detectable concentration
MQO	measurement quality objective
NAA	North American Aviation
NASA	National Aeronautical and Space Administration
NBZ	Northern Buffer Zone
NORM	naturally occurring radioactive material
NPDES	National Pollutant Discharge Elimination System
pCi/g	picocuries per gram

LIST OF ACRONYMS AND ABBREVIATIONS (Continued)

pCi/L	picocuries per liter
PGRAY	potential gamma radiation anomaly
Pu	plutonium
QA	quality assurance
QAPP	quality assurance project plan
QC	quality control
RMHF	Radioactive Materials Handling Facility
Rn	radon
RRC	radionuclide reference concentration
RTL	radiological trigger level
RWQCB	Regional Water Quality Control Board
SB990	Senate Bill 990
SMP	Site Management Plan
SOP	standard operating procedure
Sr	strontium
SRE	Sodium Reactor Experiment
SSFL	Santa Susana Field Laboratory
TAL	TestAmerica Laboratories, Inc.
Te	tellurium
Th	thorium
TM	technical memorandum
TPC	The Palladino Company, Inc.
U	uranium
UCL	upper confidence limit
USEPA	U.S. Environmental Protection Agency
USFWS	U.S. Fish and Wildlife Service

FINAL
SURFACE WATER AND SEDIMENT REPORT
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1.0 INTRODUCTION

The U.S. Environmental Protection Agency (USEPA) conducted an extensive radiological characterization study of the Santa Susana Field Laboratory (SSFL) at Area IV and the Northern Buffer Zone (NBZ) located in Ventura County, California (Figure 1.1). SSFL Area IV consists of 290 acres, and the NBZ consists of a 182-acre tract of naturally vegetated land. The Boeing Company owns both Area IV and the NBZ. Collectively, these areas are referred to as the Area IV Study Area. USEPA conducted this study pursuant to federal legislative mandate HR2764, the Consolidated Appropriations Act of 2008, and the authority granted under the Comprehensive Environmental Response, Compensation, and Liability Act and subsequently the Administrative Order on Consent (AOC) for Remedial Action (DTSC, 2010). This work was executed by HydroGeoLogic, Inc. (HGL) under a USEPA Region 7 Architect and Engineering Services Contract EP-S7-05-05, Task Order 0038, Amendment 004, being administered and managed by USEPA Region 9. HGL is USEPA's contractor on this project.

1.1 PURPOSE AND OBJECTIVES

The Area IV Radiological Study was conducted to characterize radionuclide concentrations within the Area IV Study Area. The Area IV radiological study consisted of completing an Historical Site Assessment (HSA); conducting a gamma radiation survey of accessible ground surfaces; conducting a geophysical survey of targeted locations; and collecting and analyzing soil, groundwater, surface water, and sediment samples. The results of the HSA, gamma radiation scanning, geophysical survey, historical aerial photographic analysis, and groundwater sampling are detailed in the following documents for the Area IV Radiological Study:

- Final Historical Site Assessment (HGL, 2012a),
- Final Geophysical Investigation Report (HGL, 2011a),
- Aerial Photographic Analysis of Santa Susana Field Laboratory (USEPA, 2010),
- Final Gamma Radiation Scanning Report (HGL and TPC, 2012b), and
- Final Groundwater Report (HGL, 2012c).

This report describes the sampling regime and analytical results of surface water and sediment samples collected from potential areas of radiological contamination. The primary objective of the surface water and sediment sampling effort was to characterize the media for potential radiological contamination within the Area IV Study Area. To meet this objective, samples were collected during two rounds of sampling. Surface water and sediment samples were

collected during Phase I, and sediment and soil samples were collected at step-out locations during Phase II sampling activities.

The initial Phase I sampling consisted of collecting surface water and sediment samples at specific, targeted locations identified from the findings of the HSA, aerial photographic analysis, direct field observations, and stakeholder requests. The Phase II sampling consisted of collecting step-out samples to delineate radionuclide concentrations in sediment and soils adjacent to Phase I sediment sample locations that exhibited concentrations above the project decision levels, called radiological trigger levels (RTL).

RTLs were used during the sampling events to identify locations of potential concern in the absence of defined cleanup values. The targeted and step-out sediment and soil sampling locations, justification, and supporting lines of evidence were outlined in the Surface Water and Sediment Addendum to the Phase I Field Sampling Plan (FSP) for Groundwater, Surface Water, and Sediment (HGL, 2010a) and the Final Phase II Sediment Sampling Addendum to the Final Phase I FSP for Groundwater, Surface Water, and Sediment (HGL, 2012d). The addendums detail the planned sampling effort for each Phase and include stakeholder input. Sampling efforts were conducted in accordance with the Final Phase I FSP for Groundwater, Surface Water, and Sediment (HGL, 2010b), the FSP addenda, and the Quality Assurance Project Plan (QAPP) for Groundwater, Surface Water, and Sediment (HGL, 2010c).

1.2 LIMITATIONS

This report is intended to characterize radiological areas of interest in the sampled media from past site activities within the Area IV Study Area. This report is not intended to identify remedial locations nor indicate areas of contamination. These determinations will be made at a future date by the State of California Department of Toxic Substances Control (DTSC).

The activities described in this report were conducted in general accordance with current regulatory guidelines and the standard-of-care exercised by environmental consultants performing similar work in the project area. The findings discussed in this report were derived from data collection efforts conducted with commercially available sampling and analysis equipment, techniques, and procedures available at the time the investigation was conducted. The samples collected and used for analysis, and the observations made, are believed to be representative of the Area IV Study Area; however, conditions can vary significantly between sampling locations, thus, conditions not observed or described in this report may be encountered during subsequent activities.

1.3 REPORT ORGANIZATION

This report consists of Sections 1.0 through 6.0 and Appendices A through E. Referenced tables and figures are provided in separate, tabbed sections. The Appendices include the surface water sampling results technical memorandum (TM), Phase I sediment sampling results TM, Phase II sampling results TM, the Radionuclide Reference Concentrations (RRC) paper, and the Background Threshold Value (BTV) and Radionuclide Selection Rationale paper. The contents of each section are summarized below:

- Section 1.0, Introduction. Describes the purpose and objectives, limitations, and organization of this report.
- Section 2.0, Site Background. Describes the site location, site and regulatory history, selection of radionuclides of concern and environmental setting including surface hydrology, soil types, topography, and geology.
- Section 3.0, Study Area Investigation Methodology. Discusses natural and cultural resources, lines of evidence used to identify surface water and sediment sample locations, sample collection process during the Phase I and Phase II sampling events, and the quality assurance (QA)/quality control (QC) procedures employed during sample collection and laboratory analysis.
- Section 4.0, Phase I and Phase II Analytical Results. Describes the evaluation approach, and discusses the analytical results, radiological contamination areas, and radiological areas of interest.
- Section 5.0, Summary. Summarizes the radiological contamination areas for the entire Area IV Study Area and general considerations.
- Section 6.0, References. Lists the documents cited in this report.

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2.0 SITE BACKGROUND

2.1 SITE LOCATION AND DESCRIPTION

The SSFL is located in southeastern Ventura County, California, approximately 30 miles northwest of Los Angeles between the Simi and San Fernando valleys in the Simi Hills (Figure 1.1). Residential developments are located near the southern, northern, and eastern boundaries of the site (Figure 2.1). The SSFL occupies 2,850 acres of rocky (sandstone) terrain with approximately 700 feet of topographic relief. Specifically, the study was focused on Area IV and the adjacent NBZ referred as the Area IV Study Area. The Area IV Study Area is composed of approximately 471 acres (290 acres in Area IV and 181 acres in the NBZ) that vary from relatively flat to steep relief and rugged terrain. The elevation of the Area IV Study Area is between 1,880 feet and 2,150 feet above mean sea level.

The Area IV Study Area was initially divided into eight subareas based on existing Resource Conservation and Recovery Act Facility Investigations. For the radiological characterization study, USEPA elected to further subdivide these eight subareas into 12 subareas based on features such as roads, drainage pathways, and building use as follows:

- Subarea 3
- Subarea 5A
- Subarea 5B
- Subarea 5C
- Subarea 5D-North
- Subarea 5D-South
- Subarea 6
- Subarea 7
- Subarea 8-North
- Subarea 8-South
- NBZ East
- NBZ West

Sediment sampling was not based on subareas but the subarea designations are provided in this report to orient the reader. The subareas are depicted on Figure 2.2.

2.2 SITE HISTORY

As a component of this radiological study, USEPA conducted an extensive HSA to document the site history and past facility operations, as well as to provide technical information for selection of soil samples. This section was derived from the USEPA's HSA and provides a very brief summary of the site history (HGL, 2012a).

Before development of the SSFL site, the area was used for ranching. In approximately 1948, North American Aviation, Inc. (NAA) began development of the site for the design, development, and testing of liquid propellant rocket engines. The facilities at the SSFL site supported many major space programs, from the earliest satellite launches to the Space Shuttle. The Rocketdyne Division of NAA operated these portions of the SSFL site until approximately 1996 when Rocketdyne merged into The Boeing Company. Since approximately 1996, operations at the site have been conducted by The Boeing Company (ETEC, 2010 and HGL, 2012a).

The SSFL is separated into four administrative areas. The Boeing Company owns all of Area I, except for 42 acres which are owned by the United States and under the administrative control of the National Aeronautics and Space Administration (NASA). Area II is also owned by the United States and under the administrative control of NASA but is operated by The Boeing Company. The Boeing Company owns and operates Areas III and IV. Areas I, II, and III were also used by The Boeing Company, NASA, and the Department of Defense for rocket engine and laser testing.

Under contract to the Department of Energy (DOE), NAA also operated the Energy Technology Engineering Center (ETEC), located exclusively in Area IV, for researching, developing, and constructing nuclear reactors and associated equipment for harnessing nuclear energy through its Atomics International Division (NAA, 1960). Until its closure in 1996, DOE was responsible for operating ETEC. ETEC represented the group of facilities owned by DOE that were used for nuclear research and other experimental activities within Area IV. From the mid-1950s until the mid-1990s, DOE and its predecessor agencies were engaged in or sponsored nuclear operations including the development, fabrication, disassembly, and examination of nuclear reactors, reactor fuel, and other radioactive materials. Associated experiments included large-scale sodium metal testing for fast breeder reactor components. Nuclear operations at ETEC included 10 nuclear research reactors, including the Sodium Reactor Experiment (SRE), seven critical facilities, the Hot Laboratory, the Nuclear Materials Development Facility, the Radioactive Materials Handling Facility (RMHF), and various test and radioactive material storage areas. Each of these facilities has been described in the Final HSA volumes II through VIII (HGL, 2012a).

All nuclear research in Area IV was terminated in 1988 when DOE shifted its focus from research to decontamination and decommissioning activities. Decontamination and decommissioning of the sodium test facilities started in 1996 when DOE determined that the entire ETEC facility was surplus to its mission. DOE began formal cleanup and closure of its facilities in Area IV in preparation for returning the property to The Boeing Company.

The HSA report includes a summary of past operations and activities involving radioactive materials for all subareas. The results of past radiological surveys performed in Area IV are also summarized. Radiological surveys have been performed for several purposes including health and safety, characterization, remedial action support, and release.

2.3 REGULATORY HISTORY

The Atomic Energy Commission was abolished by the Energy Reorganization Act of 1974 and was succeeded by the Energy Research and Development Administration (now part of DOE) and Nuclear Regulatory Commission. Radiological contamination in Area IV has been sampled and analyzed, including radiological surveys conducted in 1988 and again in 1995 as well as radiological release surveys within the footprints of former radiological facilities.

In August 2007, DTSC, as the lead regulatory agency, and The Boeing Company, DOE, and NASA, as potential responsible parties, entered into a Consent Order for Corrective Action governing the remediation of chemical contamination at the SSFL (DTSC, 2007).

In October 2007, California enacted Senate Bill 990 (SB990) entitled “Cleanup of Santa Susana Field Laboratory” which became effective on January 1, 2008. SB990 asserted state jurisdiction over the SSFL remediation and required calculating the cumulative risk from radiological and chemical contaminants to the lower of either suburban residential or rural residential (agricultural) land use scenarios, whichever produces the lower permissible residual concentration for each contaminant.

In December 2010, DTSC signed an AOC with DOE to address the federal radiological and chemical remediation of soil in the Area IV Study Area to background values for both radiological and chemical contaminants by the year 2017 (DTSC, 2010). The Boeing Company and the USEPA are not a party to the AOC.

2.4 ENVIRONMENTAL SETTING

2.4.1 Soil Types and Topography

The SSFL is located on a ridge within the Transverse Ranges physiographic province. The facility is approximately 850 feet above the valleys to the north and south. While the laboratories and other facilities within Area IV are generally located on relatively flat ground, local relief can be up to approximately 270 feet. In the Area IV Study Area, the highest elevation (2,150 feet above mean sea level) is along the southern boundary (Figure 2.3). Along the northwest boundary, the land slopes steeply away to undeveloped land. The relatively flat area in the southern part of the Area IV Study Area is called “Burro Flats.”

The parent material of the soil in the Area IV Study Area consists of weathered bedrock, colluviums and alluvium derived from the Chatsworth Formation. According to the Natural Resources Conservation Service, approximately 40 percent of the Area IV Study Area is classified as sedimentary rock outcrop. The two predominant soil types in the Area IV Study Area are a sandy loam of the Saugus series and a loam of the Zamora series. The Saugus series soils consists of deep, well drained soils that usually forms on dissected terraces and foothills and are moderately permeable. The sandy loam of the Saugus series usually has slopes of five to 30 percent. The Zamora series soils are typically well drained loam that forms on nearly level grade or on strongly sloping fans and terraces. The Zamora series in the Area IV Study Area has slopes that range from two to 15 percent (USDA, 2003).

2.4.2 Surface Hydrology

Surface water drainage in the northern portion of the Area IV Study Area flows north into Meier Canyon, which is a tributary to the Arroyo Simi, flowing westward and terminating in the Pacific Ocean. Drainage of the majority of the Area IV Study Area flows to the southeast into the Bell Creek drainage system as suggested by the location of the northeast-southwest

trending drainage divide (Figure 2.4). Bell Creek is the headwater and tributary of the Los Angeles River, which flows south and eastward terminating in the Pacific Ocean.

Given the topographic divide and topographical rises to the east and west of Area IV, there is no drainage directly to the west or east from the Area IV (USGS, 1952). A site reconnaissance during the Area IV Radiological Study surface water sampling program determined there was no surface water drainage from Area IV to the west into Runkle Canyon. However, a small area, approximately two acres in the southwest corner of the NBZ, was identified where surface water does flow to the west.

The California Regional Water Quality Control Board (RWQCB) has issued waste discharge permits to the SSFL since 1958. Starting in 1984, the RWQCB began issuing surface water discharge permits to the SSFL under the National Pollutant Discharge Elimination System (NPDES). Surface water discharges from the site are monitored at 18 NPDES locations, and according to the RWQCB, from 1998 through 2006 (RWQCB, 2006), discharges from the SSFL have continually exceeded effluent limits for dioxin, heavy metals, and other pollutants. In July 2007, the Los Angeles RWQCB issued an order requiring The Boeing Company to cease and desist all discharges of contaminants that exceed specified effluent limits (Weston Solutions, Inc., 2007).

Of these 18 historical surface water discharge outfall locations, there are 10 that receive surface water from Area IV or the NBZ. Outfall locations 3, 4, 5, 6, and 7 receive surface water from the northern portion of Area IV. Outfall locations 9 and 10 receive surface water from the NBZ. Outfall locations 17, 18 and 2 receive surface water from the southern portion of Area IV (Figure 2.3). Outfall locations 3, 4, 6, 10, 18 and 2 receive surface water from former operational areas and are specifically designed multimedia filtration systems engineered to filter the surface water before it travels downgradient. Currently, surface water from these outfalls is diverted to the Silvernale settling pond located in Area III as a result of the Los Angeles RWQCB cease and desist order issued in 2007 (Figure 2.3). Outfall locations 5 and 7 are lined settling ponds and are designed to retain surface water so it can be transferred to the Silvernale pond. Outfall location 9 is strictly an NPDES sampling location and is not designed to filter or retain surface water. The NPDES outfall permitting and monitoring program is regulated by the Los Angeles RWQCB.

The majority of surface drainage within Area IV is through man-made and natural ditches and swales that lead to natural streambeds. The drainage from some former operational areas is directed through various settling ponds and outfall locations. The following subsections provide a brief summary of these operational areas and their associated settling ponds and outfalls.

Former Sodium Disposal Facility

Surface water runoff in the vicinity of the Former Sodium Disposal Facility area flows to the east-northeast. Outfall locations 5 and 6 receive water from the former sodium disposal facility before the water flows into the NBZ. Outfall 5 is a settling pond. Outfall 6 is a

multimedia filtration system engineered to filter the surface water before it travels downgradient.

Former Building 4373 (Hot Lab) and Building 4055

Runoff from the vicinity of former Building 4373 (Hot Lab) and Building 4055 flows to the east through the ditch on the south side of G street and the ditches on either side of H and I streets. The runoff water flows through these ditches, through the former Space Technology Laboratory IV complex in Area III, and into the R2 settling ponds located in Area II.

Building 4009, Building 4100, and the 56 Landfill

Runoff in the vicinity of Building 4009, Building 4100 and the 56 Landfill drains to the north along the west side of the landfill, into the NBZ. Outfall 7 is located approximately 70 feet north of building 4100 and only receives surface water from the vicinity of Building 4100.

Radioactive Materials Handling Facility

Runoff within the RMHF fenced area generally flows from east to west across the site to a storm drain culvert along the western perimeter of the site. Surface water flow to the northern perimeter drains into an asphalt-lined swale that leads to the storm drain culvert. Prior to 2006, the culvert drained to an asphalt-lined channel that conveyed surface water to the RMHF holding pond (RMHF 4614 Holdup Pond). The Holdup Pond had a capacity of approximately 30,000 gallons and was used to contain storm water runoff and any accidental releases. It was sealed with coated asphalt to prevent leakage and equipped with a radiation monitor connected to an alarm system to warn if any radioactive contamination entered the pond. The RMHF 4614 Holdup Pond and drainage channel were removed in 2006. The culvert now drains into an aboveground pipeline that conveys water to a 1,500-gallon polyurethane aboveground storage tank. After the accumulated storm water is tested for radionuclides, it was pumped from the aboveground storage tank to B Street where it enters a pipeline that discharges to a lined drainage along 17th Street. Drainage follows 17th Street to G Street and then continues through lined and unlined channels to the 17th Street Drainage.

Sodium Reactor Experiment Complex

The majority of the runoff from the SRE Complex is captured in the SRE pond which is located approximately 400 feet east of the complex. Runoff from the northern portion of the SRE complex flows to the east via a small asphalt-lined ditch, through Outfall 4, and into the SRE Pond. Runoff from the southern portion generally flows to the east via drains and underground culverts. The culverts lead to a concrete-lined ditch that diverts runoff around Outfall 4 and into the SRE Pond. Overflow from the pond is to the east-north east via a natural drainage that leads to Meiers Canyon.

Old and New Conservation Yards

Runoff from the Old and New Conservation Yards flows to the south-southeast via a natural unlined drainage that leads into Area III and, subsequently, into Silvernale Pond. Surface water in the northern portion of the Old Conservation Yard flows to the north and into the Northern Buffer Zone.

2.4.3 Geology

The SSFL is situated within the Transverse Ranges physiographic province, approximately 30 miles north of downtown Los Angeles (Bailey and Jahns, 1954). Two geologic formations underlie the Study Area, the Cretaceous Chatsworth Formation and the Tertiary Santa Susana Formation. The Chatsworth Formation underlies approximately 80 percent of the Study Area. The following descriptions are derived from the Preliminary Geologic Map of the Los Angeles 30 feet by 60 feet Quadrangle, Southern California (Yerkes and Campbell, 2005). A geologic map of the area is presented as Figure 2.5.

The SSFL is located on the south flank of an approximately east-west striking, westward plunging syncline. There are three categories of geologic structures present in the SSFL faults/fault zones, deformation bands, and structures (MWH, 2007). The fault zones and deformation features displace primary geologic features, the former showing displacement of at least five feet and the later with minimal located displacement (less than 6 inches). Mapped faults in the SSFL are presented on Figure 2.5. The Burro Flats Fault places the Chatsworth Formation in structural contact with the Santa Susana Formation in the southwest portion of the Area IV Study Area.

2.4.3.1 Chatsworth Formation

The Chatsworth Formation consists of three unnamed members. The members were deposited by turbidity currents in a deep ocean at depths ranging from 4,000 to 5,000 feet. Turbidity currents cause massive submarine landslides from the continental shelf into submarine canyons which are generally more than a half-mile wide and greater than ten miles in length. During periods without turbidity currents, silt and clay particles from runoff filtered to the ocean floor and formed the siltstone strata found in the formation.

Deposited in the late Cretaceous, the Chatsworth Formation is in excess of 6,000 feet thick. The uppermost member is a thick strata of light gray to brown sandstone, which is hard, coherent, arkosic, micaceous, primarily medium grained separated by thin partings of siltstone. The middle member is a gray conglomerate of cobbles of rounded, polished clasts of quartzite, porphyry and granitic rocks in hard rock matrix. The lower member is gray clay shale, crumbly with ellipsoidal fracture where weathered, and may include sandstone strata.

2.4.3.2 Santa Susana Formation

The Santa Susana Formation underlies the southwestern most portion of the Area IV Study Area and consists of four members. The unnamed uppermost layer of the Santa Susana Formation consists of gray micaceous claystone and siltstone with a limited number of thin rock beds. Below the uppermost layer lies a second unnamed layer that is made up of tan coherent fine grained rock, which locally contains thin shell-beds and calcareous concretions. Underlying this layer is the Las Virgenes Sandstone Member, which is composed of tan semi-friable bedded sandstone and is locally pebbly. The oldest member is the Simi Conglomerate Member. This member contains gray to brown cobble conglomerate with smooth cobbles of quartzite, metavolcanic and granitic rocks in sandstone matrix that locally includes thin lenses of red clay. The Santa Susana Formation also was formed by turbidity currents.

3.0 STUDY AREA INVESTIGATION METHODOLOGY

3.1 NATURAL AND CULTURAL RESOURCES MONITORING

Several activities associated with the radiological study of the Area IV Study Area had the potential to impact natural and cultural resources. The following subsections describe the procedures used to protect natural and cultural resources during soil sampling activities.

3.1.1 Natural Resources Monitoring

The Area IV Study Area is home to many federally listed species and their critical habitat, as well as biological resources protected under other Federal and State laws. The activities conducted by USEPA had the potential to impact protected natural resources, including vegetation cutting, gamma scanning survey, geophysical surveys, surface and subsurface soil sampling, groundwater monitoring well sampling, surface water sampling, and sediment sampling. To minimize the impact to natural resources and riparian habitat within the Area IV Study Area, protection measures were developed and implemented during surveys and sampling activities on the project site, including associated vegetation clearance.

USEPA conducted this project pursuant to federal legislative mandate HR2764, the Consolidated Appropriations Act of 2008, and the authority granted under the Comprehensive Environmental Response, Compensation, and Liability Act. Formal consultation under Section 7 of the Endangered Species Act was conducted with the U.S. Fish and Wildlife Service (USFWS), and a Biological Opinion was issued on May 25, 2010 (USFWS, 2010). The USFWS Biological Opinion identified Avoidance and Minimization Measures keyed to each of the proposed activities and federally listed species with potential to occur within the Action Area. USEPA agreed to implement the various components of the Radiological Study in compliance with the Biological Opinion and its requirements. Although not under discretionary approval, USEPA also made efforts to comply with the substantive technical requirements of State of California natural resource protection laws, such as the California Endangered Species Act and California Fish and Game Code Section 1602 for impacts to riparian resources. Additional applicable biological resource laws or regulations to which the project adhered included the Federal Migratory Bird Treaty Act and California Fish and Game Code 3503 and 3503.5 (for protection of nesting birds).

Qualified Biological Monitors from Envicom Corporation were retained to assist with species identification and protection as outlined in the Site Management Plan (SMP) (HGL, 2010d). The Biological Monitors inspected the proposed work area for protected plant or animal species or critical habitats requiring protection. These areas were clearly marked with bright red-and-white-striped or pink flags tied to stakes to cordon off the area and to alert personnel to the presence of the protected biological resource (HGL, 2010d).

An information sheet was provided to site personnel containing a list of the federal and state species of concern in the Biological Assessment (HGL and Envicom Corporation, 2009) and the Biological Opinion issued by the USFWS (USFWS, 2010). Species at risk but not considered endangered or threatened from site activities were also monitored for protection

through the joint effort of field personnel and the Biological Monitors. The following is a list of plant and animal species that were identified in the field, flagged and avoided:

- Braunton's milk-vetch (*Astragalus brauntonii*)
- Lyon's pentachaeta (*Pentachaeta lyonii*)
- Spreading navarretia (*Navarretia fossalis*)
- California Orcutt Grass (*Orcuttia californica*)
- Conejo dudleya (*Dudleya abramsii* ssp. *parva* [= > *Dudleya parva*])
- Santa Monica Mountains dudleya (*Dudleya cymosa* ssp. *ovatifolia* [inclusive of *Dudleya cymosa* ssp. *agourensis*])
- Marcescent dudleya (*Dudleya cymosa* ssp. *marcescens*)
- Coastal California gnatcatcher (*Polioptila californica* ssp. *californica*)
- Least Bell's vireo (*Vireo bellii* ssp. *pusillus*)
- California red-legged frog (*Rana aurora* ssp. *draytonii* [= > *Rana draytonii*])
- Quino checkerspot butterfly (*Euphydryas editha* ssp. *quino*)
- Riverside fairy shrimp (*Streptocephalus woottonii*)
- Vernal pool fairy shrimp (*Branchinecta lynchi*)
- San Fernando Valley spineflower (*Chorizanthe paryii* var. *fernandina*)
- Santa Susana tarplant (*Deinandra minthornii*)

During the migratory season various birds were nesting within the Area IV Study Area. The nesting bird areas were identified, flagged, and continually examined by the Biological Monitor. These areas were avoided until Biological Monitors confirmed that the chicks had fledged and left the nest. Once these areas were cleared by the Biological Monitors, the flags were removed and access for field activities was approved.

Quarterly Biological Monitoring reports were submitted to the USFWS throughout all field activities identifying protected biological resources encountered and detailing the measures implemented to protect these resources.

3.1.2 Cultural Resources Monitoring

The SSFL was historically occupied by Native Americans and nineteen new archaeological sites and more than 50 isolated artifacts were identified during the course of the USEPA Radiological Study. John Minch and Associates, Inc., under subcontract to HGL, provided Archaeological and Native American monitoring for the duration of all ground disturbing activity. Consultation in accordance with Section 106 of the National Historic Preservation Act was conducted throughout the sampling efforts. Cultural Monitors and Native American Advisors/Consultants from local tribes monitored all ground disturbing activity and provided archaeological monitoring support as necessary during the execution of fieldwork. Cultural Monitors were qualified archaeologists who specialized in southern California Native American artifacts and culture. The Native American Advisors/Consultants were local Southern California tribal representatives from the most likely descendents of the former Native American inhabitants of the SSFL as discussed in the SMP (HGL, 2010d). The consultants were required to have knowledge of local customs, traditions, and religious

practices of the Tatavian and/or Fernandeno Indian Tribes and in particular the Eastern Coastal or Venturoeno Chumash Indian tribes.

Before initiating any site activities Cultural Monitors and Native American Advisors/Consultants inspected each site for cultural resources that could have been adversely affected by site activities including:

- Archaeological deposits - soils that contained material evidence of human activity including the remains of houses, hearths, cemeteries, and other features,
- Artifacts - objects made by people such as whole or broken grinding stones, bowls and tools of various kinds,
- Rock paintings and carvings that are tied to the landscape, which provide information about the culture of the people who made and used them, and
- Certain plants and sacred sites - natural features of the landscape that are recognized in local traditions and places with religious significance.

Areas of cultural significance were marked with green flags tied to wooden stakes to cordon off these areas as protected resources. Identification, avoidance, and protective measures were employed during the execution of field activities at the SSFL site to protect Cultural Resources in accordance with all applicable laws, regulations, and policies as follows:

- HGL and subcontractor field personnel received training for identifying cultural features, archaeological sites, and artifacts. This training was jointly conducted by the Cultural Monitors and Native American Advisors/Consultants before work began.
- Cultural resources protection measures were applied during all ground disturbing field activities. All known cultural resources, as identified through previous surveys, as well as all archeological sites and artifacts discovered through the course of this undertaking were avoided. If potential artifacts were identified, the field crew left them in place and notified a Cultural Monitor and/or Native American Advisors/Consultant immediately.
- All sediment and soil samples were inspected by Cultural Monitors and/or Native American Advisors/Consultants to identify and remove any cultural resources from the sample as part of the sample preparation.

Upon the completion of fieldwork the Final Report of Cultural Resources Compliance and Monitoring was prepared, discussing the measures taken to protect and any impacts to archeological findings from the cultural surveys within the Area IV Study Area (John Minch and Associates, Inc., 2012).

3.2 LINES OF EVIDENCE USED TO SELECT SAMPLE LOCATIONS

The selection of targeted surface water and sediment sample locations for Phase I sampling was based on knowledge of the subarea being investigated and on professional judgment. For this

study, the selection of targeted sampling locations was based on a combination of existing data from historical sources and new data collection efforts. Information utilized in determining targeted sample locations included the results of the HSA, aerial photographic analysis, and reconnaissance activities that were conducted before sampling commenced.

For the Phase I sampling activities an FSP addendum (HGL, 2010a) was prepared with supporting maps showing the following:

- Findings identified in the HSA (HGL, 2012a); Aerial photographic analysis (USEPA, 2010);
- Past radiological surveys and results of past radiological soil sampling and analysis (HGL, 2012a);
- Observations identified by field reconnaissance.

The Phase I FSP Addendum identified targeted sampling locations based on the following:

- The likelihood that potential radiological sediment contamination was present,
- The technical information and lines of evidence that led to identifying each targeted sample location; and
- Stakeholder input.

Only one phase of surface water sampling was scoped for this project; therefore, the Phase II FSP Addendum was based on the analytical results of the Phase I sediment samples. The Phase II FSP addendum for sediment sampling was prepared to further delineate areas where radionuclides were identified in sediment during Phase I at concentrations greater than the RTLs (HGL, 2012d). The Phase II addendum included the findings from the Phase I sediment sampling activities, and locations and justifications for sediment and additional soil samples to be collected from below overlying sediment.

3.2.1 Historical Site Assessment

As part of USEPA's radiological study, a comprehensive HSA was completed for the Area IV Study Area and was documented in subarea-specific HSA TMs (HGL, 2012a). The objective of the HSA was to conduct comprehensive historical research to identify, collect, organize, and evaluate historical information relevant to nuclear research operations as it may pertain to potential radiological contamination in the Area IV Study Area. Once each subarea-specific HSA was complete, potential areas possibly associated with radiological contamination were identified for Round 1 targeted soil sampling and analysis. The information in the HSA was obtained from the review of more than 100,000 historical documents that describe past facility operational practices as well as facility processes and systems.

Each HSA TM also includes findings of interviews with former employees who worked in Area IV. During these interviews, former employees were questioned regarding their knowledge of spills or processes that may have resulted in releases of radionuclides, disposal

practices for liquid and solid waste, and identification of areas where radiological investigations should be performed. The interviews were used to assist in the identification of potential release areas (HGL, 2012a).

Preliminary findings presented in the HSA TM included:

- Descriptions and locations of potential, likely, or known activities that involved radioactive material, radioactive waste, or mixed waste;
- Initial Multi-Agency Radiation Survey and Site Investigation Manual (USEPA, 2000) classifications (e.g., Class 1, 2, 3) of potentially impacted areas;
- A site-by-site assessment of the likelihood or “weight of evidence” of radiologically contaminated media;
- An assessment of the likelihood of potential migration pathways; and,
- Identification and confirmation of potential radiological contaminants of concern (Section 3.3.1).

The information provided in each HSA TM together with comments and recommendations provided by SSFL stakeholders and the general public was used to develop the strategy for surface water and sediment sampling and analysis for residual radiological contamination in surface water and sediment within each subarea. These recommendations were based only on historical information and not on-the-ground evaluations (HGL, 2012a).

3.2.2 Aerial Photographic Analysis

An analysis of historical aerial photographs of the Area IV Study Area was performed by USEPA and used to support the identification of targeted sample locations. The process of photographic analysis involved the visual examination and comparison of many components of the photographic image. These components included shadow, tone, color, texture, shape, size, pattern, and landscape context of individual elements of a photograph. The photo analyst identified objects, features, and “signatures” associated with specific environmental conditions or events. The term “signature” refers to a combination of components or characteristics that indicate a specific object, condition, or pattern of environmental significance. Academic and professional training, photo interpretation experience gained through repetitive observations of similar features or activities, and deductive logic of the analyst as well as background information from collateral sources (e.g., site maps, geological reports, and soil surveys) were critical factors employed in the photographic analysis (USEPA, 2010).

Based on the review of aerial photos, a list of waste disposal areas, processing areas, open storage areas, fill areas, and impoundments was prepared for the Area IV Study Area. Each location was identified as certain, probable, or possible. Other features included in the analysis of aerial photographs included stains, storage tanks, pipelines, disturbed ground, mounded material, smokestacks, ground scars, building foundations, cleared areas, and buildings.

3.2.3 Gamma Scanning

A gamma radiation scanning survey was performed for 100 percent of the accessible ground surfaces in the Area IV Study Area to identify gamma radiation anomalies (GRAY), in accordance with the Gamma Radiation Scanning Sampling and Analysis Plan (HGL and TPC, 2010e). Approximately 265.73 acres out of 471.64 acres were scanned within the Area IV Study Area.

Gamma radiation emanates from certain man-made and/or naturally occurring radionuclides. Data collected during gamma scanning was evaluated and if a location was found to contain elevated gamma radiation measurements, it was classified as a potential gamma radiation anomaly (PGRAY). The PGRAY was then targeted for further investigation with gamma stationary (static) measurements. The static measurements increased detection sensitivity and the data were analyzed to determine if a PGRAY consisted only of naturally occurring radioactive material (NORM) or man-made radionuclides. PGRAYs consisting of only NORM were identified as "Not a GRAY" and no further action was recommended. A list of locations of GRAYs was prepared for each of the 12 subareas in the Area IV Study Area. The results of the gamma radiation survey are presented in the Final Gamma Radiation Scanning Report (HGL and TPC, 2012e) and are maintained in Geographical Information Systems format.

3.2.4 Geophysical Survey

A geophysical survey was performed at targeted locations identified in the Geophysical Investigation Plan (HGL, 2010f) for the Area IV Study Area. Targeted survey areas within each subarea were selected based on information summarized in the corresponding HSA TM (HGL, 2012a) and the aerial photographic analysis (USEPA, 2010). Areas suspected to have subsurface radioactivity with little or no surface indication were selected for geophysical measurements as well. For example, suspected subsurface process piping, leach fields, subsurface disposal areas, or trenches associated with past radiological activities were selected as target areas for geophysical survey. The results of the geophysical survey are presented in the Final Geophysical Investigation Report (HGL, 2011a).

3.3 SURFACE WATER AND SEDIMENT SAMPLING

The primary objective of the surface water and sediment sampling effort was to characterize the media for potential radiological contamination in surface water and sediment within the Area IV Study Area. This objective was accomplished by conducting two phases of sampling. Surface water and sediment samples were collected during Phase I sampling activities and sediment and soil samples were collected at step-out locations during Phase II sampling activities.

3.3.1 Identification of Radionuclides of Concern

USEPA developed a list of radionuclides for laboratory analyses during the SSFL radiological background study. Development of the initial list of background study radionuclides of concern was guided by the list from the Hanford Site in Hanford, Washington (Washington State Department of Health, 1996), with the understanding that the list of radionuclides of

concern for the SSFL background study would be derived from radionuclides actually used or produced at SSFL. The background study list of radionuclides was originally selected using the following screening criteria:

- The radionuclide was or could have been used or produced at SSFL.
- The physical state of the radionuclide is not a gas (if the radionuclide is a gas and its parent was not removed from the list, then it was retained).
- The radionuclide has a half-life greater than one year (if the radionuclide has a half-life of less than one year and its parent was not removed from the list, then it was retained).
- The SSFL Technical Stakeholder Workgroup elected to keep a specific radionuclide on the list.

Recognizing that the background study list of radionuclides contained specific radionuclides highly unlikely to have been used or produced at SSFL or extraordinary radionuclides that were expected to provide limited information at significant cost to the project, in consultation with the Technical Stakeholders, USEPA reduced the total number of radionuclides considered for the radiological study, and proposed two suites of radionuclides for soil analyses. The first was the default suite which included:

- Radionuclides detectable by gamma spectrometry;
- Strontium (Sr)-90 (which includes yttrium-90); and
- Commonly analyzed isotopes of uranium (U), thorium (Th), americium (Am), curium (Cm), and plutonium (Pu).

The second was the site-specific suites, which included more than one possible combination of analyses. Both suites are summarized in Table 2.3 of the Final FSP for Soil Sampling (HGL 2012e) and include criteria for selection of the site-specific analytical suites.

During Phase I sampling, all samples were analyzed for the default suite. Phase II sample analyses were conducted to further define exceedances identified during Phase I. The Phase II analyses were performed using the method(s) necessary to evaluate the Phase II exceedances and to further investigate radionuclides that were detected during previous investigations.

A final adjustment to the list of radionuclides contained in the default suite was made between the draft final (October 4, 2010) and final (February 17, 2012) versions of the Final FSP for Soil Sampling (HGL 2012e). The adjustment was to remove eight radionuclides from the gamma spectrometry method of the default suite: silver (Ag)-108, Ag-108m, barium (Ba)-133, Ba-137m, californium (Cf)-249, radon (Rn)-220, Rn-222, and tellurium (Te)-125m. The radionuclides Ag-108, Te-125m, Ba-137m, Rn-220, and Rn-222, were removed from consideration because they are redundant and are not measured directly, but are assumed to be in a state of secular equilibrium with their various parent or progeny radionuclides. The activity concentrations are calculated directly from the reported parent or progeny activity. For example Ba-137m is calculated directly from the reported cesium (Cs)-137 results and an

exceedance or data quality excursion in one would be repeated in the other. In addition, Ag-108m, Ba-133, and Cf-249, were removed from consideration because they are subject to significant spectral interference, making the measurement results unreliable. Due to the timing of this change, analytical results for these radionuclides are reported with some of the early Phase I data but not Phase II data.

3.3.2 Phase I Surface Water and Sediment Sampling

Phase I surface water and sediment samples were collected in accordance with the procedures outlined in the Final Phase I FSP for Groundwater, Surface Water, and Sediment (HGL, 2010b) and the Surface Water and Sediment Addendum to the Phase I FSP for Groundwater, Surface Water, and Sediment (HGL, 2010a).

Phase I surface water and sediment sampling locations were based on information acquired from the HSA, aerial photograph interpretation study, and direct field observations. Gamma radiation and geophysical surveys had not been completed at the time Phase I surface water and sediment samples were collected, therefore these surveys were not used to determine sampling locations. The potential Phase I sampling locations were verified during field reconnaissance conducted from October 6, 2010 to November 5, 2010. As a result of the steep terrain in the northern buffer zone most of the natural drainages have been scoured by erosion down to bedrock and sediment has accumulated in small areas where topographic conditions allow surface water to pool and deposit sediment. These small areas where sediment had accumulated were verified in the field. A total of 40 surface water and 40 sediment sampling locations were identified during the reconnaissance. Detailed notes and photographs were taken at each location, as well as X-Y survey coordinates, which were recorded using a SPS 852 handheld Trimble global positioning system (GPS) unit.

The potential surface water and sediment sampling locations were presented to the SSFL Technical Stakeholder Workgroup during the technical review meeting held on November 18, 2010. After the sampling locations were finalized with the technical stakeholders they were documented in the Surface Water and Sediment FSP addendum (HGL, 2010a). Before sampling activities commenced, utility clearances were performed at each location by Underground Service Alert (Dig Alert) and a private utility locator.

Thirty-four surface water and 40 sediment samples were collected during Phase I sampling activities. Additionally, four field duplicate surface water and two field duplicate sediment samples were collected as part of the Phase I surface water and sediment sampling activities. Table 3.1 summarizes the total number of surface water, sediment and soil samples collected for each phase of sampling.

3.3.2.1 Surface Water Sampling

Surface water samples were only collected during the Phase I sampling effort. Generally, surface water is very limited and intermittent due to the arid conditions and because the SSFL site is located near a topographic high. Surface water is present only during and immediately following periods of heavy rain. Therefore, surface water samples were collected immediately

following a significant precipitation event in which approximately 4-inches of rain fell within a 24 hour period on March 20, 2011.

Surface water samples were collected using the direct dip method in accordance with the procedures outlined in Standard Operating Procedure (SOP) 2.16, in Appendix A of the Final Phase I FSP for Groundwater, Surface Water, and Sediment (HGL, 2010b). This method consists of collecting a single grab sample by immersing the sample bottle directly under the surface of the water as close to the center of the channel as possible. Samples obtained at each location were laboratory-filtered, as described in Section 4.1.4 of the Final Phase I Ground Water, Surface Water, and Sediment FSP (HGL, 2010b). The surface water samples collected from the 4056 excavation (Million Dollar Hole) were collected using a Kemmerer discrete depth sampler. Details of the Surface Water sampling effort are presented in the TM, Surface Water Sample Results in Appendix A.

3.3.2.2 Sediment Sampling

Phase I sediment samples were collected using a stainless steel trowel or shovel in accordance with SOP 2.15, in Appendix A of the Final Phase I FSP for Groundwater, Surface Water, and Sediment (HGL, 2010b). The sample was collected from the top 6 inches of fine-grained sediment that had been deposited within the low velocity zones of the drainage feature, such as inside meanders, placed in a stainless steel bowl, then homogenized before placing the sample into the appropriate sample container.

3.3.3 Phase II Step-out Sediment and Soil Sampling

A total of 27 step-out environmental samples were collected during Phase II sampling activities. Phase II sediment and soil samples were collected in accordance with the Final Phase I FSP for Groundwater, Surface Water, and Sediment, (HGL, 2010b), the Surface Water and Sediment Addendum to the Phase I FSP for Groundwater, Surface Water, and Sediment (HGL, 2010a), and the Final FSP for Soil Sampling (HGL, 2012e). Phase II sampling locations were based on RTL exceedances detected in Phase I sediment samples. Phase I sediment analytical results were screened against project established RTLs to identify locations containing concentrations of radionuclides related to SSFL site operations that warranted further characterization. At the locations where radionuclide concentrations exceeded RTLs, additional sampling locations (step-out locations) were placed to further characterize potential contamination. Sediment step-out samples were collected in the drainageways and soil samples were collected from underneath the sediment and on the banks of the drainageways. The soil samples were collected to characterize potential radiological impact to the native soil in the vicinity of the Phase I exceedances. Each location was field verified and drainage patterns, topography, and locations of structural drainage from buildings were considered to characterize potential transport of elevated radionuclide results. Step-out locations were placed within the drainageway upgradient and downgradient from their respective Phase I sample location. The RTL exceedances, rationale used to place Phase II step-out sampling locations, and analytical results are presented in the TM, Phase I Sediment Sample Results (Appendix B). The process used to derive the RTLs and how they were used to determine Phase II step-out sampling locations is summarized below.

3.3.3.1 Radiological Trigger Levels

Analytical results from the Phase I sediment sampling were compared to the RTLs established specifically for the Area IV Study Area. RTLs were decision levels for the radionuclides of concern used as comparison concentrations for Phase II analytical data in the absence of established clean up levels. The process used to derive the RTLs is presented in the TM, RTL (HGL, 2011b), and is briefly summarized below.

During the SSFL Radiological Background Study (HGL, 2011c), 149 soil samples were collected from off-site locations representing the two geological formations present at the SSFL Site. Based on the results of the Radiological Background Study, BTV were developed for 64 radionuclides, which represent the upper limits of background concentrations. The rationale for the selection of the 64 BTVs between datasets that represent results across surface and subsurface soil, different geologic formations, separate reference locations, and datasets with very low detection frequency (that is, single detections in a dataset) are summarized in the BTV and Radionuclide Selection Rationale paper (Appendix E).

In some cases, the laboratory data used in the Area IV Study Area did not support the use of the BTVs in the decision-making process, due to practical or technological limitations in data quality. In those cases, where the laboratory minimum detectable concentration (MDC) for a given radionuclide was greater than the associated BTV, that MDC was used as the lowest practical alternative to the BTV. In addition, one radiochemistry laboratory was selected and contracted for the background study, Pace Laboratories, and two radiochemistry laboratories were contracted for the Radiological Study: TestAmerica Laboratories, Inc. (TAL) and GEL Laboratories, LLC (GEL). Using three laboratories typically resulted in three different MDCs for each analysis. For consistency in evaluation of analytical results, when the MDC values differed between the laboratories, the higher concentration value was used to form the RTL.

RTLs were only used to determine Round 2 step-out sampling locations, and included the method uncertainty from the analytical techniques. The RTL was based on the BTV (or the associated MDC, whichever was higher) plus a method uncertainty factor and was calculated based on a decision error rate of 5 percent, specified in the Final QAPP for Soil Sampling (HGL, 2012f). A laboratory result that exceeded the RTL indicated that, at the specified confidence interval, the sample was likely to have exceeded the BTV (or MDC). As described in Appendix D, a calculation error in the RTLs was discovered after the soil and sediment results were reported and verified (and after the analytical results were presented and discussed with the stakeholders). Therefore, to be consistent with all Round 1 TMs and discussions with technical stakeholders, the data presented in all the Round 1 TMs was compared to original RTLs. The analytical results themselves are unaffected by the RTL error and no additional locations are found based on corrected screening levels. Radiological trigger level exceedances identified during Phase I sediment sampling activities are discussed in the TM, Phase I Sediment Sample Results (Appendix B).

After sample results had been validated, an evaluation of all laboratory results was conducted to provide the most defensible and technically sound advice to project Stakeholders, in

particular the DTSC regarding the procurement of future laboratory services. Thus, RRCs were developed from the entire dataset of soil and sediment sample analytical results. These RRCs were developed in a similar methodology as the RTLs but with enhancements. The development, appropriate uses, and limitations of the RRCs and the associated calculation parameters are detailed in Appendix D.

3.3.3.2 Sediment Step-out Locations

Analytical results of 40 sediment samples collected during Phase I showed two samples containing radionuclide concentrations that exceeded RTLs: one located downgradient of Outfall 3, east of the SRE; and one located downgradient of Outfall 4, northwest of the RMHF. Phase I sample results are presented in Figure 2 of the TM, Phase I Sediment Sample Results (Appendix B). A total of 15 sediment step-out samples were collected from within the drainageway, at locations upgradient and downgradient of the Phase I RTL exceedances. Analytical results for the Phase II sediment samples are documented in the TM, Phase II Sediment Sample Results (Appendix C). Sampling locations where radionuclide concentrations exceeded the FALs are presented in Figures 4.3, 4.4, and 4.5 of this document.

3.3.3.3 Surface and Subsurface Soil Step-out Sampling Locations

In addition to the Phase II sediment samples, surface and subsurface soil samples were collected to characterize the soil beneath the sediment and in the overbanks of the drainageways. The sampling locations are presented in Figures 2 and 3 of the TM, Phase II Sediment Sample Results (Appendix C). Eight subsurface soil samples were collected from beneath the sediment at the following locations:

- EPASED41,
- EPASED43,
- EPASED46,
- EPASED48,
- EPASED49,
- EPASED51,
- EPASED52, and
- EPASED53.

Two surface and two subsurface soil samples were collected from locations EPASED44 and EPASED45. These samples were collected from the banks north and south of Phase I Location EPASED13. Analytical results for the Phase II surface and subsurface soil samples are documented in the TM, Phase II Sediment Sample Results (Appendix C).

Surface soil samples were collected in the same manner as sediment samples. Subsurface samples were collected using a stainless steel hand auger because of the inaccessibility of the sampling locations. The boreholes were advanced to a depth of 10 feet below ground surface (bgs) or refusal. Depth intervals to be sampled were determined based on borehole gamma logging results. Soil associated with gamma radiation anomalies was sampled for laboratory analysis. If no gamma radiation anomalies were identified, a soil sample was collected at the upper portion of the boring (1 to 5 feet bgs). The soil within this interval was homogenized and a representative composite sample was collected for analysis. Due to the relatively low mobility of the radionuclides of interest, higher radionuclide concentrations were expected in

the upper portion of the soil profile; collecting soil within the upper 5 feet increased the likelihood of detecting radiological contamination at a particular location.

3.4 QUALITY ASSURANCE/QUALITY CONTROL

The QA and QC program implemented during surface water and sediment sampling and analysis efforts ensured that equipment and instruments functioned properly and the data collection process was performed consistently with project requirements. The QA program ensured that all data collection procedures and measurements were scientifically sound; were of known, acceptable, and documented quality; and were conducted in accordance with the requirements of the project as discussed in the Final FSP for Ground Water Surface Water and Sediment (HGL, 2010b), QAPP for Ground Water, Surface Water, and Sediment (HGL, 2010c), Final FSP for Soil Sampling (HGL, 2012e) and the Final QAPP for Soil Sampling (HGL 2012f). Systematic monitoring of QA processes reduced occurrences of errors during soil collection and analysis.

The QC program focused on testing procedures to verify field methods and laboratory detection systems were functioning correctly and fully operational before data collection commenced, and to ensure collected data were consistent, comparable, accurate, and within specified limits of precision.

Before submission of field samples to the two laboratories, a single-blind performance evaluation was conducted. This evaluation assessed the ability of TAL and GEL to generate results within acceptable limits of analytical accuracy and precision. The single-blind samples were of known concentrations to the manufacturer and HGL but unknown to the laboratories. Performance evaluation sample results were evaluated against the certified values provided by the manufacturer.

3.4.1 Laboratory Quality Control Elements

Laboratory QC samples included calibration verification checks, method blanks, laboratory control samples, carrier and tracer performance, matrix spike analyses, and laboratory duplicates as required by each analytical method. These QC elements were specific to each analytical method and are described in general terms in the selected project laboratory QA manual in Appendix A of the QAPP for Ground Water, Surface Water, and Sediment (HGL, 2010c) and the Final QAPP for Soil Sampling (HGL, 2012f) and in more detail in method-specific standard operating procedures.

The laboratory QC elements were based on descriptions presented in the Multi-Agency Radiological Laboratory Analytical Protocols (MARLAP) (USEPA, 2004). The acceptance criteria, corrective action, and evaluation protocols associated with these QC elements are presented in Table 3.3 of the QAPP for Ground Water, Surface Water, and Sediment (HGL, 2010c), and Final QAPP for Soil Sampling (HGL, 2012f). Laboratory-specific information on technical approaches to comply with the QC element requirements of this section are presented in the laboratory-specific QAPP addenda (HGL, 2010c). Results of the QC tests were

included in the analytical data packages and used during the data validation process to determine data usability.

3.4.2 Quality Control Samples

Field QC samples were collected to gauge the accuracy and precision of field collection and laboratory analytical activities and to assess data usability. QC samples collected in the field and submitted to the laboratory for analysis included field duplicates, equipment rinsates, and decontamination source water blanks. Each phase-specific FSP addendum provided specific information on the number and types of analyses to be performed. Requirements for QC samples were specified in the QAPP for Ground Water, Surface Water, and Sediment (HGL, 2010c), Final FSP for Soil Sampling (HGL, 2012e), and the Final QAPP for Soil Sampling (HGL, 2012f) and are also summarized in the following subsections.

3.4.2.1 Field Duplicates

Field duplicate samples were collected at a rate of 1 per 20 (5 percent) environmental samples collected. Sediment and soil field duplicates were obtained using co-located samples rather than the conventional homogenized and split samples. This method resulted in the collection of representative samples that better suited the project requirements. Field duplicate samples were collected within 2 feet of the location of the parent sample.

Field duplicate samples were submitted to the laboratory as blind QC samples (with unique sample identifiers) to ensure that they were analyzed in the same manner as all other environmental samples. Field duplicate results were used to estimate the overall precision of sample collection, field sample preparation, site homogeneity, and laboratory analysis (total measurement of sample variability).

3.4.2.2 Equipment Rinsate and Source Water Blanks

Equipment rinsate blank samples were collected to ensure proper decontamination of non-dedicated sampling equipment. One equipment rinsate blank was collected for each type of sampling equipment per field team per day. Following decontamination, the blank was collected by pouring ASTM Type II water (also called organic free water) through or over the equipment and collecting the rinse water in the appropriate container. Each equipment blank sample was analyzed for uranium isotopes and tritium (on a sample-dependent basis).

A sample of the ASTM Type II decontamination source water used for the equipment decontamination and rinsate blank was collected and analyzed for uranium isotopes and tritium. The decontamination source water blank samples were collected each time a new lot of source water was received. The source water samples were used to document existing radionuclide concentrations in the water. The results of the source water blanks were compared to the equipment rinsate blanks to aid in determining the effectiveness of decontamination procedures. These comparisons are discussed in the surface water and sediment sample results TMs (Appendices A, B, and C).

3.4.3 Data Validation

Data validation ensured that laboratory analytical results met the objectives of the project as documented in the Final QAPP for Groundwater, Surface Water, and Sediment (HGL, 2010c) and the Final QAPP for Soil Sampling (HGL, 2012f). Data validation compared the final dataset against a set of criteria as detailed in the QAPPs to ensure the data were usable.

Analytical data packages were received from the laboratories in electronic data deliverable (EDD) formats for uploading into the project database. Data verification and validation services were subcontracted to third parties, The Palladino Company, Inc. (TPC) and Validata Chemical Services, Inc., in order to maintain maximum transparency of data quality. A quality check of the laboratory results was performed by reviewing sample numbers against chain-of-custody forms and field sheets for consistency and completeness. Qualifiers were reviewed and added by the validator to determine usability of results.

Data validation was performed in accordance with the DOE guidance documents: Evaluation of Radiochemical Data Usability (DOE, 1997) and MARLAP (USEPA, 2004). Each data validator was a radiochemist with at least two years of experience in radiochemical separations and measurement and did not have any perceived or actual conflict of interest with the laboratory generating data, such as recent prior employment by the same laboratory.

Table 3.3 of the Final QAPP for Groundwater, Surface Water, and Sediment and the Final QAPP for Soil Sampling shows data qualification conventions for QC elements associated with the project analyses. These conventions are general, and were supplemented by method-specific QC elements where appropriate. When analytical results were reported in association with QC results that did not meet the performance criteria, the validator applied the appropriate qualifier. Alternative qualification approaches that contradicted the requirements of Table 3.3 were allowed if, in the validator's judgment, the alternative was appropriate for a specific QC issue. Each instance of application of an alternative protocol was documented in the corresponding data validation report to allow for USEPA review and final approval.

3.4.3.1 Data Validation Methods

Laboratory analytical data packages were validated using a two-tiered approach. Tier 1 required Level IV data validation for 100 percent of data packages. Tier 2 required Level IV data validation for 25 percent of data packages and Level II data validation for 75 percent of data packages.

For surface water samples and for Phase I sediment samples, a Tier I approach was taken. The choice of validation tier was based on the ability of the laboratory to provide data of acceptable quality. A data package was unacceptable if any portion of its contents were considered non-defensible, could not be validated due to insufficient supporting documentation, or data was returned by HGL to the laboratory for repair.

These criteria were applied to 10 consecutive data packages for analytical method for each laboratory. Tier 1 data validation was performed for the first 10 consecutive data packages for

a specific analytical method. If nine or more data packages met the quality criteria then Tier 2 data validation was performed. If more than one data package did not meet the quality criteria then Tier 1 data validation was continued until nine of 10 consecutive data packages for the specific analytical method passed the criteria.

Tier 2 data validation was conducted as long as nine of 10 consecutive data packages met the quality criterion; else Tier 1 data validation was resumed.

Due to data package discrepancies and deficiencies all TAL data packages were validated using Tier 1, Level IV validation. GEL data packages were initially validated using Tier 1 then for Round 2 soil samples went to Tier 2 to expedite the data throughput.

Level IV validation requirements are discussed in detail in the QAPP for Groundwater, Surface Water, and Sediment. Level II validation requirements are discussed in detail in the Final QAPP for Soil Sampling and were applied to a single sediment data package. Level IV validation required a more in-depth and thorough review of the analytical data package than Level II. Both validation levels consisted of verification and validation checks for the compliance of sample receipt, sample characteristics, and analytical results. Additionally, results were checked for transcription errors from raw data to summary forms and calculation verifications were performed for selected samples.

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4.0 PHASE I AND PHASE II ANALYTICAL RESULTS

This section presents the radiological analytical results for the Phase I and Phase II surface water and sediment sampling performed in the Area IV Study Area.

Surface water samples were compared to Federal and State of California Drinking Water Maximum Contaminant Levels (MCL).

Phase I sediment and soil samples were compared to project established RTLs. As described in Section 3.3.3.1 the RTLs were developed and used as field decision levels in the absence of established cleanup levels to determine where Phase II step-out samples should be located. As noted above, the RTLs (applied to select Phase II sample locations) included both method uncertainty and the maximum of two project radiochemistry MDC values; hence, they are not the most conservative values with which to present study results. These RTLs are not used in the final evaluation of the radiological data.

Currently, Lookup Table levels for radionuclides have not been established. These levels will be established by DTSC in accordance with the AOC which states that the Lookup Table will “include both background concentrations as well as minimum detection limits for specific contaminants whose minimum detection limits exceed local background concentrations” (DTSC, 2010). To satisfy this AOC requirement, the final radiological data have been compared to Field Action Levels (FAL) consisting of either the BTVs or the 2σ upper confidence limit (UCL) MDCs, as applicable. The FAL is lower than the RTL or RRC values because they do not consider the method uncertainty as described above. How the FALs were derived is further described in Section 4.3.1. Because DTSC has not yet established Lookup Table values, all analytical results from USEPA’s radiological study exceeding the FAL are presented.

The final Look-up Table values depend on the level of data quality performance to be contracted by DTSC. The FALs (being action levels) are a conservative way to present the radiological study data, that is, FALs are the lowest values with which to compare soil and sediment results. USEPA provided recommendations for the development of Look-up Table values in a TM (HGL, 2012g),

Sample results exceeding the FAL do not necessarily represent locations of contamination. In accordance with the AOC, DTSC will determine Lookup Table values for comparison to all sample results to determine locations of contamination that warrant remediation. Results that exceed the USEPA’s FAL are potential locations that may require further investigation and/or remediation dependent upon the Look-up Table values. However, these results do not represent areas of contamination or areas of remediation.

The following subsections describe the development of FALs in more detail, the results of the data quality evaluation, and summarize the Phase I and Phase II analytical results.

4.1 DATA QUALITY EVALUATION

The quality of the analytical data and the applicability of that data for its intended use has been evaluated against the data quality objectives (DQO) and measurement quality objectives described in the QAPP for Groundwater, Surface Water, and Sediment Sampling (HGL, 2010c) and the Final QAPP for Soil Sampling (HGL, 2012f) including applicable revisions and addenda. These DQOs and measurement quality objectives (MQO) include routine criteria such as spike recovery, method blank activity and duplicate precision, as well as non-routine, project-specific criteria such as the required method uncertainty and the use of explicitly defined detection limit calculations.

Field sample data have been thoroughly reviewed, verified, and validated to ensure that any data used to evaluate the nature of areas of interest in the Area IV Study Area either meet the stated DQOs and MQOs described in the QAPP for Groundwater, Surface Water, and Sediment Sampling and the Final QAPP for Soil Sampling or was explicitly qualified to describe any limitations impacting the use of the data. Field sample data that was determined to be unsuitable for its intended purpose has been rejected and removed from consideration. Wherever feasible, rejected data was returned to the laboratory, the affected samples were reanalyzed, and the data was either repaired or replaced.

Technical review of field sample results, as well as the field QC sample results discussed below, suggests that in some cases the laboratories' reported uncertainty values, which accompany the sample activity results, may be slightly underestimated. Such an underestimate of the reported uncertainty is considered conservative, as no data is believed to be accepted when it should have been rejected. This small underestimate of the reported uncertainty values appears to be generally associated with very low-level gamma spectrometry and alpha spectrometry results. As those results tend to be well below the levels of concern for this project, the overall data quality is not believed to be significantly affected and the data is acceptable for its intended use.

The quality and integrity of the field sample data was further evaluated by the laboratory analysis of 15 field sampling equipment blanks and associated source water samples, collected during sediment and soil sampling activities. Surface water samples were collected using the direct dip method as described in the Final Groundwater, Surface Water, and Sediment FSP, (HGL, 2010b); therefore, no equipment blanks were collected during the surface water sampling effort. The evaluation of equipment blank results indicated that the decontamination of the field sampling equipment was effective and that there was no evidence of sample cross-contamination from the sampling equipment that could have adversely affected the quality or usability of the reported field sample data.

Heterogeneity in the field, i.e. variability in the concentration of the various analytes of interest over relatively small areas, was evaluated by the analysis field duplicate samples. The evaluation of results (individual radionuclides from all analyses) from four surface water and four sediment and soil field sample/duplicate pairs (1) suggests a degree of heterogeneity in field sampling locations slightly higher than the 10 percent initially assumed in the

development of field duplicate acceptance criteria, and (2) generally supports the assessment of a small underestimate in the laboratories' reported uncertainty values for certain analyses. Neither the degree of heterogeneity observed in the field duplicate sampling locations, nor the potential underestimate of the reported uncertainty was believed to significantly impact the usability of the data.

Overall, the data were usable for their intended purpose, which was to evaluate the nature and extent of areas of interest within the Area IV Study Area that may have resulted from past nuclear research activities within SSFL Area IV.

4.2 SURFACE WATER SAMPLE RESULTS

Analyses of surface water samples were conducted in accordance with the QAPP for Groundwater, Surface Water, and Sediment (HGL, 2010c). Figure 4.1 presents the locations of all the surface water samples collected during the surface water sampling event. Surface water samples were analyzed for the Priority 1 analyte suite, as detailed in the Final Phase I FSP (HGL, 2010b), which includes the following:

- Gross Alpha,
- Gross Beta,
- Strontium-90,
- Isotopic Uranium,
- Gamma Spectroscopy, and
- Tritium.

Surface water sample results show radionuclide concentrations at or above the respective MCLs at two sampling locations as shown in Figure 4.2. The surface water sample collected from Location EPASW24 contained a concentration of total gross beta (51.2 picocuries per liter [pCi/L]) that exceeded the MCL of 50 pCi/L. The surface water sample collected from Location EPASW26 contained a concentration of suspended gross beta (190 pCi/L) that exceeded the MCL of 50 pCi/L. The surface water samples were filtered in the laboratory as described in Section 4.1.4 of the Final FSP for Groundwater, Surface Water and Sediment, (HGL, 2010b). The laboratory analyzed and reported concentrations of the filtered (aqueous), suspended (solid), and total (summation of filtered and suspended) fractions of the sample. The exceedances of the MCL in both samples were due to elevated concentrations of gross beta in the suspended fraction. This is commonly caused by turbidity that occurs when using the direct dip sample collection method. The concentrations of gross beta detected in the filter (aqueous) fraction of both samples was well below the MCL.

Table 4.1 presents the sample location, concentration and reporting basis of the radionuclide that exceeded the MCL. Figure 4.1 presents the locations of all the surface water samples collected during the surface water sampling event. Figure 4.2 presents the location, radionuclide, and concentration detected above the MCLs in surface water samples collected from the areas discussed above.

4.3 SEDIMENT AND SOIL SAMPLE RESULTS

Analyses of sediment and soil samples were conducted in accordance with QAPP for Groundwater, Surface Water, and Sediment (HGL, 2010c) and the Final QAPP for Soil Sampling (HGL, 2012f). Sediment and soil sample analytical results were compared to FALs (Table 4.2). Sample locations with results equal to or greater than the FAL were considered locations of interest, and are illustrated on Figures 4.3, 4.4, and 4.5.

4.3.1 Field Action Levels

The FALs were derived from the Radiological Background Study BTVs and from the Area IV Radiological Study 2 sigma (2σ) (97.7 percent confidence level of the standard normal cumulative probability) UCL MDCs as described in this section. The 2σ UCL MDCs were calculated from 3,772 sample results, which represent all solid matrix samples collected and analyzed during the Area IV Radiological Study. These MDCs are empirical reported MDCs obtained by each laboratory.

The sample analytical results were compiled for each radionuclide for each laboratory. The datasets for each radionuclide ranged from 5 to 2,464 samples. For each radionuclide and each laboratory, the mean MDC and the standard deviation of the mean MDC were calculated. The mean MDC was summed with twice the standard deviation or sigma to determine the UCL for the respective MDC dataset as follows:

$$2\sigma \text{ UCL MDC} = \text{mean MDC} + (2 * \text{standard deviation of mean MDC})$$

The greater of the BTV or 2σ UCL MDC was selected as the FAL for each laboratory for each radionuclide. Table 4.2 summarizes the FALs. Sample results were compared to the FALs and results equal to or greater than the FAL were identified as potential Radiological Areas of Interest. To provide enhanced visual analysis of sample data on the figures, results were categorized into five data ranges as follows:

- Less than the FAL,
- Equal to or greater than the FAL and less than twice the FAL,
- Equal to or greater than twice the FAL and less than thrice the FAL,
- Equal to or greater than thrice the FAL and less than four times the FAL,
- Equal to or greater than four times the FAL.

4.3.2 Radionuclides Exceeding Field Action Levels

Of the 55 radionuclides analyzed, three were detected above the FALs in sediment, surface and subsurface soils collected during the sediment sampling portion of the Area IV Radiological Study (Table 4.2). The three radionuclides exceeding the FALs are Cs-137, Pu-239/240, and Sr-90. These radionuclides can be attributed to SSFL radiological operations, and are referred to as site-related radionuclides. The analytical results for these three radionuclides are presented in Table 4.3 and on Figures 4.3, 4.4, and 4.5.

The following subsections discuss the radionuclides detected above FALs in the order of frequency of occurrence. The locations are described relative to various features (building, drainage, etc.) within the Area IV Study Area.

4.3.2.1 Cesium-137

The FAL for Cs-137 is the BTV of 0.193 picocuries per gram (pCi/g). Cesium-137 was detected in three samples at concentrations of 0.205 pCi/g, 0.208 pCi/g, and 0.233 pCi/g. Cesium-137 was part of the default analyte suite; therefore, all Phase I sediment samples were analyzed for Cs-137. Phase II step-out samples were analyzed for the Gamma Spec default suite (which includes Cs-137) based on data collected during previous investigations and result from Phase I sampling. These concentrations are presented in Table 4.3 and are illustrated on Figure 4.3. Details pertaining to the distribution of Cs-137 are provided in the following subsections.

Downgradient of Outfall 4 and the SRE Pond

In this area, 8 sediment and 4 subsurface soil samples were collected for Cs-137 analysis. One sediment and one subsurface soil sample contained Cs-137 at concentrations exceeding the FAL of 0.193 pCi/g. The sediment sample collected at Location EPASED17 contained Cs-137 at a concentration of 0.208 pCi/g, and the subsurface soil sample collected at Location EPASED51 contained a concentration of Cs-137 of 0.233 pCi/g. These samples were collected approximately 270 feet northeast, downgradient of Outfall 4.

Downgradient of Building 4009 Leach Field

Three sediment samples were collected from the drainage ways associated with Building 4009, for Cs-137 analysis. One sediment sample, collected from Location EPASED06, contained Cs-137 at a concentration of 0.205 that exceeded the FAL of 0.193 pCi/g. This sample was collected approximately 300 feet northwest of Building 4009 and downgradient of the Building 4009 Leach Field.

4.3.2.2 Strontium-90

The FALs for Sr-90 are the MDC 2σ UCL of 0.387 pCi/g for GEL data and the BTV of 0.0750 pCi/g for TAL data. Strontium-90 was part of the default analyte suite; therefore, all Phase I sediment samples were analyzed for Sr-90. Phase II step-out samples were analyzed for Sr-90 based on data collected during previous investigations and result from Phase I sampling.

Strontium-90 was detected in six samples at concentrations above the FALs, ranging from 0.075 to 0.886 pCi/g. These concentrations are presented in Table 4.3 and are illustrated on Figure 4.4. Details pertaining to the distribution of Sr-90 are provided in the following subsections.

Downgradient of Outfall 4 and the SRE Pond

In this area, eight sediment and four subsurface soil samples were collected for Sr-90 analysis. Two sediment and one subsurface soil sample contained Sr-90 at concentrations exceeding the

FAL. The sediment sample collected at Location EPASED19 contained a concentration of Sr-90 of 0.185 pCi/g. The sample was collected from the lowest elevation within the SRE pond while the pond was dry. Sediment sample Location EPASED20 contained a concentration of Sr-90 at 0.075 pCi/g. This sample was collected approximately 300 feet northeast and downgradient of Outfall 4. The subsurface soil sample collected from Location EPASED52 contained Sr-90 at 0.698 pCi/g. Location 52 is approximately 325 feet northeast and downgradient of Outfall 4.

Downgradient of Outfall 3 and the RMHF

In this area, 18 sediment samples were collected for Sr-90 analysis. Two sediment samples contained Sr-90 exceeding the FAL. The sediment samples collected from Locations EPASED13 and EPASED47 contained Sr-90 at concentrations of 0.106 pCi/g and 0.886 pCi/g, respectively. These samples were collected approximately 300 feet west and downgradient of Outfall 3.

Northern Buffer Zone West

In the western portion of the NBZ the sediment sample collected from the south side ditch of the dirt road running east west contained a concentration of Sr-90 at 0.10 pCi/g.

4.3.2.3 Plutonium-239/240

The FALs for Pu-239/240 are the MDC 2σ UCL of 0.0369 pCi/g for GEL data and the BTV of 0.0142 pCi/g for TAL data. Plutonium-239/240 was part of the default analyte suite, therefore, all Phase I sediment samples were analyzed for Pu-239/240; however, there were no Phase I RTL exceedances and no detections during previous investigations so no Phase II step-out samples were analyzed for Pu-239/240.

Plutonium-239/240 was detected in one sediment sample at a concentration of 0.0302 pCi/g. This concentration is presented in Table 4.3 and is illustrated on Figure 4.5. Details pertaining to the distribution of Pu-239/240 are provided in the following subsection.

Downgradient of Outfall 4 and the SRE Pond

In this area, one sediment sample was collected for Pu-239/240 analysis. The sediment sample collected at Location EPASED17 contained Pu-239/240 at a concentration of 0.0302 pCi/g, which exceeded the FAL of 0.0142 pCi/g. This sample was collected approximately 250 feet northeast and downgradient of Outfall 4.

4.3.2.4 Naturally Occurring Radioactive Material

Naturally occurring radioactive materials are present in soils, sediment, and rock in the earth's crust. There are two types of naturally occurring radionuclides in sediment and soil: those occurring singly and those occurring as part of a decay series. The most common singly occurring NORM radionuclide is potassium-40. Three primordial decay series ubiquitous in rocks and soil originate from Th-232, U-235, and U-238. Each decay series is composed of a radionuclide parent (listed) and its progeny or radioactive decay product radionuclides. Progeny radionuclides are normally present in uncontaminated sediment and soil in secular

equilibrium (the concentrations of parent and progeny radionuclides are equal). Secular equilibrium enables the inter-comparison of radionuclides within a series to assess individual radionuclide exceedances.

An examination of the radionuclide concentration ratios within a series aids in assessing whether NORM radionuclide exceedances may be present due to site-related activities. The differences observed between naturally occurring radionuclide concentrations of a particular series are expected to be small if the sample does not represent contamination. For example, a U-238 exceedance of 2.5 pCi/g would be recognized as a higher than normal SSFL sample result. When the U-238 decay product radionuclides (bismuth-214 and lead-214) are approximately 2.5 pCi/g this affirms the U-238 result does not indicate site-related contamination, even though it exceeds the FAL (the modifier approximately is appropriate because concentrations reported from different radiochemistry methods are expected to differ, within the error limits of each method). This scenario suggests the sample has a high natural uranium concentration, within the range of natural variability. Conversely, a U-238 exceedance with a concentration that significantly differed from its decay product radionuclides may indicate site-related contamination.

The background study demonstrated that radionuclides are present in unaffected areas with a degree of variability in concentrations. It is possible that radionuclides could exceed FALs and not be due to SSFL radiological operations. The exceedances could be a result of natural variability due to the natural distribution in rock and soil formations or statistical variability inherent to analytical measurements.

One of the most important naturally occurring radionuclides is uranium. It is important because it is present and detectable at naturally occurring concentrations and is the primary radioactive element in most nuclear fuel. The U-235 contained in nuclear fuel is enriched or concentrated to approximately 3 percent versus 0.72 percent U-235 in natural uranium. After uranium nuclear fuel is made, the natural isotopic abundance ratios and secular equilibrium conditions of each nuclide within the respective decay series no longer apply. Thus, comparison between uranium isotopes 234, 235, and 238 is useful to understand whether uranium isotopic ratios indicate enrichment.

To assess NORM concentrations that exceed FALs, several factors were considered including:

- Are U-238 and Th-232 decay series radionuclide activities consistent within each series?
- How does the isotopic ratio of concentrations of U-235 compare with U-238 and U-234?
- Does the gamma scanning line of evidence indicate extensive high surface NORM content in the area?
- Are there rock outcrops immediately adjacent to the location?
- Is the location of the sample being evaluated just above bedrock?

- What information is contained in the borehole gamma scanning?
- Did information provided in the HSA indicate any site operations conducted at the location?
- Were there any lines of evidence, such as geophysical or aerial photo, that indicated a potential source for site-related NORM?

The answers to these questions, involving site data have been evaluated to determine whether NORM exceedances can be attributed to site-related contamination.

In addition, analytical method uncertainty is addressed by the RTLs and not by the FALs. As a result, the RTL concentrations are greater than their respective FAL concentrations. The evaluation of Phase I NORM RTL exceedances produced three results considered potentially site-related. The evaluation of Phase I and II NORM radionuclide results produced nine FAL exceedances.

5.0 SUMMARY

USEPA's radiological characterization study of the SSFL at Area IV and the NBZ covered a total of 472 acres. Area IV was historically used for research, development, and construction of nuclear reactors and associated equipment. Research of the historical record conducted during the HSA did not find documentation of any former operations or land use associated with Area IV within the NBZ (HGL, 2012a). The characterization consisted of an HSA; a gamma radiation survey; an aerial photograph analysis; a geophysical survey and collecting and analyzing soil, groundwater, surface water, and sediment samples from targeted locations. This report discusses the sampling approach and analytical results for surface water and sediment samples collected from specific targeted locations identified using information gleaned from the HSA, aerial photo evaluations, direct field observations, and Stakeholder input.

The sediment and surface water sampling was conducted in two phases: (1) Phase I targeted surface water and sediment samples collected from specific locations and (2) Phase II step-out sediment and soil samples collected adjacent to Phase I sediment samples that contained radionuclide concentrations greater than the RTLs. Phase I sediment sampling was conducted in December, 2010 and surface water sampling was conducted in March, 2011. RTLs were developed as temporary field decision levels for the radionuclides of concern, in the absence of established cleanup levels, and were used with other information to identify Phase II step-out locations. Phase II sediment and soil samples were collected in May, 2012.

Surface water samples were compared to Federal and State MCLs. Of 34 surface water samples collected, only two contained concentrations of radionuclides exceeding MCLs. The surface water samples were filtered in the laboratory and the filtered (aqueous), suspended (solid), and total (summation of filtered and suspended) fractions were reported. In both samples that exceeded the MCL for gross beta, the elevated concentrations were detected in the suspended (solid) fraction of the sample. The concentrations of gross beta detected in the filter fraction of both samples were below the MCL.

Lookup Table values (aka, cleanup levels) for radionuclides have not been established. Lookup Table levels will be established by DTSC in accordance with the AOC which states that the Lookup Table will "include both background concentrations as well as minimum detection limits for specific contaminants whose minimum detection limits exceed local background concentrations" (DTSC, 2010). To satisfy the AOC requirement the final radiological sediment and soil data presented in this report were evaluated against either the BTVs or the 2σ UCL MDCs, as applicable. These values are called the FALs. Sample results were compared to FALs to identify Radiological Areas of Interest.

Of 55 sediment and soil samples collected during the sediment sampling program a total of nine samples contained concentrations of radionuclides that exceeded FALs. Analytical results of these nine samples show there were 10 instances where radionuclides exceeded the FALs. Cesium-137, Sr-90, and Pu-239/240 were the only radionuclides detected that exceeded FALs.

Three samples contained concentrations of Cs-137 at concentrations of 0.205, 0.208 and 0.233 pCi/g. Six samples contained concentrations of Sr-90 from 0.1 to 0.886 pCi/g. One sample contained a concentration of Pu-239/240 at 0.0302 pCi/g. The locations where FAL exceedances were detected have been grouped into the four following Radiological Areas of Interest.

- Downgradient of Outfall 3 and the RMHF
- Downgradient of Outfall 4 and the SRE Pond
- Downgradient of Building 4009 Leach Field
- Northern Buffer Zone West

Figure 5.1 illustrates all sample locations where one or more radionuclides were identified at concentrations greater than their respective FAL.

Approximately 90 percent of samples with radionuclide concentrations greater than their respective FAL are located either downgradient of Outfall 3 or Outfall 4. One exceedance of Cs-137 was detected approximately 300 feet northwest of Building 4009 and downgradient of the Building 4009 Leach Field. One exceedance of Sr-90 was detected in the western portion of the NBZ, along the dirt road that runs northeast-southwest. The Radiological Areas of Interest, the operational history, and associated analytical results are summarized in Table 5.1.

In accordance with the AOC, DTSC will determine Lookup Table values for comparison to all sample results for determination of locations of contamination that warrant remediation. Results that exceed the FALs and Radiological Areas of Interest identified in this report are potential locations that may require further investigation and/or remediation depending on the Lookup Table values. Areas of contamination requiring remediation will be determined after DTSC establishes the Lookup Table values, and this process is not within the scope of USEPA's action, nor under USEPA purview.

The USEPA has provided recommendations to the DTSC regarding the future development of Look-up Table values (HGL, 2012g). Look-up Table values are a metric against which analytical sample results will be compared to determine if a sample contains or does not contain contamination requiring remediation. In addition, guidance is provided for the implementation and application of these Look-up Table values, and for addressing potential challenges in the procurement and use of analytical laboratory data.

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TABLES

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Table 3.1
Number of Samples Collected

Phase	Surface Water¹	Surface Water Duplicate	Sediment	Surface²	Subsurface^{2, 3}	Sediment/ Soil Duplicate	Total
Phase I	34	4	40	0	0	2	80
Phase II	0	0	15	2	10	2	29
Totals	34	4	55	2	10	4	109

Note:

¹Surface water samples were only collected during Phase I sampling efforts, (i.e., there was only one surface water sampling

²Two surface and two subsurface soil samples were collected from the banks of the drainageway at Phase I Location EPASED13.

³Subsurface soil samples were collected from beneath the sediment at Phase II Locations EPASED41, EPASED43, EPASED46, EPASED48, EPASED49, EPASED51, EPASED52, and EPASED53.

Table 4.1
Surface Water Analytical Results Exceeding Maximum Contaminant Levels

Sample Location	Sample Identification	Radionuclide Detected	Reporting Basis	Activity	MCL
EPASW24	EPASW24-SW032511	gross beta	Filtered	10.3	50
EPASW24	EPASW24-SW032511	gross beta	Suspended	40.9	50
EPASW24	EPASW24-SW032511	gross beta	Total	51.2	50
EPASW26	EPASW26-SW032111	gross beta	Filtered	1.25	50
EPASW26	EPASW26-SW032111	gross beta	Suspended	190	50
EPASW26	EPASW26-SW032111	gross beta	Total	192	50

Notes:

Reporting units in picocuries per liter.

MCL - maximum contaminant level

Table 4.2
Radionuclides of Concern
Field Action Levels

Radionuclides	GEL FAL	TAL FAL	Radionuclides	GEL FAL	TAL FAL
<i>Site-related radionuclides above the FAL</i>			<i>Radionuclides below the FAL (cont.)</i>		
Cs-137	1.93E-01	1.93E-01	I-129	1.60E+00	NA
Pu-239/Pu-240	3.69E-02	1.42E-02	K-40	3.05E+01	3.05E+01
Sr-90/Y-90	3.87E-01	7.50E-02	Na-22	3.06E-02	2.95E-02
<i>NORM radionuclides above the FAL</i>			Nb-94	2.13E-02	1.72E-02
Ac-227	2.67E-01	1.69E-01	Ni-59	7.24E+00	6.48E-01
Th-234	3.04E+00	3.04E+00	Ni-63	1.78E+00	8.43E-01
U-233/U-234	1.87E+00	1.87E+00	Np-236	4.95E-02	3.68E-02
U-235/U-236	1.30E-01	1.30E-01	Np-237	5.42E-02	NA
U-238	1.68E+00	1.68E+00	Np-239	1.77E-01	1.02E-01
<i>Radionuclides below the FAL</i>			Pa-231	1.11E+00	7.91E-01
Ac-228	2.30E+00	2.30E+00	Pb-212	2.67E+00	2.67E+00
Ag-108m	NA	NA	Pb-214	1.68E+00	1.68E+00
Am-241	4.10E-02	1.62E-02	Pm-147	8.62E+00	NA
Am-243	3.72E-02	1.34E-02	Pu-236	5.10E-02	1.84E-02
Bi-212	2.04E+00	2.04E+00	Pu-238	4.80E-02	9.21E-03
Bi-214	1.57E+00	1.57E+00	Pu-241	3.73E+00	NA
C-14	2.54E+00	2.54E+00	Pu-244	2.59E-02	5.26E-03
Cd-113m	2.95E+03	2.95E+03	Ra-226	1.88E+00	NA
Cf-249	NA	NA	Ra-228	NA	NA
Cm-243/Cm-244	4.66E-02	1.62E-02	Sb-125	3.21E-01	3.21E-01
Cm-245/Cm-246	NA	1.62E-02	Sn-126	2.33E-02	1.95E-02
Cm-248	NA	2.34E-02	Tc-99	1.75E+00	3.87E-01
Co-60	2.52E-02	2.28E-02	Th-228	3.67E+00	3.67E+00
Cs-134	3.00E-02	6.88E-02	Th-229	1.35E-01	4.62E-02
Eu-152	6.70E-02	4.59E-02	Th-232	2.95E+00	2.95E+00
Eu-154	1.36E-01	1.25E-01	Th-230	2.04E+00	2.04E+00
Eu-155	1.98E-01	1.98E-01	Tl-208	9.23E-01	9.23E-01
H-3	9.99E+00	7.38E+00	Tm-171	6.59E+01	6.59E+01
Ho-166m	3.65E-02	3.65E-02			

Notes:

Refer to Table 2.1 of the Final Field Sampling Plan for Soil Sampling (HGL, 2012e) for a definition of radionuclide symbols.

Reporting units in picocuries per gram.

FAL - field action level

GEL - GEL Laboratories LLC

NA - not available

TAL - TestAmerica Laboratories, Inc.

Table 4.3
Sediment Analytical Results Exceeding Field Actions Levels

Key Locations/Facilities	Location	Sample Identification	Analyzing Laboratory	Activity	FAL	MDC	TPU	Critical Level	Sample Depth (feet bgs)
Cesium-137									
Building 4009 Leach Field	EPASED06	EPASED06	TAL	0.205	0.193	0.014	0.01	0.007	0.0 - 0.5
Outfall 4 (Downgradient of SRE)	EPASED17	EPASED17	TAL	0.208	0.193	0.02	0.013	0.01	0.0 - 0.5
Outfall 4 (Downgradient of SRE)	EPASED51	EPASED51B	GEL	0.233	0.193	0.0142	0.0146	0.0069	1.5 - 1.83
Plutonium-239/240									
Outfall 4 (Downgradient of SRE)	EPASED17	EPASED17	TAL	0.0302	0.0142	0.0014	0.0041	0.0013	0.0 - 0.5
Strontium-90									
Northern Buffer Zone West	EPASED02	EPASED02	TAL	0.1	0.075	0.078	0.026	0.044	0.0 - 0.5
Outfall 3 (Downgradient of RMHF)	EPASED13	EPASED13	TAL	0.106	0.075	0.06	0.021	0.034	0.0 - 0.5
Outfall 4 (Downgradient of SRE)	EPASED19	EPASED19	TAL	0.185	0.075	0.06	0.024	0.034	0.0 - 0.5
Outfall 4 (Downgradient of SRE)	EPASED20	EPASED20	TAL	0.075	0.075	0.068	0.022	0.038	0.0 - 0.5
Outfall 3 (Downgradient of RMHF)	EPASED47	EPASED47S	GEL	0.886	0.387	0.293	0.149	0.177	0.0 - 0.5
Outfall 4 (Downgradient of SRE)	EPASED52	EPASED52B	GEL	0.698	0.387	0.344	0.142	0.212	3.0 - 5.25

Notes:

Reporting units in picocuries per gram.

bgs - below ground surface

FAL - field action level

GEL - GEL Laboratories LLC

MDC - minimum detectable concentration

RMHF - Radioactive Materials Handling Facility

SRE - Sodium Reactor Experiment

TAL - TestAmerica Laboratories, Inc.

TPU - total propagated uncertainty

**Table 5.1
Radiological Areas of Interest**

Key Location/Facility	Subarea	Operational History	Radionuclides Detected at Concentrations Equal to or Greater than the FAL						
			Radionuclides Detected	Number of Sediment Samples	Sediment	Surface Soil		Subsurface Soil	
					Sediment Sample Concentrations (pCi/g)	Number of Surface Soil Samples	Surface Soil Sample Concentrations (pCi/g)	Number of Subsurface Soil Samples	Subsurface Soil Sample Concentrations (pCi/g)
Radioactive Materials Handling Facility Complex									
Outfall 3 Radioactive Materials Handling Facility	7	The RMHF was a support facility to the SNAP program, the SRE, and the Hallam Nuclear Power Facility. It was designed to handle the storage, volume reduction, packaging, and shipping of the SNAP and SRE radioactive waste. In general, radioactive wastes handled at the RMHF were residues from chemical and metallurgical laboratory operations, spent reactor fuel decladding operations, maintenance work on contaminated equipment, and decontamination and decommissioning of facilities in which nuclear operations were previously conducted. The RMHF received radioactive water from the Hot Lab, the SRE, and any other DOE facilities that generated radioactive water as a part of operations.	Sr-90	1	0.106	1	0.886	0	NA
Sodium Reactor Experiment Complex									
Outfall 4 Sodium Reactor Experiment Complex	6	The area comprises Building 4143, concrete pads Nos. 4413, 4894, 4895, 4896, 4897, and 4898, electrical substation Building 4683, and the land surrounding these facilities located at the end of E Street. Building 4143 was constructed between April 1955 and February 1957 and was operated as a nuclear reactor until February 1964. Building 4143 housed a high-temperature reactor with a slightly enriched uranium metal fuel (Core I) and sodium-cooled, hexagonal zirconium clad graphite moderator elements. After an accident in 1959, the enriched uranium fuel was replaced with a 93 percent uranium-thorium metal alloy fuel (Core II). The SRE was developed to demonstrate a sodium-cooled, graphite-moderated reactor for civilian use. The SRE pond area (Site 4773) was constructed in 1956 as a retention pond and dam for the SRE. The pond was originally designed for natural seepage and evaporation to control the seasonal water level and provide capacity for winter storm water collection. After 1964, storm water runoff was the only source of water to the SRE pond. The SRE Pond is still in existence and contains surface water runoff from the SRE Complex during the wet season.	Cs-137	1	0.208	0	NA	1	0.233
			Pu-239/240	1	0.0302	0	NA	0	NA
			Sr-90	2	0.075 - 0.185	0	NA	1	0.698
Building 4009 Leach Field	8	A leach field, used for the disposal of both sanitary and radioactive liquid wastes before the central sewage system was installed in 1961, was located approximately 50 feet north of Building 4009. It contained six leach lines ranging in length from 15 to 42 feet. The leach lines extended north from a 2,340-gallon septic tank that was located outside the northwestern portion of Building 4009. The leach field comprised 4-inch diameter terra cotta clay piping surrounded by large gravel and buried at depths ranging from 4 to 5 feet below ground surface. The leach field was reported to include approximately 300 linear feet of leach lines.	Cs-137	1	0.205	0	NA	0	NA

**Table 5.1
Radiological Areas of Interest**

Key Location/Facility	Subarea	Operational History	Radionuclides Detected at Concentrations Equal to or Greater than the FAL						
			Radionuclides Detected	Number of Sediment Samples	Sediment	Surface Soil		Subsurface Soil	
					Sediment Sample Concentrations (pCi/g)	Number of Surface Soil Samples	Surface Soil Sample Concentrations (pCi/g)	Number of Subsurface Soil Samples	Subsurface Soil Sample Concentrations (pCi/g)
Northern Buffer Zone	NBZ-West	The NBZ area comprises land and drainage channels located north of Area IV extending west to east. The NBZ is also commonly referred to as the Northern Undeveloped Land. In May 1997, Rockwell purchased the 175 acres, to form the NBZ, from the adjoining Brandeis-Bardin Institute, which had owned the land since 1947. Rockwell purchased this land because radioactive and chemical contamination originating from the SSFL had been found on the property by environmental contractors in the early 1990s.	Sr-90	1	0.1	0	NA	0	NA

Notes:

- Cs - cesium
- DOE - Department of Energy
- FAL - Field Action Level
- NA - not applicable
- NBZ - Northern Buffer Zone
- pCi/g - picocuries per gram
- Pu - plutonium
- RMHF - Radioactive Materials Handling Facility
- SNAP - Systems for Nuclear Auxiliary Power
- SRE - Sodium Reactor Experiment
- Sr - strontium
- SSFL - Santa Susana Field Laboratory

FIGURES



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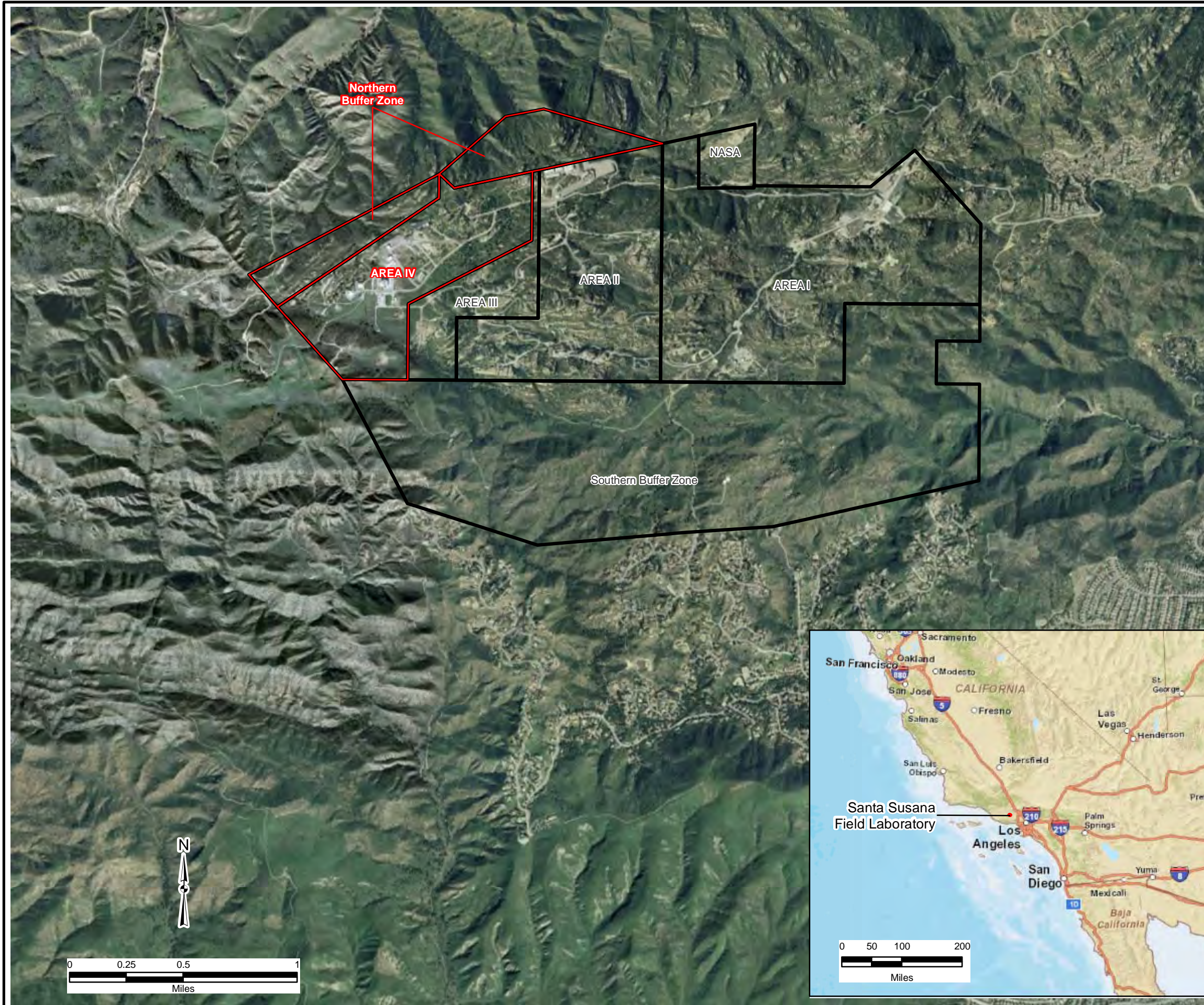
Figure 1.1
Site Location Map
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

-  Area IV Study Area Boundary
-  Property Boundary





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Fig1-1_SiteLocationMap.mxd
11/8/2012 pbillock
Source: CaSil, NAIP 2009; Boeing 2008

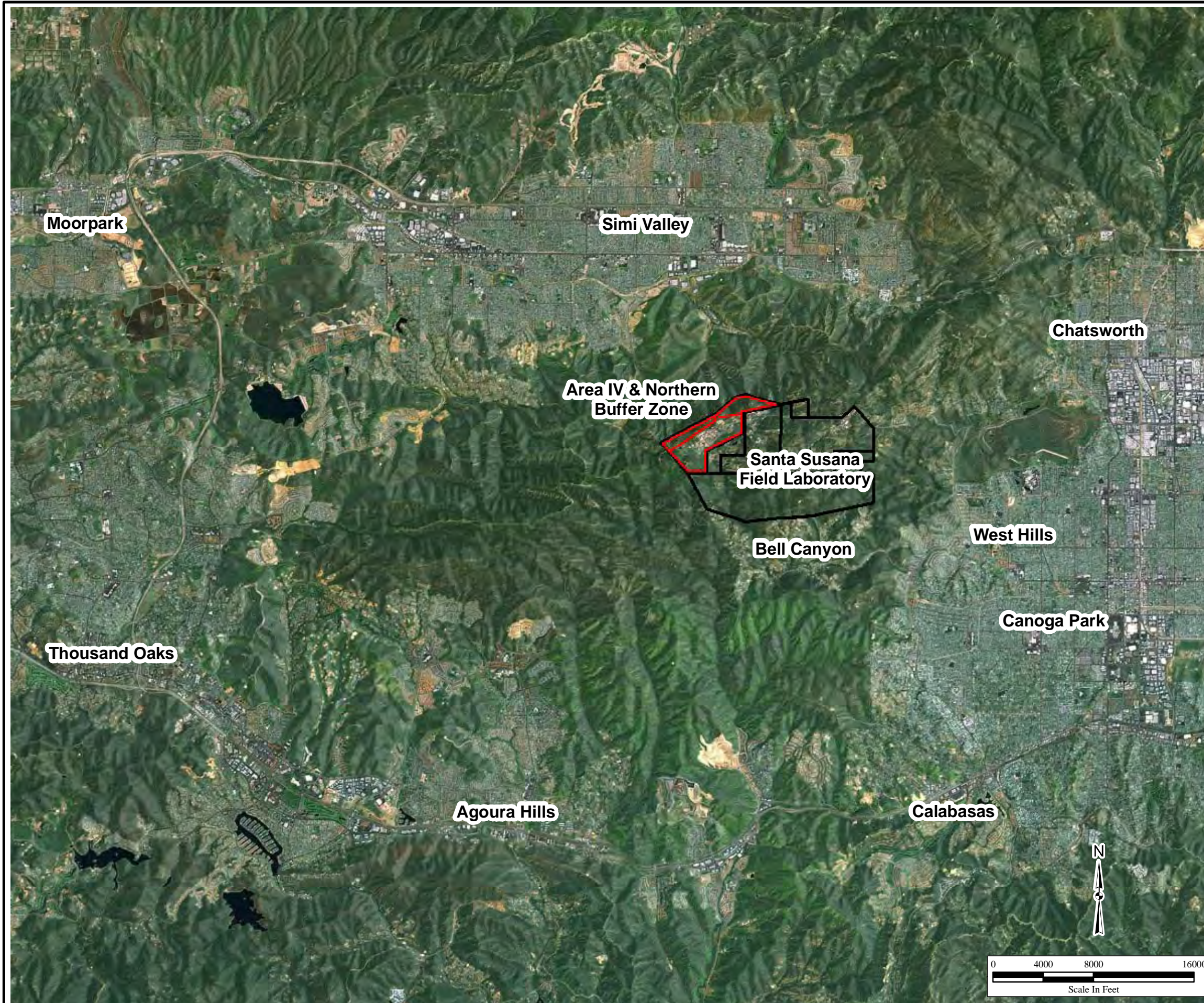
Figure 2.1
Adjacent Populated Areas
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

-  Area IV & Northern Buffer Zone
-  Santa Susana Field Laboratory



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Fig2-1_AdjacentPopulatedAreas.mxd
12/13/2012 pbillock
Source: Preliminary Geologic Map of the Los Angeles 30' x 60'
Quadrangle, Southern California; Yerkes and Campbell; 2005
Coordinate System: NAD83 CA State Plane V




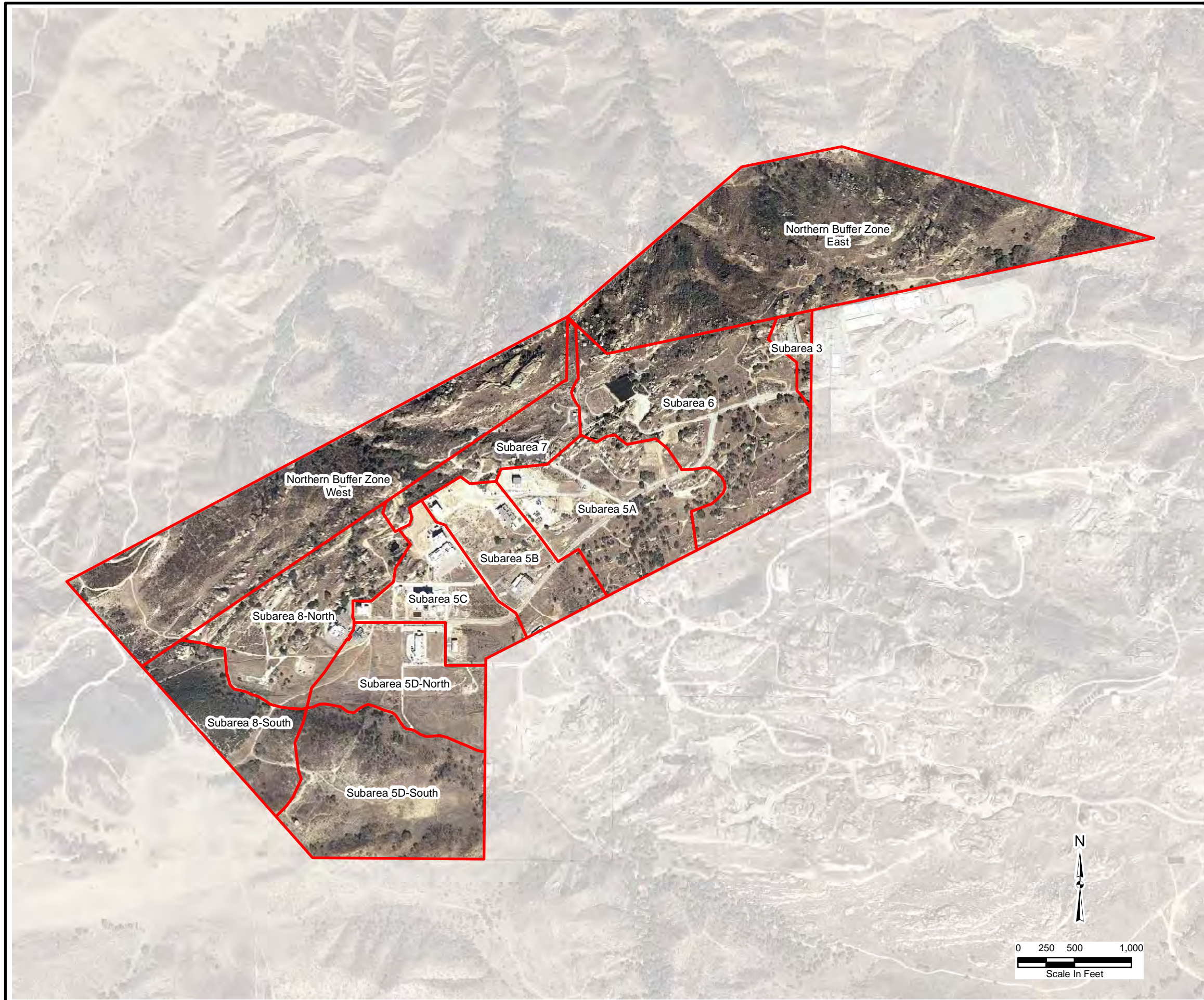
Figure 2.2
Area IV Subareas
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

 Area IV Subareas



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Fig2-2_AreaIV_Subareas.mxd
11/13/2012 pbillock
Source: CIRGIS 2007; Boeing 2009

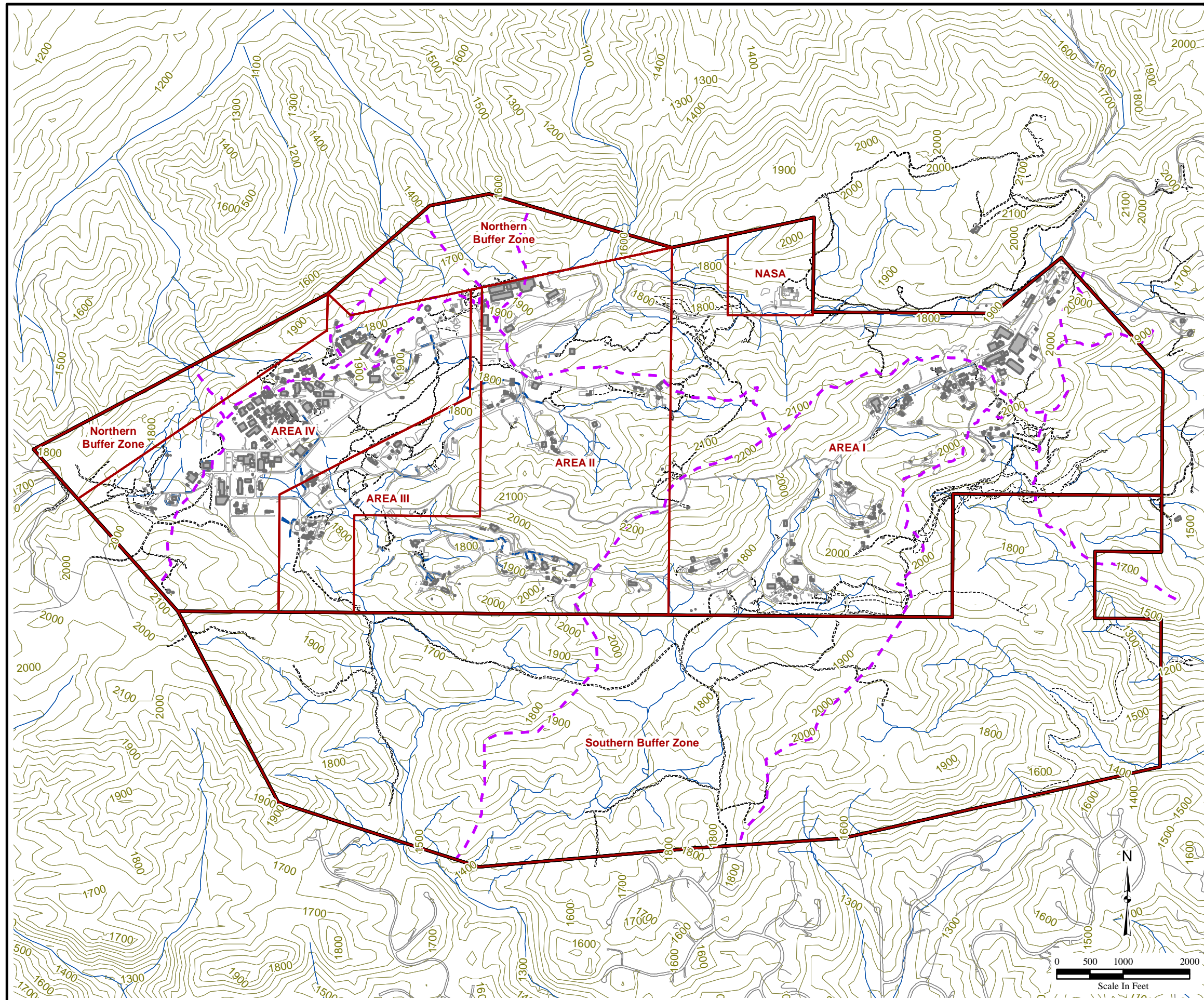
Figure 2.3 Topographic Map Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

- Property Boundary
- Administrative Boundaries
- Drainage Divide
- Buildings
- Lined Channel
- Unlined Channel
- 50 ft Contours



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Fig2-3_TopographicMap.mxd
11/13/2012 pbillock
Source: CDM Inc. (2008). Draft Gap Analysis Report,
Submitted on June 1, 2008. Prepared for the U.S.
Department of Energy







Figure 2.4
Drainage Pathway Map
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

-  Outfall
-  Approximate Drainage Pathways
-  Intermittent Streams
-  AreaIV Subareas

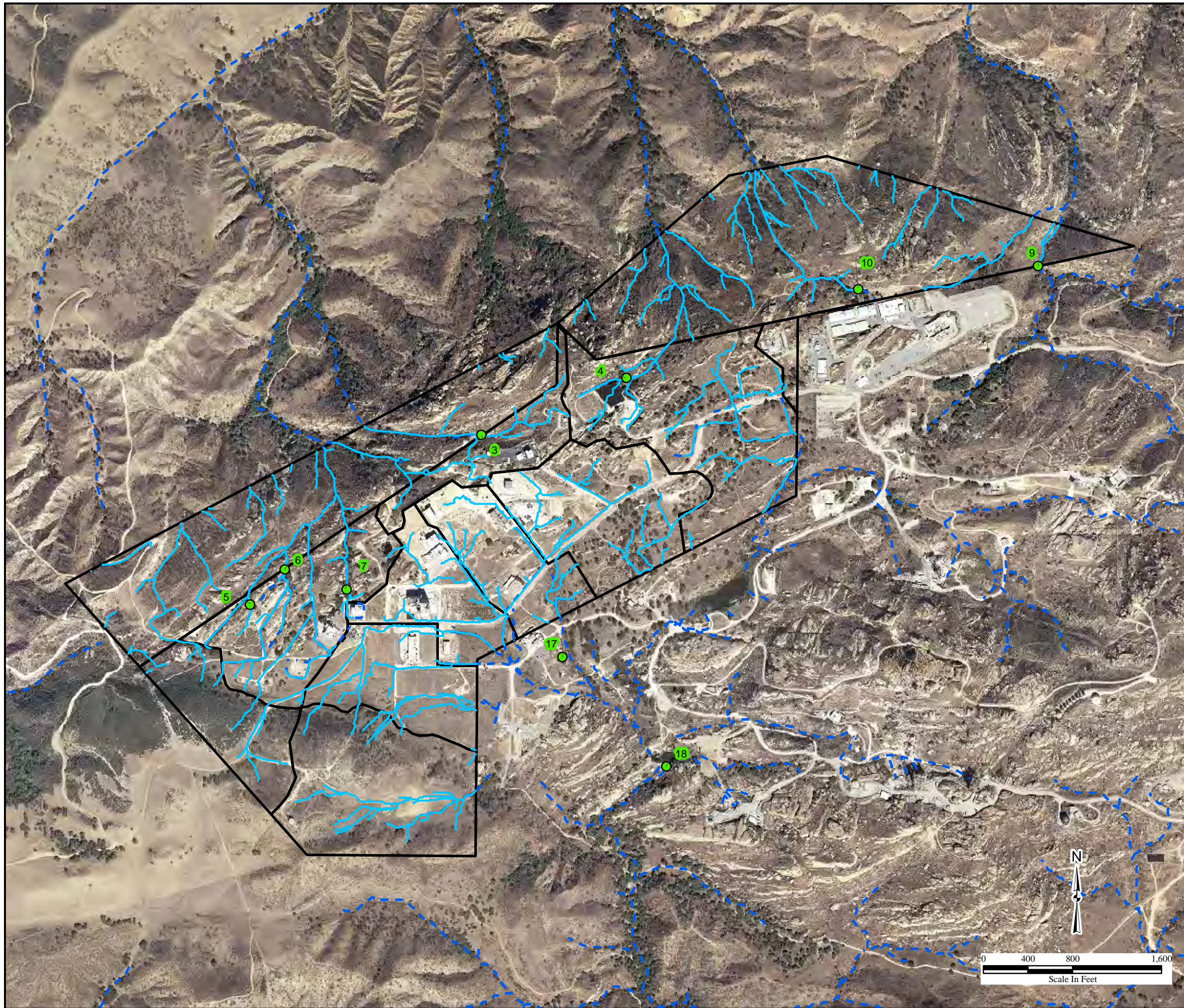


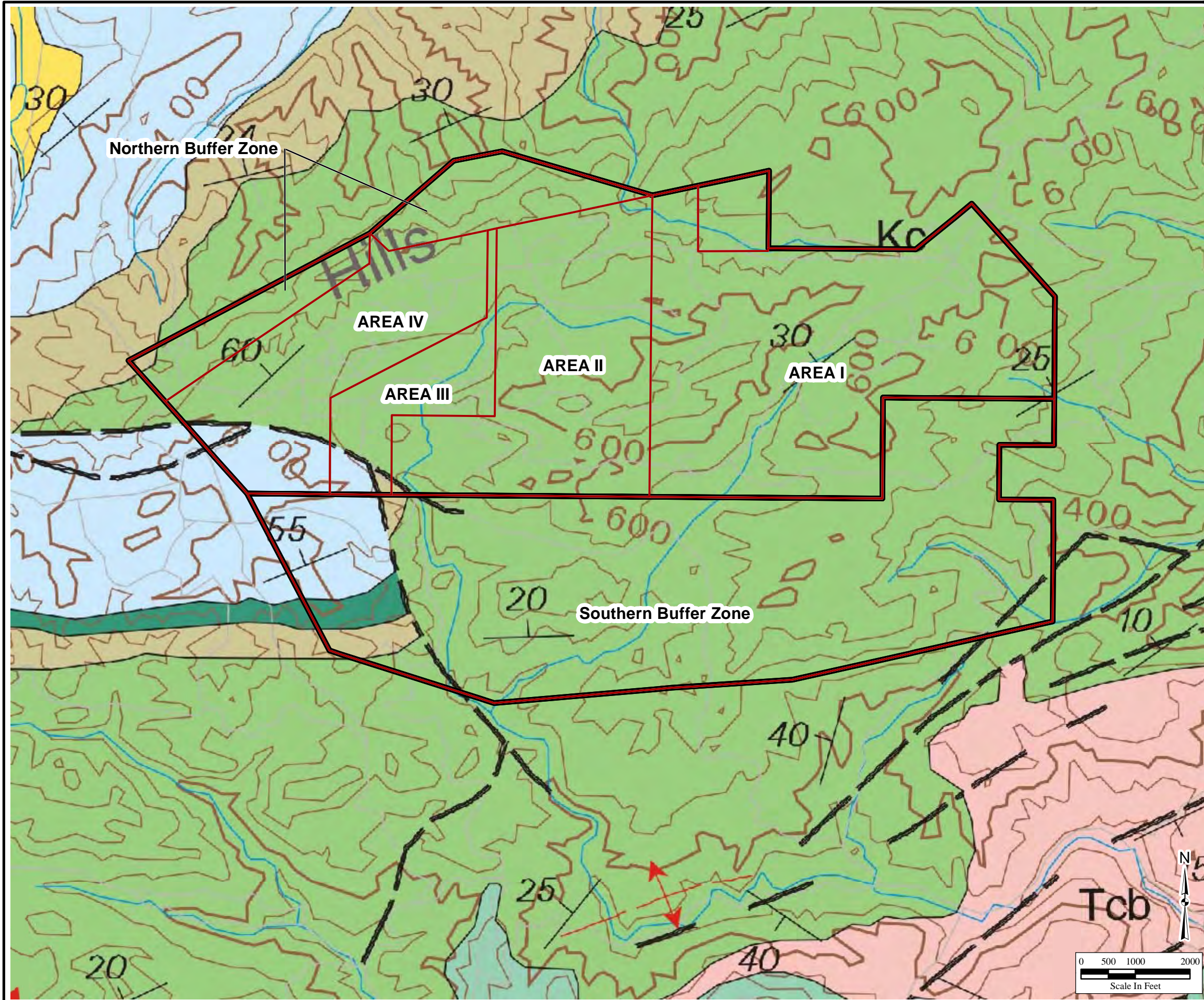
Figure 2.5
Geologic Map
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

- Administrative Boundaries at the Santa Susana Field Laboratory
- Santa Susana Field Laboratory Property Boundary
- Geologic Formation**
- Qof** Old alluvial-fan deposits, Undivided (late to middle Pleistocene)
- Tm** Modelo Formation Undivided (late Miocene)
- Tcb** Calabasas Formation, Undivided (early late Miocene and late middle Miocene)
- Tsi** Simi Conglomerate, Undivided (Paleocene)
- Tlv** Las Virgenes Formation (Paleocene)
- Tss** Santa Susana Formation (early Eocene to late Paleocene)
- Kc** Chatsworth Formation (late Cretaceous)
- ↕ Anticline
- ├─── Strike and Dip of Bedding
- - - Fault (approximate location)



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11/8/2012 pbillcock
Source: Preliminary Geologic Map of the Los Angeles 30' x 60' Quadrangle, Southern California; Yerkes and Campbell; 2005
Coordinate System: NAD83 CA State Plane V






Figure 4.1
Surface Water Sample Locations
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

-  Exceed MCLs
-  Surface Water Sample Locations
-  Area IV and NBZ Boundaries

EPASW25 Surface Water Sample Identification

Notes:
MCL - maximum contaminant level
NBZ - Northern Buffer Zone

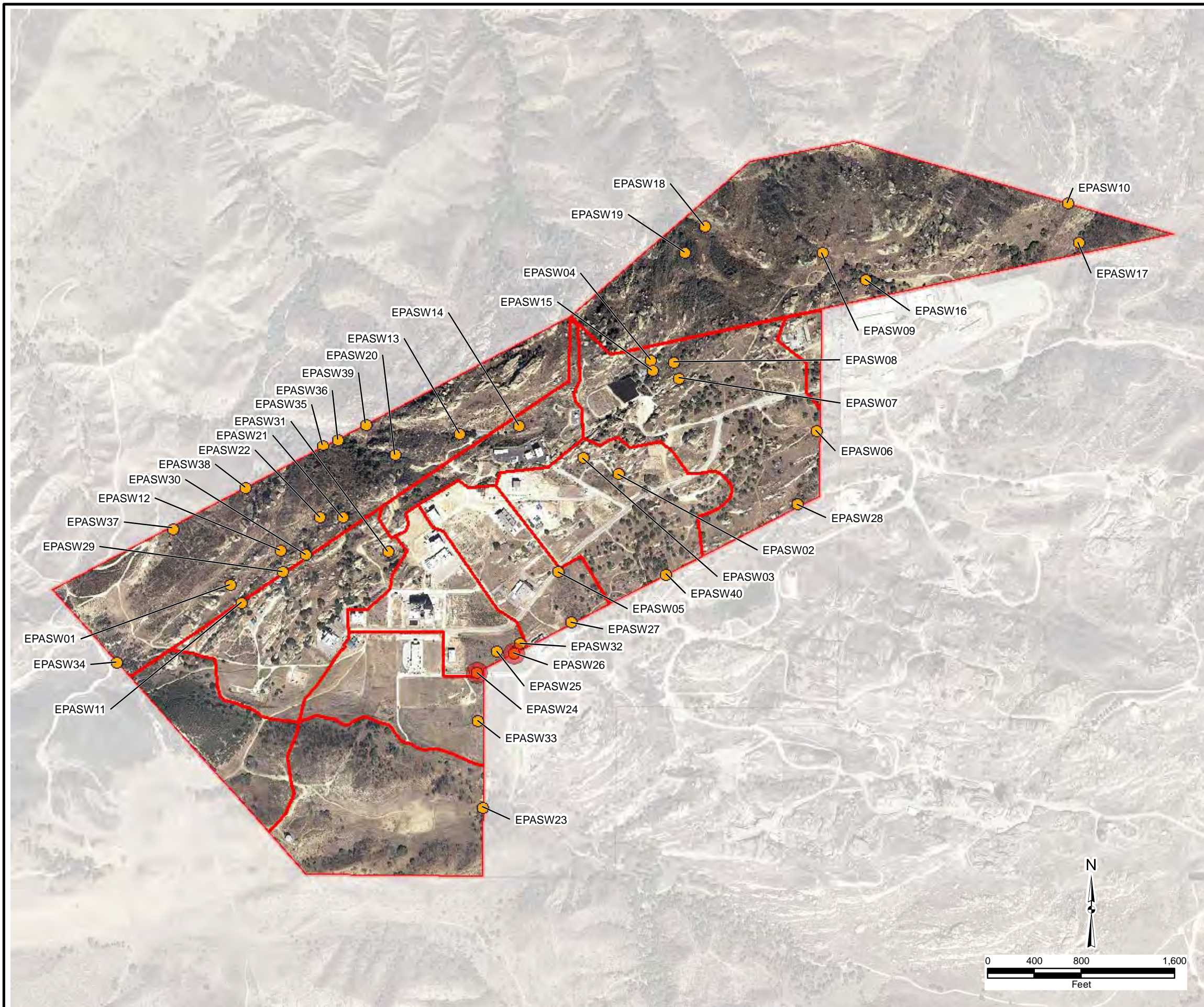


Figure 4.2
Surface Water Sample Location Detail
Exceeding Maximum Contaminant Levels
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

- Exceed MCLs
- Surface Water Sample Locations
- Area IV and Area III Boundaries
- Area IV Subarea Boundaries

EPASW25 Surface Water Sample Identification

Notes:
MCL - maximum contaminant level
ID - identification
NA - not applicable

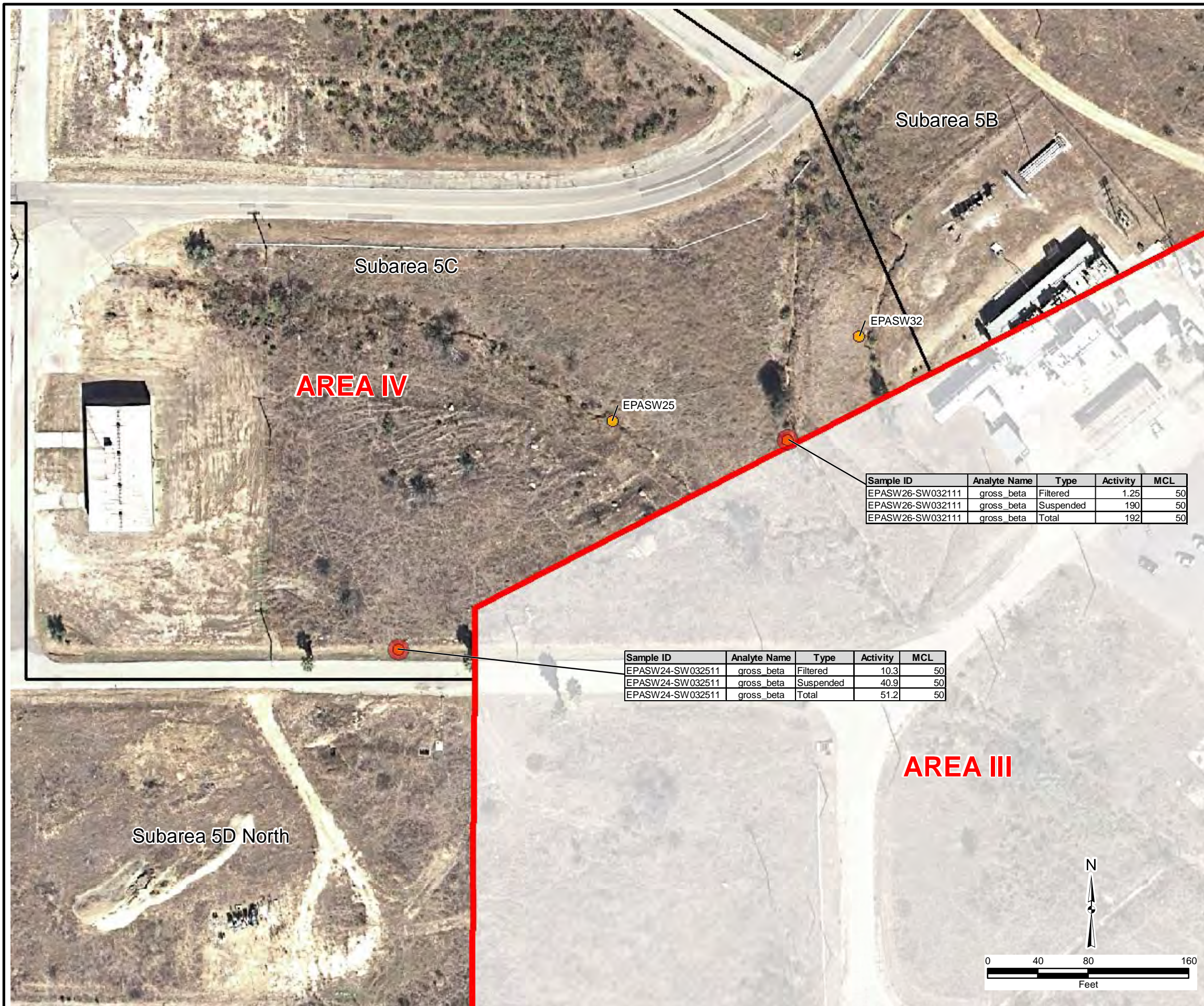


Figure 4.3
Cesium-137 Phase I and II
Sediment and Soil Results
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

Cesium-137 FAL Exceedances

Multiples of the FAL

- FAL to less than 2 times FAL
- Samples Below FAL
- Outfall

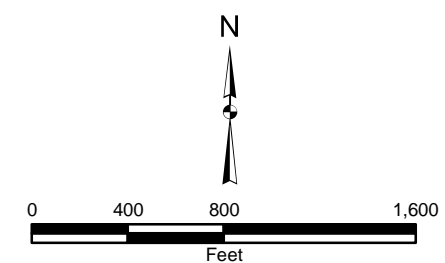
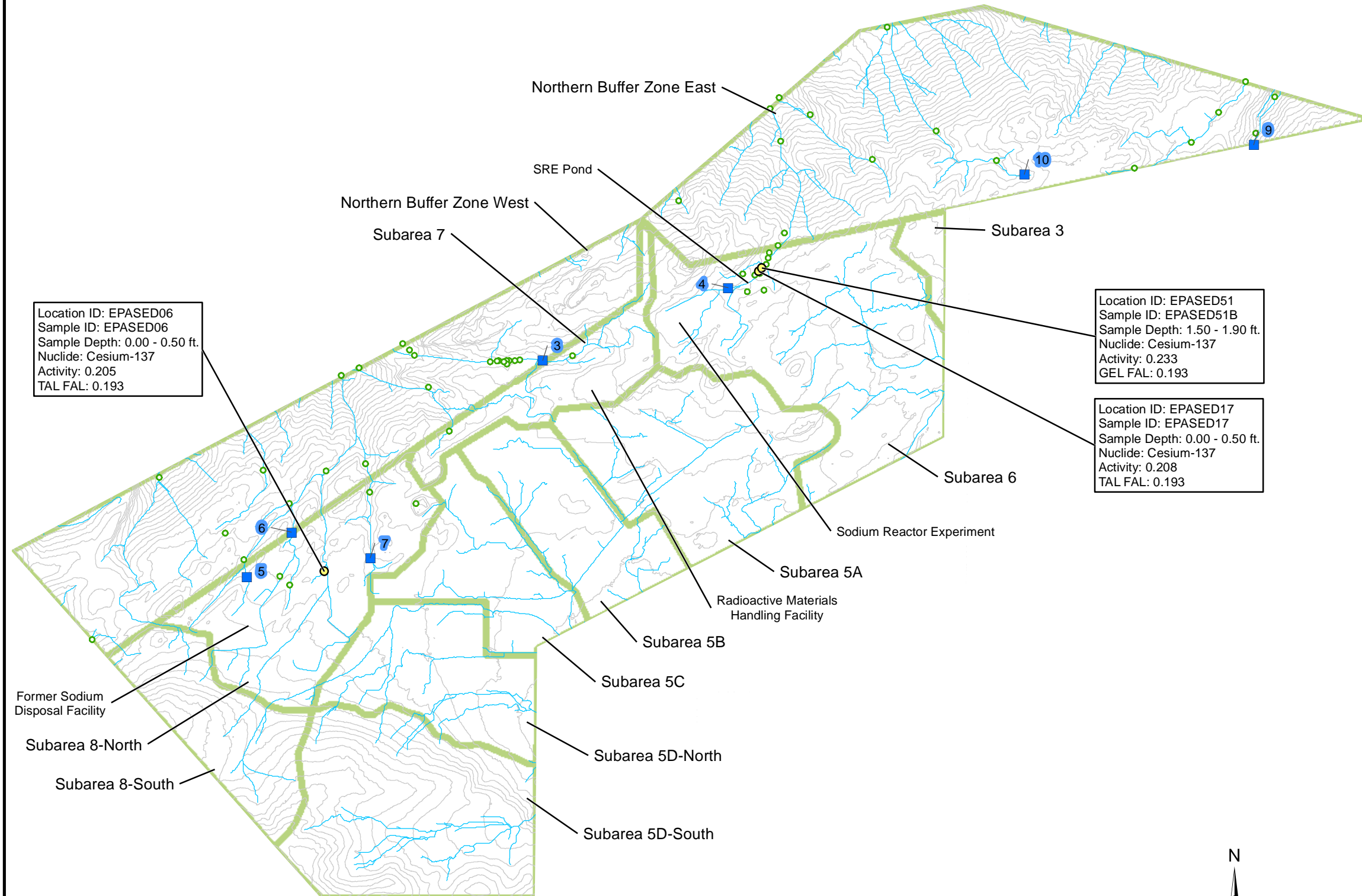
— Approximate Drainage Pathways

— 20-foot elevation contours

Subareas

Notes:

- ft. - feet
- FAL - Field Action Level
- GEL - GEL Laboratories, Inc.
- TAL - Test America Laboratories
- ID - identification
- All concentrations in picocuries per gram



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Fig4-3_SED_FAL_Cs-137.mxd
12/3/2012 pbbilock
Source: CaSil, NAIP 2009; Boeing 2008

Figure 4.4
Strontium-90 Phase I and II
Sediment and Soil Results
Santa Susana Field Laboratory

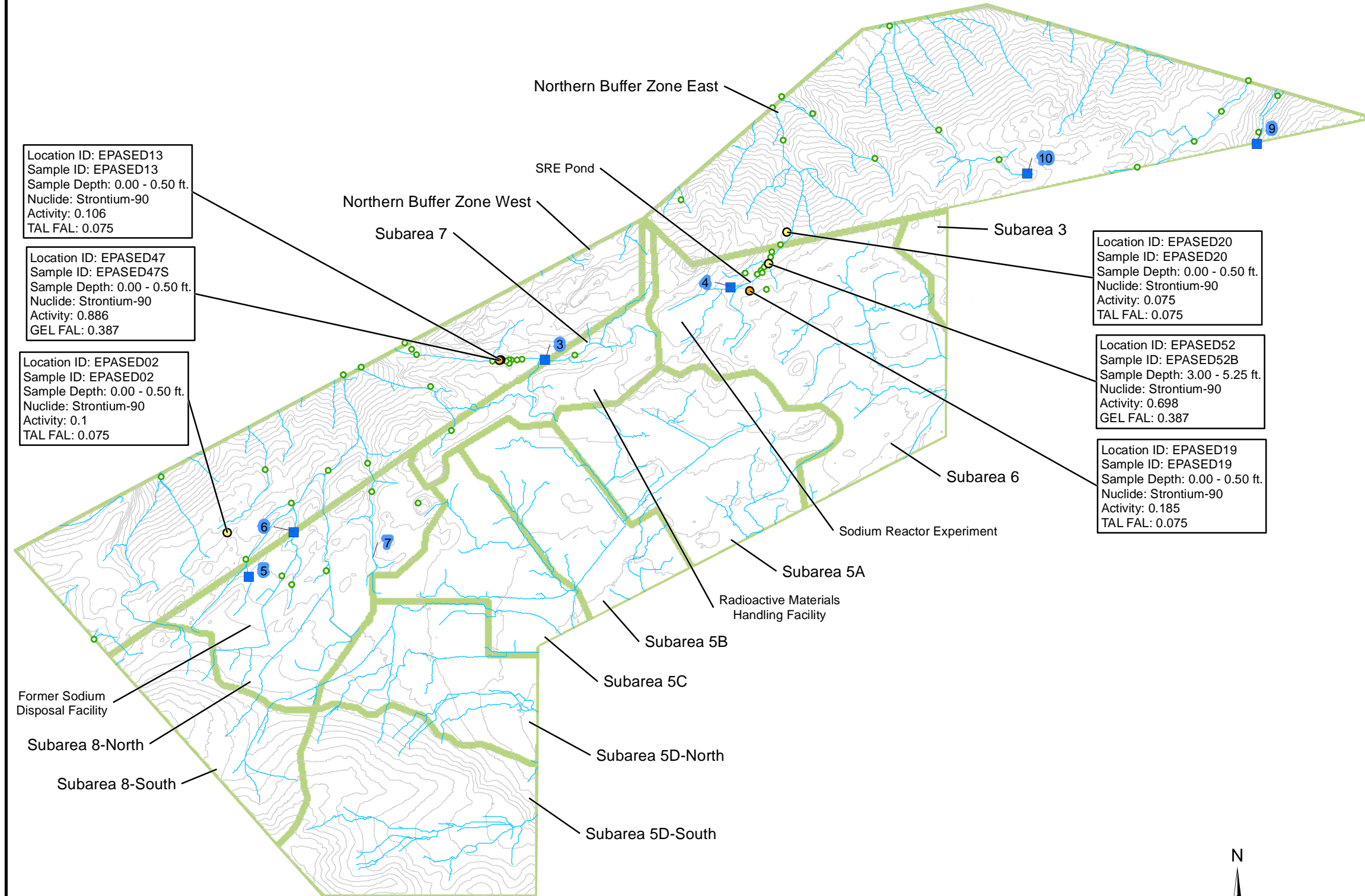
U.S. EPA Region 9



Legend

- Strontium-90 FAL Exceedances**
- Multiples of the FAL
- 2 times FAL to less than 3 times FAL
 - FAL to less than 2 times FAL
 - Samples Below FAL
 - Outfall
 - Approximate Drainage Pathways
 - 20-foot elevation contours
 - Subareas

Notes:
ft. - feet
FAL - Field Action Level
GEL - GEL Laboratories, Inc.
TAL - Test America Laboratories
ID - identification
All concentrations in picocuries per gram



Location ID: EPASED13
Sample ID: EPASED13
Sample Depth: 0.00 - 0.50 ft.
Nuclide: Strontium-90
Activity: 0.106
TAL FAL: 0.075

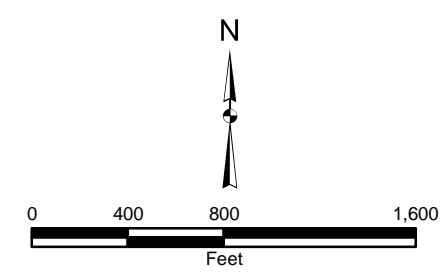
Location ID: EPASED47
Sample ID: EPASED47S
Sample Depth: 0.00 - 0.50 ft.
Nuclide: Strontium-90
Activity: 0.886
GEL FAL: 0.387

Location ID: EPASED02
Sample ID: EPASED02
Sample Depth: 0.00 - 0.50 ft.
Nuclide: Strontium-90
Activity: 0.1
TAL FAL: 0.075

Location ID: EPASED20
Sample ID: EPASED20
Sample Depth: 0.00 - 0.50 ft.
Nuclide: Strontium-90
Activity: 0.075
TAL FAL: 0.075

Location ID: EPASED52
Sample ID: EPASED52B
Sample Depth: 3.00 - 5.25 ft.
Nuclide: Strontium-90
Activity: 0.698
GEL FAL: 0.387

Location ID: EPASED19
Sample ID: EPASED19
Sample Depth: 0.00 - 0.50 ft.
Nuclide: Strontium-90
Activity: 0.185
TAL FAL: 0.075



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Fig4-4_SED_FAL_Sr-90.mxd
12/3/2012 pbillock
Source: CaSil, NAIP 2009; Boeing 2008



Figure 4.5
Plutonium-239/240 Phase I and II
Sediment and Soil Results
Santa Susana Field Laboratory

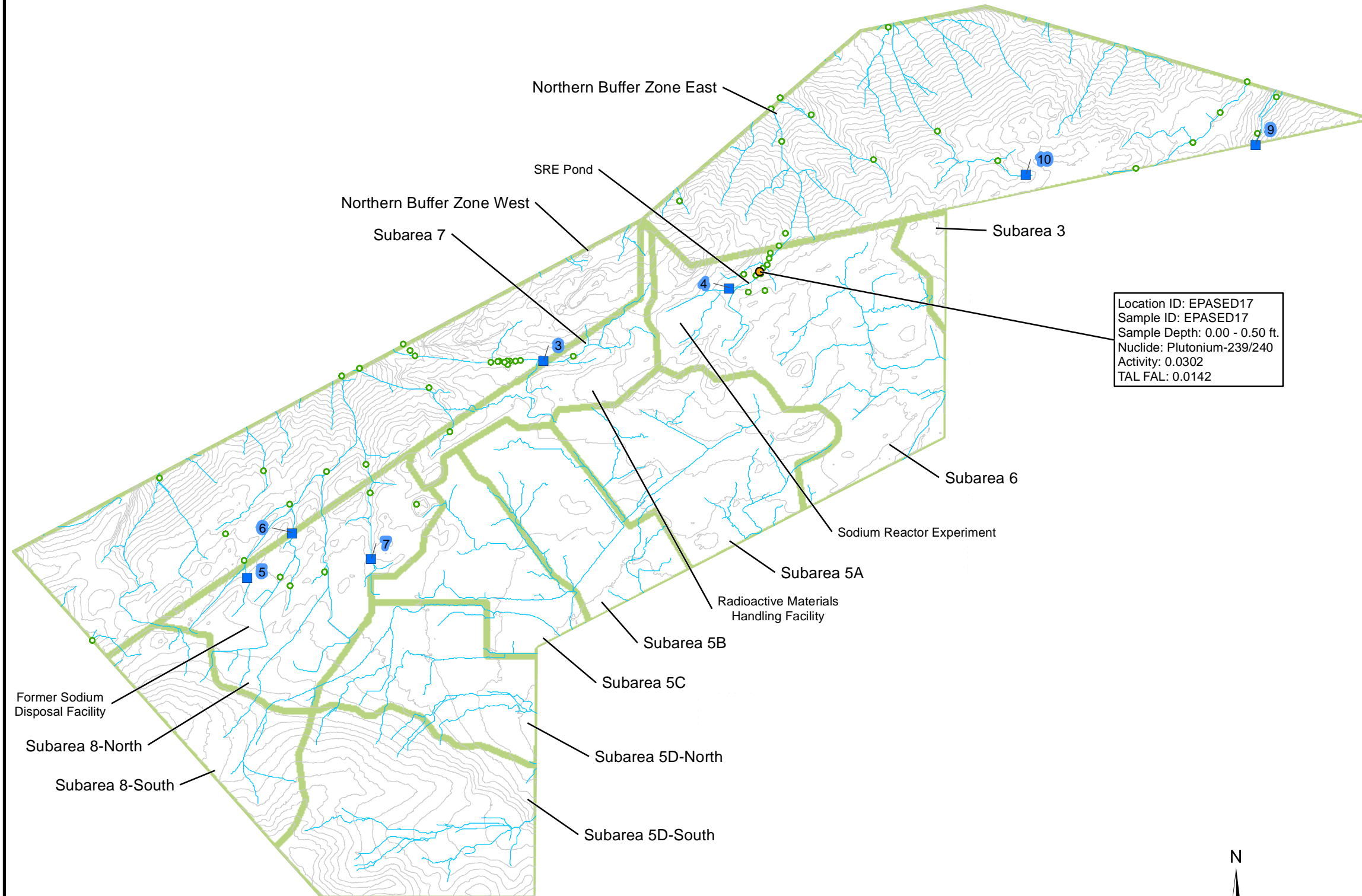
U.S. EPA Region 9



Legend

- Plutonium-239/240 FAL Exceedances**
- Multiples of the FAL
- 2 times FAL to less than 3 times FAL
 - Samples Below FAL
 - Outfall
 - Approximate Drainage Pathways
 - 20-foot elevation contours
 - Subareas

Notes:
ft. - feet
FAL - Field Action Level
TAL - Test America Laboratories
ID - identification
All concentrations in picocuries per gram









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Fig4-5_SED_FAL_Pu-239-240.mxd
12/3/2012 pbillock
Source: CaSil, NAIP 2009; Boeing 2008

Figure 5.1
All Phase I and II
Sediment and Soil Results
Santa Susana Field Laboratory

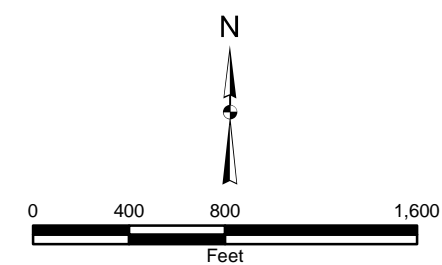
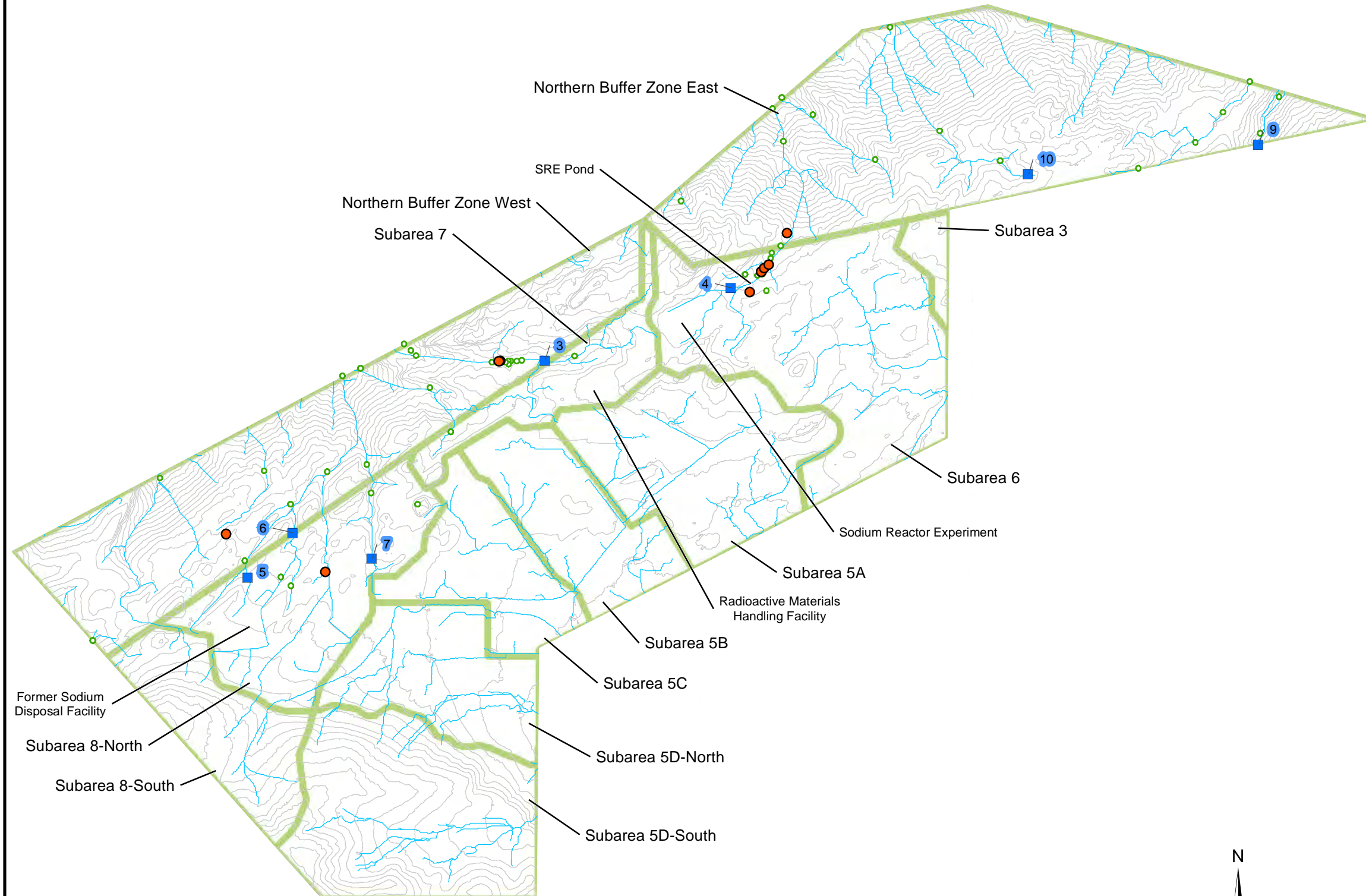
U.S. EPA Region 9



Legend

-  Samples Above FAL
-  Samples Below FAL
-  Outfall
-  Approximate Drainage Pathways
-  20-foot elevation contours
-  Subareas

Notes:
FAL - Field Action Level
All concentrations in picocuries per gram



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Fig5-1_SED_FAL_All.mxd
12/21/2012 pbillcock
Source: CaSil, NAIP 2009; Boeing 2008



APPENDIX A

**TECHNICAL MEMORANDUM
SURFACE WATER SAMPLE RESULTS**

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TECHNICAL MEMORANDUM
SURFACE WATER SAMPLE RESULTS
SANTA SUSANA FIELD LABORATORY SITE
AREA IV RADIOLOGICAL STUDY

TO: Andrew Bain, EPA Region 9 RPM
FROM: T. Stewart Williford, P.G., HGL
THROUGH: L. Steven Vaughn, R.G., HGL Project Manager
Rene R. Rodriguez, P.E., HGL Deputy Project Manager
CC: Mary Aycock, EPA Region 9 RPM
Shiann-Jang Chern, Ph.D., P.E., EPA Region 9 RPM
Gregg Dempsey, Technical Advisor
DATE: November 16, 2012
SUBJECT: Surface Water Sample Results

CONTRACT NO: EP-S7-05-05
TASK ORDER NO: 0038

1.0 INTRODUCTION

HydroGeoLogic, Inc. (HGL) is conducting a comprehensive radiological characterization study of Area IV and the Northern Buffer Zone (NBZ) at the Santa Susana Field Laboratory (SSFL) site in Ventura County, California. This work is being executed under U.S. Environmental Protection Agency (USEPA) Region 7 Architect and Engineering Services Contract EP-S7-05-05, Task Order 0038. The technical lead on the project is USEPA Region 9.

As part of the Area IV Radiological Study, surface water sampling activities were conducted to evaluate the nature of potential radiological contamination carried offsite by means of surface water originating in the Area IV Study Area that may have resulted from past nuclear operations and research activities that occurred at SSFL Area IV. This objective was achieved through the collection and analysis of surface water samples in accordance with the Final Phase I Field Sampling Plan (FSP) for Groundwater, Surface Water, and Sediment (HGL, 2010a) and the Surface Water and Sediment Addendum to the Final Phase I FSP for Groundwater, Surface Water, and Sediment (HGL, 2010b). This Technical Memorandum documents the sampling activities, analytical results, and conclusions of the surface water sampling effort.

The approach for surface water sampling was to identify potential sample locations during a site reconnaissance, prepare the Surface Water and Sediment Addendum (HGL, 2010b), present the FSP addendum, and review and finalize proposed locations with USEPA's SSFL Technical Stakeholder Workgroup.

2.0 SURFACE WATER SAMPLING ACTIVITIES

2.1 Surface Water Sample Location Placement

A field reconnaissance was conducted from October 6, 2010, to November 5, 2010, to determine the optimal location for collecting surface water samples. A total of 40 surface water sampling locations were identified during the reconnaissance. Detailed notes and photographs were taken at each location, and X-Y survey coordinates were recorded using a SPS 852 handheld Trimble Global Positioning System (GPS) unit. The 40 proposed sample locations were documented in the Surface Water and Sediment Addendum (HGL, 2010b).

The proposed sampling locations were discussed during a technical review meeting held on November 18, 2010, with members of USEPA's SSFL Technical Stakeholder Workgroup consisting of representatives of Department of Energy (DOE), the State of California Department of Toxic Substances Control (DTSC), The Boeing Company, USEPA, and the community.

2.2 Sample Collection

Surface water sampling was conducted primarily from March 21 to March 29, 2011, during heavy rains. On May 23, 2011, two samples (surface and total depth samples) were collected from the Building 4056 excavation (Million Dollar Hole).

All surface water samples collected were laboratory-filtered, as described in Section 4.1.4 of the Final Phase I FSP (HGL, 2010a). With the exception of the two samples collected from the Million Dollar Hole, all samples were obtained by dipping the sample container directly in the water, known as the direct dip method. The direct dip method of collecting surface water samples is the most desirable, since it consists of collecting a single grab sample by immersing the sample bottle directly under the surface of the water, thus reducing the potential for cross contamination. The two samples collected from the Million Dollar Hole were collected using a Kemmerer sampler in accordance with the Final Phase I FSP (HGL, 2010a). A Kemmerer sampler is an acrylic cylinder with rubber stoppers that are open while being lowered in a vertical position, thus allowing free passage of water through the cylinder.

2.3 Deviations from the Field Sampling Plan Addendum

Table 1 summarizes the deviations from the FSP Addendum and details why the planned samples were not collected. A total of 41 surface water samples were purposed to be collected from 40 locations. Of the 41 proposed surface water samples only 34 samples could be collected from 33 locations. Seven locations were dry, and therefore could not be sampled. The dry locations were visited during the next rain event on May 17, 2011, at which point they were still dry, and no samples were collected.

Table 1
Summary of Sample Locations Not Collected

Sample Location	Justification
EPASW01	Insufficient water, location dry.
EPASW02	Insufficient water
EPASW03	Insufficient water
EPASW04	Insufficient water
EPASW33	Insufficient water
EPASW36	Insufficient water
EPASW37	Insufficient water

3.0 SURFACE WATER ANALYTICAL RESULTS

Analyses of surface water samples were conducted in accordance with the Quality Assurance Project Plan (QAPP) for Groundwater, Surface Water, and Sediment (HGL, 2010c). Surface water samples were analyzed for the Priority 1 analyte suite, as detailed in the Final Phase I FSP (HGL, 2010a), which includes the following:

- Gross Alpha,
- Gross Beta,
- Strontium (Sr)-90,
- Isotopic Uranium (U),
- Gamma Spectroscopy, and
- Tritium.

The surface water samples were filtered in the laboratory as described in Section 4.1.4 of the Final Phase I FSP (HGL, 2010a). The laboratory analyzed and reported concentrations of the filtered (aqueous), suspended (solid), and total (summation of filtered and suspended) fractions of the sample.

3.1 Analytical Results

Analytical results of surface water samples collected were compared to Federal and State of California drinking water maximum contaminant levels (MCL). Surface water sample results show radionuclide concentrations at or above the respective MCLs at two sampling locations. The surface water sample collected from Location EPASW24 contained a concentration of total gross beta at 51.2 picocuries per liter (pCi/L) that exceeded the MCL of 50 pCi/L. The surface water sample collected from Location EPASW26 contained a concentration of total gross beta at 192 pCi/L, which exceeded the MCL of 50 pCi/L. Location EPASW24 is located in the ditch on the north side of H Street, approximately 300 feet southeast of Building 4015. This ditch receives surface water run-off from former Building 4020 (Hot Lab) and Building 4055. Location EPASW26 is located approximately 500 feet southwest of Building 4011 in the natural drainageway that receives surface water runoff from G and 20th streets.

The exceedances of the MCL in both samples were due to elevated concentrations of gross beta in the suspended fraction. This is commonly caused by turbidity that occurs when using the direct dip sample collection method. The concentrations of gross beta detected in the filter (aqueous) fraction of both samples were well below the MCL.

Table 2 presents the sample location, radionuclide, reporting basis, and radionuclide concentration of samples that exceeded MCLs.

Table 2
Radionuclide Analytical Results Exceeding MCLs

Sample Location	Radionuclide Detected	Reporting Basis	Activity	MCL
EPASW24	gross beta	Filtered	10.3	50
EPASW24	gross beta	Suspended	40.9	50
EPASW24	gross beta	Total	51.2	50
EPASW26	gross beta	Filtered	1.25	50
EPASW26	gross beta	Suspended	190	50
EPASW26	gross beta	Total	192	50

Notes:

Reporting units in picocuries per liter.

Figure 1 presents the locations of all the surface water samples collected during the sampling event. Figure 2 presents the location, radionuclide, and concentration detected above the MCLs in samples collected during the sampling event. A summary of the analytical results is provided in Table A.1.

4.0 QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

In addition to the environmental samples collected, quality control samples were collected as described in the QAPP for Groundwater, Surface water, and Sediment (HGL, 2010c). The results of the quality control samples collected and their affect on data usability are described in the following subsections.

4.1 Field Duplicates

The surface water quality assurance (QA)/quality control (QC) assessment is performed on the validated laboratory results approved and accepted by the project, and recorded in the project database as of September 4, 2012. Subsequent modifications to the approved data or the project database may not be reflected in this assessment.

Field duplicate sample data includes 452 results from 226 sample/duplicate pairs. Those results included several analytes which were subsequently removed from consideration, and thus were not evaluated. In addition, any results that were rejected by data validation were removed from consideration. Finally, analytes that are simply inferred from previously

reported results, such as yttrium-90, which is inferred from the reported Sr-90 results, are considered redundant and have also been removed from consideration.

The Z_{DUP} evaluation of the remaining 177 qualified pairs follows:

- 167 Z_{DUP} evaluation results (94.4 percent) were within the expected 95 percent confidence interval for this evaluation, with Z_{DUP} less than 1.96;
- Five Z_{DUP} evaluation results (2.8 percent) were between the 95 percent and 99 percent confidence interval with Z_{DUP} at or above 1.96, but below 2.58;
- Five Z_{DUP} evaluation results (2.8 percent) exceeded the 99 percent confidence interval, with Z_{DUP} values at or above 2.58.

A review of the Z_{DUP} “warnings” and “exceedances”, and the associated laboratory data, has been conducted and the following observations are made regarding the collection and analysis of field duplicate samples:

- The highest “exceedance”, i.e. Z_{DUP} score at or above 2.58, is related to the sample/duplicate pair EPASW06-SW032311/EPASW-DUP-01-SW032311, in which the suspended fraction analysis Sr-90 Z_{DUP} score is 13.15. A careful review of the associated laboratory and validation reports does not indicate any observable data quality issues or laboratory errors that might account for the significant discrepancy. Barring re-sampling and confirmatory analysis, it may be concluded that the elevated Z_{DUP} score reflects a degree of heterogeneity in the sampling source that has not been otherwise accounted for in the Z_{DUP} assessment (i.e. the degree of heterogeneity in the co-located, but non-homogenized, field samples exceeds that of a homogenized laboratory sample by significantly more than the estimated 10 percent). These comments notwithstanding, it is noted that the higher of the two Sr-90 results is 0.97 ± 0.06 pCi/L, which is well below the USEPA Drinking Water MCL of 8 pCi/L. With that consideration, the data is not believed to be unusable for its intended purpose.
- The Z_{DUP} score for gross alpha activity in the suspended fraction of the sample/duplicate pair EPASW16-SW032411/EPASW-DUP-02-SW032411 is 5.88. This excursion may also be due to heterogeneity in the sampling source beyond the 10 percent estimated value described above. In addition, it is generally recognized that gross alpha activity analysis has significant limitations and inherent uncertainties related to individual sample matrices that are typically beyond the laboratory’s capability to accurately estimate. These inherent uncertainties should be considered and the use of gross screening results such as gross alpha activity for assessing data quality or for making significant analytical decisions should generally be avoided. In this case, the Z_{DUP} score of 5.88 is not believed to be cause for particular concern and, as in the case of Sr-90 above, the higher of the two results (8.5 ± 0.82 pCi/L) is well below the USEPA Drinking Water MCL.
- The remaining three Z_{DUP} exceedances involve three Z_{DUP} scores at or below 2.79. Previous subarea QA/QC sample reports have noted a possible underestimate of the

laboratories' reported uncertainty values, which may contribute slightly to the frequency and magnitude of the Z_{DUP} excursions. There is no indication that the small but frequent underreporting of analytical uncertainty has been corrected in this subarea dataset and the effect on the overall distribution of Z_{DUP} scores is believed to persist. Nonetheless, a review of the Z_{DUP} excursions, as well as a review of the individual results and associated laboratory data, does not indicate significant concerns regarding the quality or usability of the data, beyond those discussed above.

- The remaining five Z_{DUP} scores in the “warning” range, between 1.96 and 2.58, are within the expected frequency and do not appear to represent a data quality excursion.

A summary of the parent and associated duplicate sample results is provided in Table A.2.

4.2 Equipment Rinsate and Source Water Blanks

Surface water samples were collected using the direct dip method in accordance with the Final Phase I FSP (HGL, 2010a); therefore, no rinsate blanks were required.

5.0 SUMMARY OF FINDINGS

Radionuclide concentrations exceeding MCLs were detected in two surface water samples collected from within the Area IV and NBZ Study Area. The surface water sample collected from location EPASW24 contained a concentration of total gross beta (51.2 pCi/L) that exceeded the MCL of 50 pCi/L. The surface water sample collected from Location EPASW26 contained a concentration of total gross beta (192 pCi/L) that exceeded the MCL of 50 pCi/L. The exceedances of the MCL in both samples were due to elevated concentrations of gross beta in the suspended fraction. Elevated suspended concentrations of radionuclides is commonly caused by turbidity in the sample created by using the direct dip method to collect the surface water sample. The concentrations of gross beta detected in the filter (aqueous) fraction of both samples were well below the MCL.

6.0 REFERENCES

HydroGeoLogic, Inc., 2010a. Final Phase I FSP for Groundwater, Surface Water, and Sediment, Area IV Radiological Study, Santa Susana Field Laboratory Ventura County, California. July.

HydroGeoLogic, Inc., 2010b. Surface Water and Sediment Addendum to the Final Phase I FSP for Groundwater, Surface Water, and Sediment, Area IV Radiological Study, Santa Susana Field Laboratory Ventura County, California. December.

HydroGeoLogic, Inc., 2010c. Quality Assurance Project Plan for Groundwater, Surface Water, and Sediment, Area IV Radiological Study, Santa Susana Field Laboratory, Ventura County, California. August.

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Figure 2	Surface Water Sample Location Detail Exceeding Maximum Contaminant Levels

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Attachment 2	Field Sampling Data Sheets

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FIGURES




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Figure 1
Surface Water Sample Locations
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

-  Exceed MCLs
-  Surface Water Sample Locations
-  Area IV and NBZ Boundaries

EPASW25 Surface Water Sample Identification

Notes:
MCL - maximum contaminant level
NBZ - Northern Buffer Zone

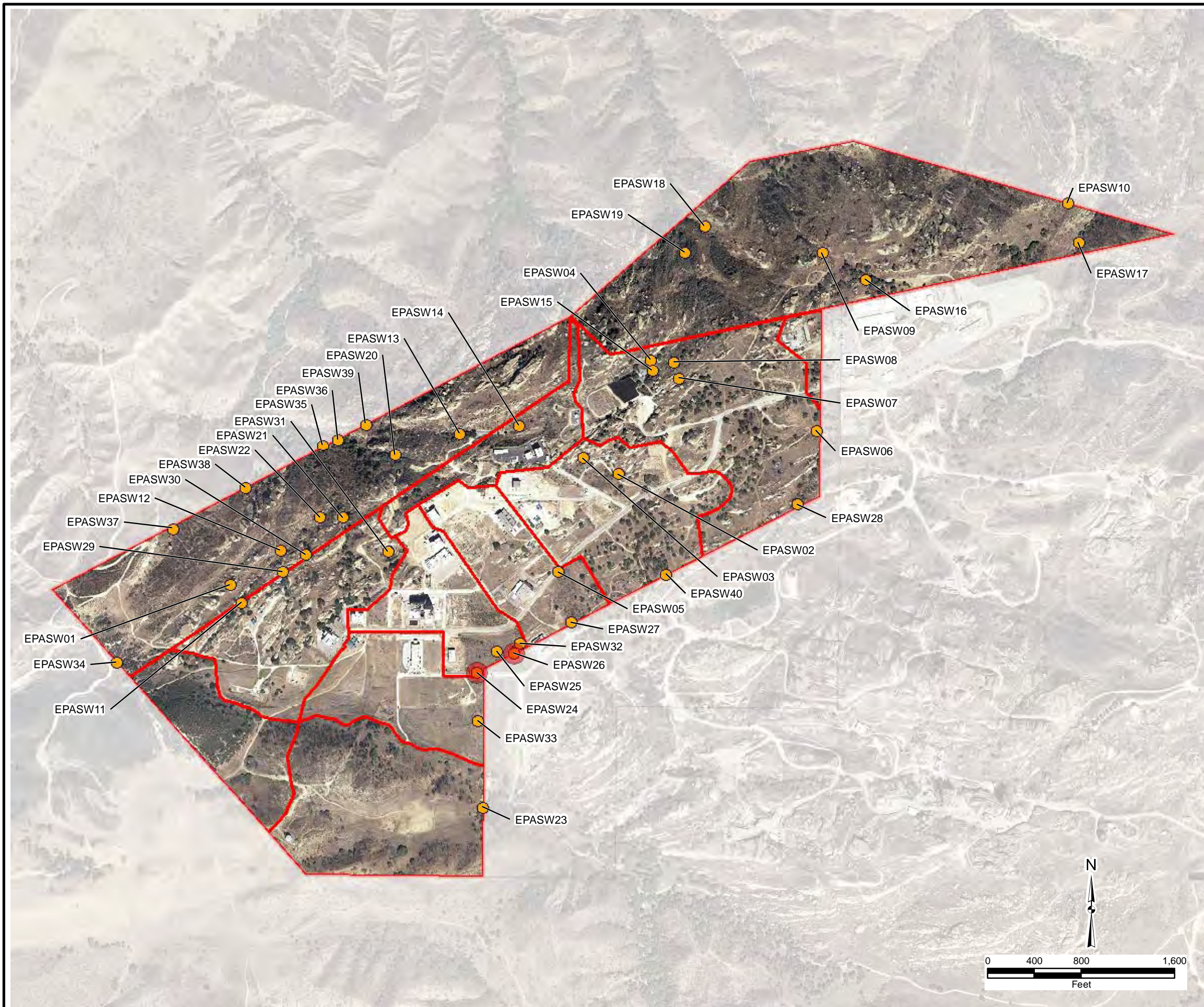


Figure 2
Surface Water Sample Location Detail
Exceeding Maximum Contaminant Levels
Santa Susana Field Laboratory

U.S. EPA Region 9

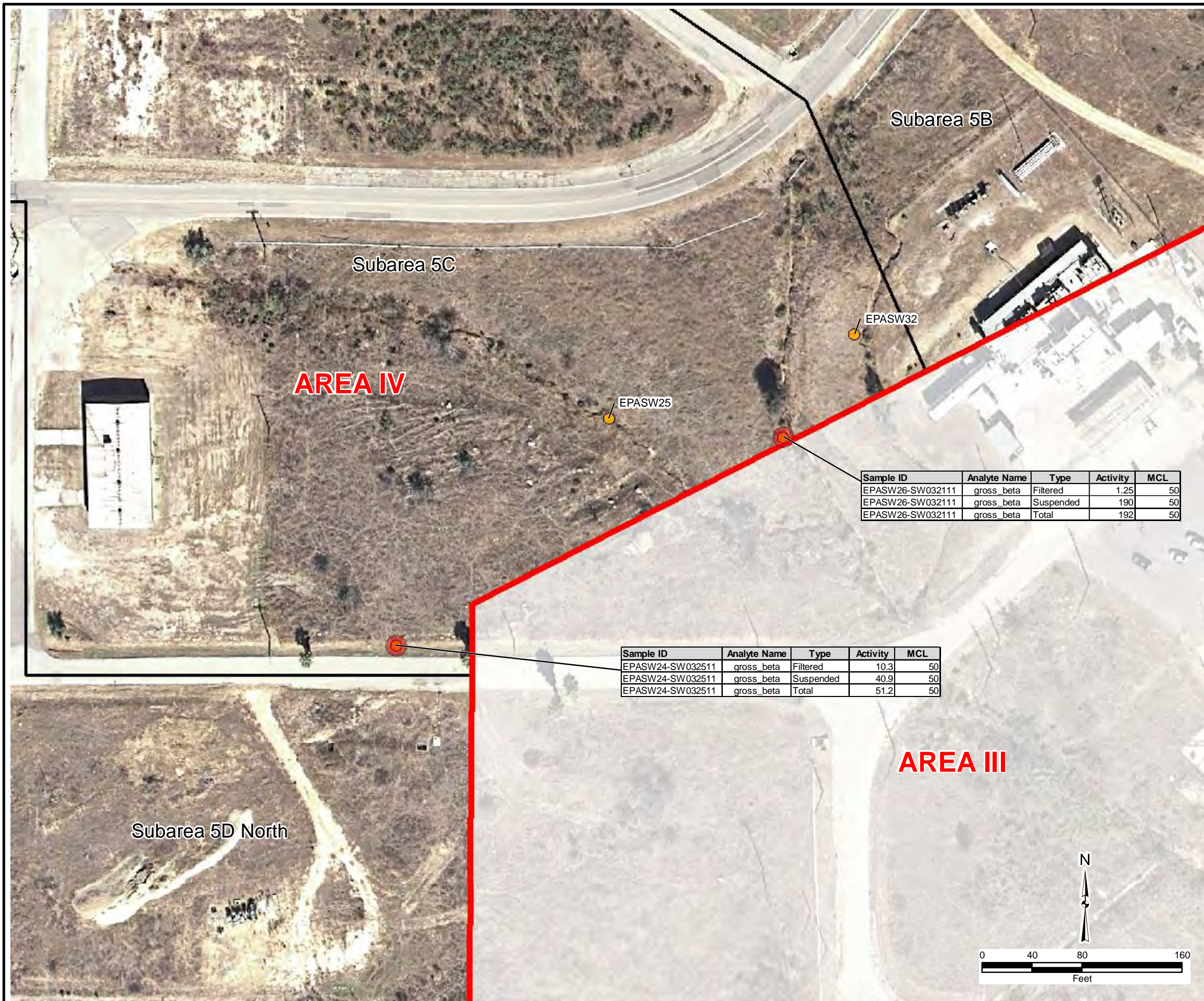


Legend

- Exceed MCLs
- Surface Water Sample Locations
- Area IV and Area III Boundaries
- Area IV Subarea Boundaries

EPASW25 Surface Water Sample Identification

Notes:
MCL - maximum contaminant level
ID - identification
NA - not applicable



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Fig_2_SW_SampleDetail.mxd
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Source: CaSil, NAIP 2009; Boeing 2008



ATTACHMENT 1

Tables

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LIST OF ATTACHMENT TABLES

Table A.1	Analytical Results Summary
Table A.2	Parent and Field Duplicate Results Summary

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Table A.1
Analytical Results Summary
Surface Water

Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW05	EPASW05-SW032511	Ac-227	Filtered	-0.5 U	11	3.4	5.6
EPASW05	EPASW05-SW032511	Ac-227	Suspended	0.2 U	4.1	1.2	2
EPASW05	EPASW05-SW032511	Ac-227	Total	-0.3	NA	3.6	0
EPASW05	EPASW05-SW032511	Ac-228	Filtered	2.1	3.7	1.1	1.7
EPASW05	EPASW05-SW032511	Ac-228	Suspended	1.94	2.2	0.71	1
EPASW05	EPASW05-SW032511	Ac-228	Total	4	NA	1.3	0
EPASW05	EPASW05-SW032511	Ag-108	Filtered	0.003 U	0.078	0.023	0.037
EPASW05	EPASW05-SW032511	Ag-108	Suspended	-0.001 U	0.054	0.016	0.026
EPASW05	EPASW05-SW032511	Ag-108	Total	0.002	NA	0.028	0
EPASW05	EPASW05-SW032511	Ag-108m	Filtered	0.03 U	0.84	0.25	0.4
EPASW05	EPASW05-SW032511	Ag-108m	Suspended	-0.01 U	0.58	0.17	0.28
EPASW05	EPASW05-SW032511	Ag-108m	Total	0.02	NA	0.3	0
EPASW05	EPASW05-SW032511	Ba-133	Filtered	0.2 U	12	3.7	6.1
EPASW05	EPASW05-SW032511	Ba-133	Suspended	2.2 U	5.8	1.7	2.8
EPASW05	EPASW05-SW032511	Ba-133	Total	2.4	NA	4.1	0
EPASW05	EPASW05-SW032511	Ba-137m	Filtered	0.18 U	1.1	0.31	0.5
EPASW05	EPASW05-SW032511	Ba-137m	Suspended	-0.004 U	0.66	0.19	0.31
EPASW05	EPASW05-SW032511	Ba-137m	Total	0.18	NA	0.36	0
EPASW05	EPASW05-SW032511	Bi-212	Filtered	-1.2 U	9.9	4.8	4.7
EPASW05	EPASW05-SW032511	Bi-212	Suspended	2.1 U	5.4	1.6	2.5
EPASW05	EPASW05-SW032511	Bi-212	Total	0.9	NA	5	0
EPASW05	EPASW05-SW032511	Bi-214	Filtered	3.4	2.8	1.2	1.4
EPASW05	EPASW05-SW032511	Bi-214	Suspended	2.11	1.6	0.51	0.74
EPASW05	EPASW05-SW032511	Bi-214	Total	5.5	NA	1.3	0
EPASW05	EPASW05-SW032511	Cd-113m	Filtered	-600 U	14000	4000	6600
EPASW05	EPASW05-SW032511	Cd-113m	Suspended	-400 U	7800	2300	3800
EPASW05	EPASW05-SW032511	Cd-113m	Total	-1100	NA	4600	0
EPASW05	EPASW05-SW032511	Cf-249	Filtered	-0.9 U	5.7	1.7	2.8
EPASW05	EPASW05-SW032511	Cf-249	Suspended	0.08 U	3.2	0.94	1.5
EPASW05	EPASW05-SW032511	Cf-249	Total	-0.8	NA	1.9	0

Table A.1
Analytical Results Summary
Surface Water

Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW05	EPASW05-SW032511	Co-60	Filtered	0.12 U	1.2	0.34	0.56
EPASW05	EPASW05-SW032511	Co-60	Suspended	-0.07 U	0.85	0.24	0.39
EPASW05	EPASW05-SW032511	Co-60	Total	0.04	NA	0.42	0
EPASW05	EPASW05-SW032511	Cs-134	Filtered	-0.36 U	1.3	0.4	0.65
EPASW05	EPASW05-SW032511	Cs-134	Suspended	0 UJ	1.3	0.38	0.62
EPASW05	EPASW05-SW032511	Cs-134	Total	-0.36	NA	0.55	0
EPASW05	EPASW05-SW032511	Cs-137	Filtered	0.19 U	1.1	0.33	0.53
EPASW05	EPASW05-SW032511	Cs-137	Suspended	-0.004 U	0.7	0.2	0.33
EPASW05	EPASW05-SW032511	Cs-137	Total	0.19	NA	0.38	0
EPASW05	EPASW05-SW032511	Eu-152	Filtered	-0.12 U	3	0.89	1.5
EPASW05	EPASW05-SW032511	Eu-152	Suspended	-0.3 U	2.1	0.61	0.99
EPASW05	EPASW05-SW032511	Eu-152	Total	-0.4	NA	1.1	0
EPASW05	EPASW05-SW032511	Eu-154	Filtered	0.3 U	9.5	2.7	4.5
EPASW05	EPASW05-SW032511	Eu-154	Suspended	-1 U	6.9	2	3.2
EPASW05	EPASW05-SW032511	Eu-154	Total	-0.7	NA	3.4	0
EPASW05	EPASW05-SW032511	Eu-155	Filtered	-0.21 U	2.9	0.87	1.4
EPASW05	EPASW05-SW032511	Eu-155	Suspended	-0.22 U	1.4	0.43	0.7
EPASW05	EPASW05-SW032511	Eu-155	Total	-0.43	NA	0.97	0
EPASW05	EPASW05-SW032511	gross_alpha	Filtered	1.65	0.72	0.34	0.39
EPASW05	EPASW05-SW032511	gross_alpha	Suspended	0.09 U	0.42	0.12	0.22
EPASW05	EPASW05-SW032511	gross_alpha	Total	1.75	NA	0.35	0
EPASW05	EPASW05-SW032511	gross_beta	Filtered	5	0.99	0.53	0.58
EPASW05	EPASW05-SW032511	gross_beta	Suspended	-0.29 U	0.78	0.21	0.46
EPASW05	EPASW05-SW032511	gross_beta	Total	4.71	NA	0.57	0
EPASW05	EPASW05-SW032511	H-3_Total	Total	-1	76	22	36
EPASW05	EPASW05-SW032511	Ho-166m	Filtered	-0.09 U	1.2	0.35	0.56
EPASW05	EPASW05-SW032511	Ho-166m	Suspended	0.21 U	1.2	0.34	0.55
EPASW05	EPASW05-SW032511	Ho-166m	Total	0.12	NA	0.48	0
EPASW05	EPASW05-SW032511	K-40	Filtered	7.7	16	5.8	7.7
EPASW05	EPASW05-SW032511	K-40	Suspended	5.5	11	3.7	5.2

Table A.1
Analytical Results Summary
Surface Water

Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW05	EPASW05-SW032511	K-40	Total	13.2	NA	6.8	0
EPASW05	EPASW05-SW032511	Na-22	Filtered	-0.002 U	1.2	0.34	0.56
EPASW05	EPASW05-SW032511	Na-22	Suspended	0.11 U	0.81	0.23	0.37
EPASW05	EPASW05-SW032511	Na-22	Total	0.1	NA	0.41	0
EPASW05	EPASW05-SW032511	Nb-94	Filtered	0.16 U	1.1	0.32	0.52
EPASW05	EPASW05-SW032511	Nb-94	Suspended	-0.18 U	0.78	0.23	0.37
EPASW05	EPASW05-SW032511	Nb-94	Total	-0.02	NA	0.4	0
EPASW05	EPASW05-SW032511	Np-236	Filtered	-0.02 U	2.6	0.76	1.2
EPASW05	EPASW05-SW032511	Np-236	Suspended	0.1 U	1.4	0.41	0.68
EPASW05	EPASW05-SW032511	Np-236	Total	0.08	NA	0.86	0
EPASW05	EPASW05-SW032511	Np-239	Filtered	-1.8 U	7.1	2.1	3.4
EPASW05	EPASW05-SW032511	Np-239	Suspended	1.5 U	3.9	1.2	1.9
EPASW05	EPASW05-SW032511	Np-239	Total	-0.3	NA	2.4	0
EPASW05	EPASW05-SW032511	Pa-231	Filtered	-5 U	51	15	25
EPASW05	EPASW05-SW032511	Pa-231	Suspended	6.5 U	30	8.8	14
EPASW05	EPASW05-SW032511	Pa-231	Total	1	NA	18	0
EPASW05	EPASW05-SW032511	Pb-212	Filtered	0.29 U	2.3	0.67	1.1
EPASW05	EPASW05-SW032511	Pb-212	Suspended	0.42 U	1.2	0.38	0.57
EPASW05	EPASW05-SW032511	Pb-212	Total	0.7	NA	0.77	0
EPASW05	EPASW05-SW032511	Pb-214	Filtered	0.7 U	2.6	1	1.2
EPASW05	EPASW05-SW032511	Pb-214	Suspended	2.14	1.5	0.6	0.71
EPASW05	EPASW05-SW032511	Pb-214	Total	2.8	NA	1.2	0
EPASW05	EPASW05-SW032511	Sb-125	Filtered	-2.2 U	12	3.7	6
EPASW05	EPASW05-SW032511	Sb-125	Suspended	-1.4 U	6.5	1.9	3.2
EPASW05	EPASW05-SW032511	Sb-125	Total	-3.5	NA	4.1	0
EPASW05	EPASW05-SW032511	Sn-126	Filtered	0.46 U	1.1	0.34	0.54
EPASW05	EPASW05-SW032511	Sn-126	Suspended	0.48	0.75	0.23	0.35
EPASW05	EPASW05-SW032511	Sn-126	Total	0.94	NA	0.41	0
EPASW05	EPASW05-SW032511	Sr-90	Filtered	0.06 U	0.12	0.038	0.07
EPASW05	EPASW05-SW032511	Sr-90	Suspended	0.04 U	0.099	0.03	0.055

Table A.1
Analytical Results Summary
Surface Water

Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW05	EPASW05-SW032511	Sr-90	Total	0.1	NA	0.048	0
EPASW05	EPASW05-SW032511	Te-125m	Filtered	-0.5 U	2.8	0.85	1.4
EPASW05	EPASW05-SW032511	Te-125m	Suspended	-0.32 U	1.5	0.45	0.73
EPASW05	EPASW05-SW032511	Te-125m	Total	-0.81	NA	0.96	0
EPASW05	EPASW05-SW032511	Th-231	Filtered	0.0182	0.0082	0.0075	0.007
EPASW05	EPASW05-SW032511	Th-231	Suspended	-0.0018 U	0.015	0.002	0.0047
EPASW05	EPASW05-SW032511	Th-231	Total	0.0163	NA	0.0077	0
EPASW05	EPASW05-SW032511	Th-234	Filtered	2.8 U	23	8	11
EPASW05	EPASW05-SW032511	Th-234	Suspended	1.2 U	7.8	2.2	3.8
EPASW05	EPASW05-SW032511	Th-234	Total	4	NA	8.3	0
EPASW05	EPASW05-SW032511	Tl-208	Filtered	0.27 U	1.3	0.38	0.6
EPASW05	EPASW05-SW032511	Tl-208	Suspended	0.64	0.79	0.29	0.38
EPASW05	EPASW05-SW032511	Tl-208	Total	0.91	NA	0.48	0
EPASW05	EPASW05-SW032511	Tm-171	Filtered	6 U	330	96	160
EPASW05	EPASW05-SW032511	Tm-171	Suspended	-36 U	130	39	64
EPASW05	EPASW05-SW032511	Tm-171	Total	-30	NA	100	0
EPASW05	EPASW05-SW032511	U-233/234	Filtered	0.51	0.01	0.04	0.01
EPASW05	EPASW05-SW032511	U-233/234	Suspended	0.02	0.01	0.01	0
EPASW05	EPASW05-SW032511	U-233/234	Total	0.53	NA	0.04	0
EPASW05	EPASW05-SW032511	U-235/236	Filtered	0.02	0.01	0.01	0.01
EPASW05	EPASW05-SW032511	U-235/236	Suspended	0 U	0.02	0	0
EPASW05	EPASW05-SW032511	U-235/236	Total	0.02	NA	0.01	0
EPASW05	EPASW05-SW032511	U-238	Filtered	0.44	0.01	0.04	0.01
EPASW05	EPASW05-SW032511	U-238	Suspended	0.02	0	0.01	0
EPASW05	EPASW05-SW032511	U-238	Total	0.46	NA	0.04	0
EPASW06	EPASW06-SW032311	Ac-227	Filtered	-2.1 U	9	2.7	4.4
EPASW06	EPASW06-SW032311	Ac-227	Suspended	-0.2 U	3.9	1.1	1.9
EPASW06	EPASW06-SW032311	Ac-227	Total	-2.3	NA	2.9	0
EPASW06	EPASW06-SW032311	Ac-228	Filtered	2	3.4	1	1.6
EPASW06	EPASW06-SW032311	Ac-228	Suspended	0.07 U	2.7	0.71	1.3

Table A.1
Analytical Results Summary
Surface Water

Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW06	EPASW06-SW032311	Ac-228	Total	2	NA	1.3	0
EPASW06	EPASW06-SW032311	Ag-108	Filtered	0.014 U	0.084	0.025	0.04
EPASW06	EPASW06-SW032311	Ag-108	Suspended	-0.001 U	0.041	0.012	0.019
EPASW06	EPASW06-SW032311	Ag-108	Total	0.013	NA	0.027	0
EPASW06	EPASW06-SW032311	Ag-108m	Filtered	0.15 U	0.9	0.27	0.43
EPASW06	EPASW06-SW032311	Ag-108m	Suspended	-0.01 U	0.44	0.13	0.21
EPASW06	EPASW06-SW032311	Ag-108m	Total	0.14	NA	0.29	0
EPASW06	EPASW06-SW032311	Ba-133	Filtered	-0.9 U	11	3.4	5.5
EPASW06	EPASW06-SW032311	Ba-133	Suspended	1.4 U	5.8	1.7	2.8
EPASW06	EPASW06-SW032311	Ba-133	Total	0.5	NA	3.8	0
EPASW06	EPASW06-SW032311	Ba-137m	Filtered	0.17 U	0.97	0.28	0.46
EPASW06	EPASW06-SW032311	Ba-137m	Suspended	0.31	0.65	0.2	0.31
EPASW06	EPASW06-SW032311	Ba-137m	Total	0.48	NA	0.35	0
EPASW06	EPASW06-SW032311	Bi-212	Filtered	0.5 U	9.9	2.7	4.7
EPASW06	EPASW06-SW032311	Bi-212	Suspended	1 U	5.5	1.6	2.6
EPASW06	EPASW06-SW032311	Bi-212	Total	1.5	NA	3.2	0
EPASW06	EPASW06-SW032311	Bi-214	Filtered	0.15 U	2.5	0.7	1.2
EPASW06	EPASW06-SW032311	Bi-214	Suspended	1.12	1.9	0.83	0.92
EPASW06	EPASW06-SW032311	Bi-214	Total	1.3	NA	1.1	0
EPASW06	EPASW06-SW032311	Cd-113m	Filtered	0 U	15000	4400	7200
EPASW06	EPASW06-SW032311	Cd-113m	Suspended	900 U	6900	2100	3400
EPASW06	EPASW06-SW032311	Cd-113m	Total	900	NA	4800	0
EPASW06	EPASW06-SW032311	Cf-249	Filtered	0.1 U	5.7	1.7	2.8
EPASW06	EPASW06-SW032311	Cf-249	Suspended	-0.22 U	3.2	0.94	1.5
EPASW06	EPASW06-SW032311	Cf-249	Total	-0.1	NA	1.9	0
EPASW06	EPASW06-SW032311	Co-60	Filtered	0.29 U	1.1	0.32	0.5
EPASW06	EPASW06-SW032311	Co-60	Suspended	0.1 U	0.72	0.21	0.33
EPASW06	EPASW06-SW032311	Co-60	Total	0.39	NA	0.38	0
EPASW06	EPASW06-SW032311	Cs-134	Filtered	-0.3 U	1.3	0.38	0.62
EPASW06	EPASW06-SW032311	Cs-134	Suspended	-0.11 U	0.73	0.22	0.35

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW06	EPASW06-SW032311	Cs-134	Total	-0.41	NA	0.44	0
EPASW06	EPASW06-SW032311	Cs-137	Filtered	0.18 U	1	0.3	0.48
EPASW06	EPASW06-SW032311	Cs-137	Suspended	0.33	0.69	0.21	0.33
EPASW06	EPASW06-SW032311	Cs-137	Total	0.51	NA	0.37	0
EPASW06	EPASW06-SW032311	Eu-152	Filtered	0.54 U	3.1	0.92	1.5
EPASW06	EPASW06-SW032311	Eu-152	Suspended	-0.52 U	1.7	0.52	0.83
EPASW06	EPASW06-SW032311	Eu-152	Total	0.02	NA	1.1	0
EPASW06	EPASW06-SW032311	Eu-154	Filtered	-2.1 U	9.1	2.7	4.3
EPASW06	EPASW06-SW032311	Eu-154	Suspended	3	4.4	1.4	2.1
EPASW06	EPASW06-SW032311	Eu-154	Total	0.9	NA	3	0
EPASW06	EPASW06-SW032311	Eu-155	Filtered	1.04 U	2.9	0.88	1.4
EPASW06	EPASW06-SW032311	Eu-155	Suspended	-0.01 U	1.2	0.37	0.6
EPASW06	EPASW06-SW032311	Eu-155	Total	1.02	NA	0.95	0
EPASW06	EPASW06-SW032311	gross_alpha	Filtered	0.3 J	0.43	0.14	0.23
EPASW06	EPASW06-SW032311	gross_alpha	Suspended	0.55	0.36	0.16	0.18
EPASW06	EPASW06-SW032311	gross_alpha	Total	0.85	NA	0.21	0
EPASW06	EPASW06-SW032311	gross_beta	Filtered	1.09	0.67	0.25	0.39
EPASW06	EPASW06-SW032311	gross_beta	Suspended	0.33 U	1	0.31	0.62
EPASW06	EPASW06-SW032311	gross_beta	Total	1.63	NA	0.39	0
EPASW06	EPASW06-SW032311	H-3_Total	Total	7	87	25	41
EPASW06	EPASW06-SW032311	Ho-166m	Filtered	0.54 U	1.6	0.49	0.78
EPASW06	EPASW06-SW032311	Ho-166m	Suspended	-0.27 U	1.1	0.33	0.53
EPASW06	EPASW06-SW032311	Ho-166m	Total	0.27	NA	0.59	0
EPASW06	EPASW06-SW032311	K-40	Filtered	14.5	16	5.9	7.7
EPASW06	EPASW06-SW032311	K-40	Suspended	-5.8 U	13	4.2	6.1
EPASW06	EPASW06-SW032311	K-40	Total	8.7	NA	7.2	0
EPASW06	EPASW06-SW032311	Na-22	Filtered	0.03 U	1.1	0.31	0.51
EPASW06	EPASW06-SW032311	Na-22	Suspended	-0.14 U	0.71	0.21	0.33
EPASW06	EPASW06-SW032311	Na-22	Total	-0.11	NA	0.37	0
EPASW06	EPASW06-SW032311	Nb-94	Filtered	-0.22 U	1.1	0.33	0.53

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW06	EPASW06-SW032311	Nb-94	Suspended	0.003 U	0.72	0.21	0.35
EPASW06	EPASW06-SW032311	Nb-94	Total	-0.22	NA	0.39	0
EPASW06	EPASW06-SW032311	Np-236	Filtered	1.16	2.3	0.7	1.1
EPASW06	EPASW06-SW032311	Np-236	Suspended	0.4 U	1.2	0.35	0.56
EPASW06	EPASW06-SW032311	Np-236	Total	1.56	NA	0.78	0
EPASW06	EPASW06-SW032311	Np-239	Filtered	0.1 U	7.1	2.1	3.4
EPASW06	EPASW06-SW032311	Np-239	Suspended	1.5 U	3.4	1	1.7
EPASW06	EPASW06-SW032311	Np-239	Total	1.6	NA	2.3	0
EPASW06	EPASW06-SW032311	Pa-231	Filtered	0.2 U	44	13	21
EPASW06	EPASW06-SW032311	Pa-231	Suspended	-8.2 U	28	8.5	14
EPASW06	EPASW06-SW032311	Pa-231	Total	-8	NA	15	0
EPASW06	EPASW06-SW032311	Pb-212	Filtered	0.59 U	2.5	0.84	1.2
EPASW06	EPASW06-SW032311	Pb-212	Suspended	0.02 U	1.1	0.36	0.55
EPASW06	EPASW06-SW032311	Pb-212	Total	0.61	NA	0.91	0
EPASW06	EPASW06-SW032311	Pb-214	Filtered	-0.07 U	2.8	0.81	1.4
EPASW06	EPASW06-SW032311	Pb-214	Suspended	0.69 U	1.5	0.55	0.73
EPASW06	EPASW06-SW032311	Pb-214	Total	0.62	NA	0.98	0
EPASW06	EPASW06-SW032311	Sb-125	Filtered	4 U	11	3.3	5.3
EPASW06	EPASW06-SW032311	Sb-125	Suspended	0.3 U	5	1.5	2.4
EPASW06	EPASW06-SW032311	Sb-125	Total	4.3	NA	3.6	0
EPASW06	EPASW06-SW032311	Sn-126	Filtered	0.57	1.2	0.35	0.55
EPASW06	EPASW06-SW032311	Sn-126	Suspended	0.19 U	0.77	0.23	0.37
EPASW06	EPASW06-SW032311	Sn-126	Total	0.76	NA	0.42	0
EPASW06	EPASW06-SW032311	Sr-90	Filtered	0.128	0.13	0.042	0.068
EPASW06	EPASW06-SW032311	Sr-90	Suspended	0 U	0.1	0.03	0.06
EPASW06	EPASW06-SW032311	Sr-90	Total	0.13	NA	0.05	0
EPASW06	EPASW06-SW032311	Te-125m	Filtered	0.91 U	2.5	0.76	1.2
EPASW06	EPASW06-SW032311	Te-125m	Suspended	0.07 U	1.2	0.34	0.56
EPASW06	EPASW06-SW032311	Te-125m	Total	0.99	NA	0.84	0
EPASW06	EPASW06-SW032311	Th-231	Filtered	0.0037 U	0.022	0.0057	0.0078

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW06	EPASW06-SW032311	Th-231	Suspended	0.0043 U	0.0058	0.003	0.005
EPASW06	EPASW06-SW032311	Th-231	Total	0.008	NA	0.0065	0
EPASW06	EPASW06-SW032311	Th-234	Filtered	-0.3 U	23	8.2	11
EPASW06	EPASW06-SW032311	Th-234	Suspended	2.5 U	8.7	2.9	4.3
EPASW06	EPASW06-SW032311	Th-234	Total	2.2	NA	8.6	0
EPASW06	EPASW06-SW032311	Tl-208	Filtered	0.7 U	1.5	0.63	0.72
EPASW06	EPASW06-SW032311	Tl-208	Suspended	-0.26 U	0.88	0.38	0.43
EPASW06	EPASW06-SW032311	Tl-208	Total	0.44	NA	0.74	0
EPASW06	EPASW06-SW032311	Tm-171	Filtered	1 U	330	99	160
EPASW06	EPASW06-SW032311	Tm-171	Suspended	-11 U	110	34	55
EPASW06	EPASW06-SW032311	Tm-171	Total	-10	NA	100	0
EPASW06	EPASW06-SW032311	U-233/234	Filtered	0.05	0.02	0.01	0.01
EPASW06	EPASW06-SW032311	U-233/234	Suspended	0.02	0.03	0.02	0.01
EPASW06	EPASW06-SW032311	U-233/234	Total	0.07	NA	0.02	0
EPASW06	EPASW06-SW032311	U-235/236	Filtered	0 U	0.02	0.01	0.01
EPASW06	EPASW06-SW032311	U-235/236	Suspended	0 U	0.02	0	0.01
EPASW06	EPASW06-SW032311	U-235/236	Total	0	NA	0.01	0
EPASW06	EPASW06-SW032311	U-238	Filtered	0.05	0.01	0.01	0
EPASW06	EPASW06-SW032311	U-238	Suspended	0 U	0.04	0.01	0.01
EPASW06	EPASW06-SW032311	U-238	Total	0.04	NA	0.01	0
EPASW07	EPASW07-SW032311	Ac-227	Filtered	-6.8 UL	12	3.6	5.7
EPASW07	EPASW07-SW032311	Ac-227	Suspended	-0.08 U	6.3	1.9	3.1
EPASW07	EPASW07-SW032311	Ac-227	Total	-6.9	NA	4	0
EPASW07	EPASW07-SW032311	Ac-228	Filtered	0.6 U	5.1	1.5	2.4
EPASW07	EPASW07-SW032311	Ac-228	Suspended	1.66	2.3	0.74	1.1
EPASW07	EPASW07-SW032311	Ac-228	Total	2.2	NA	1.6	0
EPASW07	EPASW07-SW032311	Ag-108	Filtered	-0.003 U	0.12	0.034	0.056
EPASW07	EPASW07-SW032311	Ag-108	Suspended	0.003 U	0.044	0.013	0.021
EPASW07	EPASW07-SW032311	Ag-108	Total	-0.001	NA	0.037	0
EPASW07	EPASW07-SW032311	Ag-108m	Filtered	-0.04 U	1.3	0.37	0.61

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW07	EPASW07-SW032311	Ag-108m	Suspended	0.03 U	0.48	0.14	0.22
EPASW07	EPASW07-SW032311	Ag-108m	Total	-0.01	NA	0.39	0
EPASW07	EPASW07-SW032311	Ba-133	Filtered	0 U	16	4.8	7.9
EPASW07	EPASW07-SW032311	Ba-133	Suspended	-0.4 U	6.7	2	3.2
EPASW07	EPASW07-SW032311	Ba-133	Total	-0.4	NA	5.2	0
EPASW07	EPASW07-SW032311	Ba-137m	Filtered	0.25 U	0.88	0.26	0.39
EPASW07	EPASW07-SW032311	Ba-137m	Suspended	0.08 U	0.7	0.2	0.33
EPASW07	EPASW07-SW032311	Ba-137m	Total	0.34	NA	0.33	0
EPASW07	EPASW07-SW032311	Bi-212	Filtered	0 U	12	3.6	5.9
EPASW07	EPASW07-SW032311	Bi-212	Suspended	1.4 U	5.3	1.6	2.5
EPASW07	EPASW07-SW032311	Bi-212	Total	1.4	NA	3.9	0
EPASW07	EPASW07-SW032311	Bi-214	Filtered	-0.7 U	4	1.5	1.9
EPASW07	EPASW07-SW032311	Bi-214	Suspended	0.15 U	1.6	0.52	0.79
EPASW07	EPASW07-SW032311	Bi-214	Total	-0.6	NA	1.5	0
EPASW07	EPASW07-SW032311	Cd-113m	Filtered	-300 U	18000	5200	8500
EPASW07	EPASW07-SW032311	Cd-113m	Suspended	1000 U	7300	2100	3500
EPASW07	EPASW07-SW032311	Cd-113m	Total	600	NA	5600	0
EPASW07	EPASW07-SW032311	Cf-249	Filtered	1.1 U	7.1	2.1	3.4
EPASW07	EPASW07-SW032311	Cf-249	Suspended	0.3 U	2.9	0.84	1.4
EPASW07	EPASW07-SW032311	Cf-249	Total	1.4	NA	2.3	0
EPASW07	EPASW07-SW032311	Co-60	Filtered	0.37 U	1.6	0.47	0.74
EPASW07	EPASW07-SW032311	Co-60	Suspended	-0.06 U	0.84	0.24	0.38
EPASW07	EPASW07-SW032311	Co-60	Total	0.31	NA	0.53	0
EPASW07	EPASW07-SW032311	Cs-134	Filtered	0.75	1	0.32	0.47
EPASW07	EPASW07-SW032311	Cs-134	Suspended	0.17 U	0.76	0.22	0.36
EPASW07	EPASW07-SW032311	Cs-134	Total	0.92	NA	0.39	0
EPASW07	EPASW07-SW032311	Cs-137	Filtered	0.27 U	0.93	0.27	0.42
EPASW07	EPASW07-SW032311	Cs-137	Suspended	0.09 U	0.74	0.21	0.35
EPASW07	EPASW07-SW032311	Cs-137	Total	0.35	NA	0.35	0
EPASW07	EPASW07-SW032311	Eu-152	Filtered	1.1 U	4.1	1.2	2

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW07	EPASW07-SW032311	Eu-152	Suspended	0.37 U	1.6	0.47	0.76
EPASW07	EPASW07-SW032311	Eu-152	Total	1.5	NA	1.3	0
EPASW07	EPASW07-SW032311	Eu-154	Filtered	1 U	12	3.5	5.7
EPASW07	EPASW07-SW032311	Eu-154	Suspended	0.03 U	6.3	1.8	2.9
EPASW07	EPASW07-SW032311	Eu-154	Total	1	NA	3.9	0
EPASW07	EPASW07-SW032311	Eu-155	Filtered	-0.6 U	4	1.2	1.9
EPASW07	EPASW07-SW032311	Eu-155	Suspended	-0.27 U	1.5	0.44	0.71
EPASW07	EPASW07-SW032311	Eu-155	Total	-0.8	NA	1.3	0
EPASW07	EPASW07-SW032311	gross_alpha	Filtered	0.61 J	0.74	0.25	0.4
EPASW07	EPASW07-SW032311	gross_alpha	Suspended	1.51	0.38	0.25	0.19
EPASW07	EPASW07-SW032311	gross_alpha	Total	2.13	NA	0.35	0
EPASW07	EPASW07-SW032311	gross_beta	Filtered	3.58	0.88	0.42	0.53
EPASW07	EPASW07-SW032311	gross_beta	Suspended	1.75	1.1	0.4	0.63
EPASW07	EPASW07-SW032311	gross_beta	Total	5.7	NA	0.62	0
EPASW07	EPASW07-SW032311	H-3_Total	Total	51	89	27	42
EPASW07	EPASW07-SW032311	Ho-166m	Filtered	-0.6 U	2.5	0.73	1.2
EPASW07	EPASW07-SW032311	Ho-166m	Suspended	0.07 U	1.1	0.32	0.52
EPASW07	EPASW07-SW032311	Ho-166m	Total	-0.53	NA	0.8	0
EPASW07	EPASW07-SW032311	K-40	Filtered	-15 UL	24	17	11
EPASW07	EPASW07-SW032311	K-40	Suspended	-4.8 U	13	5.8	5.9
EPASW07	EPASW07-SW032311	K-40	Total	-20	NA	18	0
EPASW07	EPASW07-SW032311	Na-22	Filtered	0.09 U	1.6	0.43	0.71
EPASW07	EPASW07-SW032311	Na-22	Suspended	0 U	1.1	0.31	0.51
EPASW07	EPASW07-SW032311	Na-22	Total	0.09	NA	0.53	0
EPASW07	EPASW07-SW032311	Nb-94	Filtered	0.02 U	1.3	0.38	0.63
EPASW07	EPASW07-SW032311	Nb-94	Suspended	-0.09 U	0.75	0.22	0.36
EPASW07	EPASW07-SW032311	Nb-94	Total	-0.08	NA	0.44	0
EPASW07	EPASW07-SW032311	Np-236	Filtered	-0.8 U	3.5	1	1.7
EPASW07	EPASW07-SW032311	Np-236	Suspended	-0.16 U	1.4	0.4	0.66
EPASW07	EPASW07-SW032311	Np-236	Total	-0.9	NA	1.1	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW07	EPASW07-SW032311	Np-239	Filtered	-1.6 U	9.7	2.9	4.7
EPASW07	EPASW07-SW032311	Np-239	Suspended	0.6 U	3.9	1.2	1.9
EPASW07	EPASW07-SW032311	Np-239	Total	-1	NA	3.1	0
EPASW07	EPASW07-SW032311	Pa-231	Filtered	-3 U	67	20	32
EPASW07	EPASW07-SW032311	Pa-231	Suspended	-2.4 U	26	7.6	12
EPASW07	EPASW07-SW032311	Pa-231	Total	-5	NA	21	0
EPASW07	EPASW07-SW032311	Pb-212	Filtered	0.2 U	3	1	1.4
EPASW07	EPASW07-SW032311	Pb-212	Suspended	0.83	1.2	0.36	0.56
EPASW07	EPASW07-SW032311	Pb-212	Total	1	NA	1.1	0
EPASW07	EPASW07-SW032311	Pb-214	Filtered	-0.9 U	3.4	1.7	1.6
EPASW07	EPASW07-SW032311	Pb-214	Suspended	-0.17 U	1.6	0.5	0.76
EPASW07	EPASW07-SW032311	Pb-214	Total	-1.1	NA	1.7	0
EPASW07	EPASW07-SW032311	Sb-125	Filtered	-1.1 U	16	4.6	7.6
EPASW07	EPASW07-SW032311	Sb-125	Suspended	-0.6 U	6.5	1.9	3.2
EPASW07	EPASW07-SW032311	Sb-125	Total	-1.6	NA	5	0
EPASW07	EPASW07-SW032311	Sn-126	Filtered	0.43 U	1.5	0.45	0.71
EPASW07	EPASW07-SW032311	Sn-126	Suspended	-0.05 U	0.8	0.23	0.37
EPASW07	EPASW07-SW032311	Sn-126	Total	0.37	NA	0.5	0
EPASW07	EPASW07-SW032311	Sr-90	Filtered	0.22	0.1	0.04	0.05
EPASW07	EPASW07-SW032311	Sr-90	Suspended	0.03 U	0.08	0.02	0.04
EPASW07	EPASW07-SW032311	Sr-90	Total	0.25	NA	0.04	0
EPASW07	EPASW07-SW032311	Te-125m	Filtered	-0.2 U	3.6	1.1	1.7
EPASW07	EPASW07-SW032311	Te-125m	Suspended	-0.13 U	1.5	0.45	0.73
EPASW07	EPASW07-SW032311	Te-125m	Total	-0.4	NA	1.2	0
EPASW07	EPASW07-SW032311	Th-231	Filtered	0.0029 U	0.0078	0.0029	0.0067
EPASW07	EPASW07-SW032311	Th-231	Suspended	0.0046 U	0.0062	0.0033	0.0054
EPASW07	EPASW07-SW032311	Th-231	Total	0.0075	NA	0.0043	0
EPASW07	EPASW07-SW032311	Th-234	Filtered	13.9	26	9.4	13
EPASW07	EPASW07-SW032311	Th-234	Suspended	1.9 U	8.9	3.1	4.3
EPASW07	EPASW07-SW032311	Th-234	Total	15.8	NA	9.9	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW07	EPASW07-SW032311	Tl-208	Filtered	1.26	2	0.81	0.94
EPASW07	EPASW07-SW032311	Tl-208	Suspended	0.16 U	0.76	0.23	0.36
EPASW07	EPASW07-SW032311	Tl-208	Total	1.42	NA	0.84	0
EPASW07	EPASW07-SW032311	Tm-171	Filtered	150 U	450	130	220
EPASW07	EPASW07-SW032311	Tm-171	Suspended	-55 U	120	37	60
EPASW07	EPASW07-SW032311	Tm-171	Total	100	NA	140	0
EPASW07	EPASW07-SW032311	U-233/234	Filtered	0.23	0.02	0.03	0.01
EPASW07	EPASW07-SW032311	U-233/234	Suspended	0.1	0.01	0.02	0
EPASW07	EPASW07-SW032311	U-233/234	Total	0.33	NA	0.03	0
EPASW07	EPASW07-SW032311	U-235/236	Filtered	0 U	0.01	0	0.01
EPASW07	EPASW07-SW032311	U-235/236	Suspended	0 U	0.01	0	0
EPASW07	EPASW07-SW032311	U-235/236	Total	0.01	NA	0	0
EPASW07	EPASW07-SW032311	U-238	Filtered	0.18	0.01	0.02	0.01
EPASW07	EPASW07-SW032311	U-238	Suspended	0.1	0.01	0.02	0
EPASW07	EPASW07-SW032311	U-238	Total	0.28	NA	0.03	0
EPASW08	EPASW08-SW032311	Ac-227	Filtered	0.1 U	9.5	2.8	4.6
EPASW08	EPASW08-SW032311	Ac-227	Suspended	0.2 U	6.2	1.9	3.1
EPASW08	EPASW08-SW032311	Ac-227	Total	0.4	NA	3.4	0
EPASW08	EPASW08-SW032311	Ac-228	Filtered	3.2	3.5	1.1	1.6
EPASW08	EPASW08-SW032311	Ac-228	Suspended	1.42	2.4	0.73	1.1
EPASW08	EPASW08-SW032311	Ac-228	Total	4.6	NA	1.3	0
EPASW08	EPASW08-SW032311	Ag-108	Filtered	0 U	0.091	0.027	0.044
EPASW08	EPASW08-SW032311	Ag-108	Suspended	-0.001 U	0.037	0.011	0.017
EPASW08	EPASW08-SW032311	Ag-108	Total	-0.001	NA	0.029	0
EPASW08	EPASW08-SW032311	Ag-108m	Filtered	0 U	0.98	0.29	0.47
EPASW08	EPASW08-SW032311	Ag-108m	Suspended	-0.01 U	0.4	0.11	0.19
EPASW08	EPASW08-SW032311	Ag-108m	Total	-0.01	NA	0.31	0
EPASW08	EPASW08-SW032311	Ba-133	Filtered	0.2 U	12	3.5	5.8
EPASW08	EPASW08-SW032311	Ba-133	Suspended	-0.6 U	7	2.1	3.4
EPASW08	EPASW08-SW032311	Ba-133	Total	-0.4	NA	4.1	0

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Analytical Results Summary
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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW08	EPASW08-SW032311	Ba-137m	Filtered	0.49	1	0.3	0.47
EPASW08	EPASW08-SW032311	Ba-137m	Suspended	-0.17 U	0.73	0.21	0.34
EPASW08	EPASW08-SW032311	Ba-137m	Total	0.32	NA	0.37	0
EPASW08	EPASW08-SW032311	Bi-212	Filtered	-4 U	9.7	7.9	4.6
EPASW08	EPASW08-SW032311	Bi-212	Suspended	2.4 U	5.4	1.6	2.5
EPASW08	EPASW08-SW032311	Bi-212	Total	-1.6	NA	8.1	0
EPASW08	EPASW08-SW032311	Bi-214	Filtered	2.9	2.9	1.2	1.4
EPASW08	EPASW08-SW032311	Bi-214	Suspended	0.68 U	1.8	0.61	0.84
EPASW08	EPASW08-SW032311	Bi-214	Total	3.6	NA	1.3	0
EPASW08	EPASW08-SW032311	Cd-113m	Filtered	-100 U	13000	3900	6400
EPASW08	EPASW08-SW032311	Cd-113m	Suspended	1400 U	8100	2400	3900
EPASW08	EPASW08-SW032311	Cd-113m	Total	1200	NA	4600	0
EPASW08	EPASW08-SW032311	Cf-249	Filtered	-1.8 U	5.8	1.7	2.8
EPASW08	EPASW08-SW032311	Cf-249	Suspended	1.27 U	3	0.91	1.4
EPASW08	EPASW08-SW032311	Cf-249	Total	-0.5	NA	2	0
EPASW08	EPASW08-SW032311	Co-60	Filtered	0.33 U	1.3	0.37	0.58
EPASW08	EPASW08-SW032311	Co-60	Suspended	-0.16 U	0.76	0.22	0.34
EPASW08	EPASW08-SW032311	Co-60	Total	0.17	NA	0.43	0
EPASW08	EPASW08-SW032311	Cs-134	Filtered	-0.63 U	1.3	0.41	0.65
EPASW08	EPASW08-SW032311	Cs-134	Suspended	-0.11 U	0.85	0.25	0.41
EPASW08	EPASW08-SW032311	Cs-134	Total	-0.74	NA	0.48	0
EPASW08	EPASW08-SW032311	Cs-137	Filtered	0.51	1.1	0.32	0.5
EPASW08	EPASW08-SW032311	Cs-137	Suspended	-0.17 U	0.77	0.23	0.36
EPASW08	EPASW08-SW032311	Cs-137	Total	0.34	NA	0.39	0
EPASW08	EPASW08-SW032311	Eu-152	Filtered	0 U	3.4	1	1.7
EPASW08	EPASW08-SW032311	Eu-152	Suspended	-0.12 U	2	0.57	0.94
EPASW08	EPASW08-SW032311	Eu-152	Total	-0.1	NA	1.2	0
EPASW08	EPASW08-SW032311	Eu-154	Filtered	-0.3 U	9.6	2.8	4.5
EPASW08	EPASW08-SW032311	Eu-154	Suspended	1.1 U	6.2	1.8	2.9
EPASW08	EPASW08-SW032311	Eu-154	Total	0.8	NA	3.3	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW08	EPASW08-SW032311	Eu-155	Filtered	0.81 U	2.8	0.84	1.4
EPASW08	EPASW08-SW032311	Eu-155	Suspended	-0.01 U	1.4	0.41	0.67
EPASW08	EPASW08-SW032311	Eu-155	Total	0.79	NA	0.94	0
EPASW08	EPASW08-SW032311	gross_alpha	Filtered	0.78 J	0.53	0.22	0.28
EPASW08	EPASW08-SW032311	gross_alpha	Suspended	0.13 U	0.35	0.1	0.17
EPASW08	EPASW08-SW032311	gross_alpha	Total	0.91	NA	0.24	0
EPASW08	EPASW08-SW032311	gross_beta	Filtered	1.65	0.72	0.29	0.42
EPASW08	EPASW08-SW032311	gross_beta	Suspended	0.54 U	1.1	0.34	0.65
EPASW08	EPASW08-SW032311	gross_beta	Total	2.73	NA	0.48	0
EPASW08	EPASW08-SW032311	H-3_Total	Total	30	90	27	43
EPASW08	EPASW08-SW032311	Ho-166m	Filtered	0 U	2	0.57	0.94
EPASW08	EPASW08-SW032311	Ho-166m	Suspended	-0.27 U	1.2	0.35	0.57
EPASW08	EPASW08-SW032311	Ho-166m	Total	-0.27	NA	0.67	0
EPASW08	EPASW08-SW032311	K-40	Filtered	8.6	18	5.1	8.3
EPASW08	EPASW08-SW032311	K-40	Suspended	2.3 U	11	3.4	5.2
EPASW08	EPASW08-SW032311	K-40	Total	10.9	NA	6.1	0
EPASW08	EPASW08-SW032311	Na-22	Filtered	-0.13 U	1.3	0.37	0.61
EPASW08	EPASW08-SW032311	Na-22	Suspended	0.06 U	0.74	0.21	0.33
EPASW08	EPASW08-SW032311	Na-22	Total	-0.07	NA	0.43	0
EPASW08	EPASW08-SW032311	Nb-94	Filtered	0.44 U	1.1	0.32	0.5
EPASW08	EPASW08-SW032311	Nb-94	Suspended	-0.1 U	0.72	0.21	0.34
EPASW08	EPASW08-SW032311	Nb-94	Total	0.34	NA	0.38	0
EPASW08	EPASW08-SW032311	Np-236	Filtered	-0.06 U	2	0.6	0.98
EPASW08	EPASW08-SW032311	Np-236	Suspended	-0.29 U	1.3	0.4	0.65
EPASW08	EPASW08-SW032311	Np-236	Total	-0.35	NA	0.72	0
EPASW08	EPASW08-SW032311	Np-239	Filtered	-1.4 U	7.7	2.3	3.8
EPASW08	EPASW08-SW032311	Np-239	Suspended	-0.01 U	4	1.2	2
EPASW08	EPASW08-SW032311	Np-239	Total	-1.4	NA	2.6	0
EPASW08	EPASW08-SW032311	Pa-231	Filtered	-1 U	57	17	28
EPASW08	EPASW08-SW032311	Pa-231	Suspended	0.9 U	29	8.6	14

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW08	EPASW08-SW032311	Pa-231	Total	-0.06	NA	19	0
EPASW08	EPASW08-SW032311	Pb-212	Filtered	0.33 U	2.3	0.7	1.1
EPASW08	EPASW08-SW032311	Pb-212	Suspended	0.91	1.2	0.39	0.58
EPASW08	EPASW08-SW032311	Pb-212	Total	1.24	NA	0.8	0
EPASW08	EPASW08-SW032311	Pb-214	Filtered	0.27 U	2.8	0.75	1.3
EPASW08	EPASW08-SW032311	Pb-214	Suspended	-0.02 U	1.4	0.49	0.7
EPASW08	EPASW08-SW032311	Pb-214	Total	0.25	NA	0.9	0
EPASW08	EPASW08-SW032311	Sb-125	Filtered	0.4 U	10	3	4.9
EPASW08	EPASW08-SW032311	Sb-125	Suspended	0.02 U	4.7	1.4	2.2
EPASW08	EPASW08-SW032311	Sb-125	Total	0.5	NA	3.3	0
EPASW08	EPASW08-SW032311	Sn-126	Filtered	0.14 U	1.1	0.32	0.51
EPASW08	EPASW08-SW032311	Sn-126	Suspended	0 U	0.79	0.23	0.37
EPASW08	EPASW08-SW032311	Sn-126	Total	0.14	NA	0.39	0
EPASW08	EPASW08-SW032311	Sr-90	Filtered	0.4	0.09	0.04	0.05
EPASW08	EPASW08-SW032311	Sr-90	Suspended	-0.01 U	0.09	0.03	0.05
EPASW08	EPASW08-SW032311	Sr-90	Total	0.39	NA	0.05	0
EPASW08	EPASW08-SW032311	Te-125m	Filtered	0.1 U	2.3	0.69	1.1
EPASW08	EPASW08-SW032311	Te-125m	Suspended	0.005 U	1.1	0.31	0.51
EPASW08	EPASW08-SW032311	Te-125m	Total	0.11	NA	0.76	0
EPASW08	EPASW08-SW032311	Th-231	Filtered	0.0118	0.019	0.0068	0.0058
EPASW08	EPASW08-SW032311	Th-231	Suspended	0 U	0.0065	0.0024	0.0056
EPASW08	EPASW08-SW032311	Th-231	Total	0.0118	NA	0.0072	0
EPASW08	EPASW08-SW032311	Th-234	Filtered	9.7 U	21	7.3	11
EPASW08	EPASW08-SW032311	Th-234	Suspended	2.5 U	8.8	3	4.3
EPASW08	EPASW08-SW032311	Th-234	Total	12.2	NA	7.9	0
EPASW08	EPASW08-SW032311	Tl-208	Filtered	0.6 U	1.3	0.46	0.63
EPASW08	EPASW08-SW032311	Tl-208	Suspended	-0.15 U	0.9	0.33	0.43
EPASW08	EPASW08-SW032311	Tl-208	Total	0.45	NA	0.56	0
EPASW08	EPASW08-SW032311	Tm-171	Filtered	-100 U	360	110	170
EPASW08	EPASW08-SW032311	Tm-171	Suspended	53 U	140	42	68

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW08	EPASW08-SW032311	Tm-171	Total	-40	NA	110	0
EPASW08	EPASW08-SW032311	U-233/234	Filtered	0.13	0.02	0.02	0.01
EPASW08	EPASW08-SW032311	U-233/234	Suspended	0.02	0.04	0.02	0.01
EPASW08	EPASW08-SW032311	U-233/234	Total	0.14	NA	0.02	0
EPASW08	EPASW08-SW032311	U-235/236	Filtered	0.01	0.02	0.01	0.01
EPASW08	EPASW08-SW032311	U-235/236	Suspended	0 U	0.04	0	0.01
EPASW08	EPASW08-SW032311	U-235/236	Total	0.01	NA	0.01	0
EPASW08	EPASW08-SW032311	U-238	Filtered	0.1	0.01	0.02	0.01
EPASW08	EPASW08-SW032311	U-238	Suspended	0 U	0.03	0.01	0.01
EPASW08	EPASW08-SW032311	U-238	Total	0.1	NA	0.02	0
EPASW09	EPASW09-SW032411	Ac-227	Filtered	-6.3 UL	10	3.1	4.9
EPASW09	EPASW09-SW032411	Ac-227	Suspended	-1.28 U	2.9	0.88	1.4
EPASW09	EPASW09-SW032411	Ac-227	Total	-7.6	NA	3.2	0
EPASW09	EPASW09-SW032411	Ac-228	Filtered	2.8	3.4	1.1	1.6
EPASW09	EPASW09-SW032411	Ac-228	Suspended	1.14	1.7	0.52	0.77
EPASW09	EPASW09-SW032411	Ac-228	Total	4	NA	1.2	0
EPASW09	EPASW09-SW032411	Ag-108	Filtered	0.011 U	0.085	0.025	0.041
EPASW09	EPASW09-SW032411	Ag-108	Suspended	-0.006 U	0.042	0.012	0.02
EPASW09	EPASW09-SW032411	Ag-108	Total	0.005	NA	0.028	0
EPASW09	EPASW09-SW032411	Ag-108m	Filtered	0.12 U	0.92	0.27	0.44
EPASW09	EPASW09-SW032411	Ag-108m	Suspended	-0.07 U	0.46	0.13	0.22
EPASW09	EPASW09-SW032411	Ag-108m	Total	0.05	NA	0.3	0
EPASW09	EPASW09-SW032411	Ba-133	Filtered	-0.02 U	11	3.4	5.6
EPASW09	EPASW09-SW032411	Ba-133	Suspended	-1.1 U	4.8	1.4	2.3
EPASW09	EPASW09-SW032411	Ba-133	Total	-1.1	NA	3.7	0
EPASW09	EPASW09-SW032411	Ba-137m	Filtered	-0.002 U	1.2	0.35	0.57
EPASW09	EPASW09-SW032411	Ba-137m	Suspended	-0.12 U	0.44	0.13	0.21
EPASW09	EPASW09-SW032411	Ba-137m	Total	-0.13	NA	0.37	0
EPASW09	EPASW09-SW032411	Bi-212	Filtered	0.9 U	8.6	2.3	4.1
EPASW09	EPASW09-SW032411	Bi-212	Suspended	0 U	4.2	1.2	2

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW09	EPASW09-SW032411	Bi-212	Total	0.9	NA	2.6	0
EPASW09	EPASW09-SW032411	Bi-214	Filtered	2.6	3	1.3	1.4
EPASW09	EPASW09-SW032411	Bi-214	Suspended	1.84	1.3	0.45	0.63
EPASW09	EPASW09-SW032411	Bi-214	Total	4.4	NA	1.3	0
EPASW09	EPASW09-SW032411	Cd-113m	Filtered	2700 U	12000	3500	5700
EPASW09	EPASW09-SW032411	Cd-113m	Suspended	-1700 U	5900	1800	2800
EPASW09	EPASW09-SW032411	Cd-113m	Total	1000	NA	3900	0
EPASW09	EPASW09-SW032411	Cf-249	Filtered	0.8 U	5.2	1.5	2.5
EPASW09	EPASW09-SW032411	Cf-249	Suspended	0.14 U	2.4	0.71	1.2
EPASW09	EPASW09-SW032411	Cf-249	Total	0.9	NA	1.7	0
EPASW09	EPASW09-SW032411	Co-60	Filtered	0.1 U	1.2	0.33	0.54
EPASW09	EPASW09-SW032411	Co-60	Suspended	-0.06 U	0.59	0.17	0.27
EPASW09	EPASW09-SW032411	Co-60	Total	0.04	NA	0.37	0
EPASW09	EPASW09-SW032411	Cs-134	Filtered	-0.65 U	1.4	0.42	0.67
EPASW09	EPASW09-SW032411	Cs-134	Suspended	0.07 U	0.58	0.17	0.28
EPASW09	EPASW09-SW032411	Cs-134	Total	-0.58	NA	0.45	0
EPASW09	EPASW09-SW032411	Cs-137	Filtered	-0.002 U	1.3	0.36	0.6
EPASW09	EPASW09-SW032411	Cs-137	Suspended	-0.13 U	0.46	0.14	0.22
EPASW09	EPASW09-SW032411	Cs-137	Total	-0.13	NA	0.39	0
EPASW09	EPASW09-SW032411	Eu-152	Filtered	0.56 U	3.3	0.99	1.6
EPASW09	EPASW09-SW032411	Eu-152	Suspended	0.42 U	1.3	0.4	0.64
EPASW09	EPASW09-SW032411	Eu-152	Total	1	NA	1.1	0
EPASW09	EPASW09-SW032411	Eu-154	Filtered	-0.7 U	10	2.9	4.8
EPASW09	EPASW09-SW032411	Eu-154	Suspended	0.1 U	4.4	1.3	2.1
EPASW09	EPASW09-SW032411	Eu-154	Total	-0.6	NA	3.2	0
EPASW09	EPASW09-SW032411	Eu-155	Filtered	0.36 U	2.9	0.86	1.4
EPASW09	EPASW09-SW032411	Eu-155	Suspended	0.2 U	0.94	0.28	0.46
EPASW09	EPASW09-SW032411	Eu-155	Total	0.56	NA	0.9	0
EPASW09	EPASW09-SW032411	gross_alpha	Filtered	0.24 UJ	0.51	0.16	0.27
EPASW09	EPASW09-SW032411	gross_alpha	Suspended	0.41	0.48	0.17	0.25

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW09	EPASW09-SW032411	gross_alpha	Total	0.64	NA	0.23	0
EPASW09	EPASW09-SW032411	gross_beta	Filtered	1.06	0.65	0.24	0.38
EPASW09	EPASW09-SW032411	gross_beta	Suspended	0.83	0.98	0.33	0.57
EPASW09	EPASW09-SW032411	gross_beta	Total	1.83	NA	0.45	0
EPASW09	EPASW09-SW032411	H-3_Total	Total	0.5	93	26	44
EPASW09	EPASW09-SW032411	Ho-166m	Filtered	-0.001 U	2	0.57	0.95
EPASW09	EPASW09-SW032411	Ho-166m	Suspended	0.27 U	0.9	0.27	0.42
EPASW09	EPASW09-SW032411	Ho-166m	Total	0.27	NA	0.63	0
EPASW09	EPASW09-SW032411	K-40	Filtered	11.7	15	4.6	7.2
EPASW09	EPASW09-SW032411	K-40	Suspended	-6.6 UL	8.8	6	4.2
EPASW09	EPASW09-SW032411	K-40	Total	5.2	NA	7.5	0
EPASW09	EPASW09-SW032411	Na-22	Filtered	-0.11 U	1.3	0.36	0.59
EPASW09	EPASW09-SW032411	Na-22	Suspended	0 U	0.55	0.15	0.25
EPASW09	EPASW09-SW032411	Na-22	Total	-0.11	NA	0.39	0
EPASW09	EPASW09-SW032411	Nb-94	Filtered	0 U	1.2	0.34	0.56
EPASW09	EPASW09-SW032411	Nb-94	Suspended	0.02 U	0.56	0.16	0.27
EPASW09	EPASW09-SW032411	Nb-94	Total	0.02	NA	0.38	0
EPASW09	EPASW09-SW032411	Np-236	Filtered	-0.19 U	2.7	0.79	1.3
EPASW09	EPASW09-SW032411	Np-236	Suspended	-0.3 U	1	0.31	0.5
EPASW09	EPASW09-SW032411	Np-236	Total	-0.49	NA	0.85	0
EPASW09	EPASW09-SW032411	Np-239	Filtered	-0.9 U	7.1	2.1	3.4
EPASW09	EPASW09-SW032411	Np-239	Suspended	0.19 U	2.8	0.84	1.4
EPASW09	EPASW09-SW032411	Np-239	Total	-0.8	NA	2.3	0
EPASW09	EPASW09-SW032411	Pa-231	Filtered	15 U	50	15	24
EPASW09	EPASW09-SW032411	Pa-231	Suspended	4.1 U	16	4.8	7.7
EPASW09	EPASW09-SW032411	Pa-231	Total	19	NA	16	0
EPASW09	EPASW09-SW032411	Pb-212	Filtered	0.31 U	2.4	0.76	1.2
EPASW09	EPASW09-SW032411	Pb-212	Suspended	0.53	0.71	0.27	0.34
EPASW09	EPASW09-SW032411	Pb-212	Total	0.85	NA	0.81	0
EPASW09	EPASW09-SW032411	Pb-214	Filtered	0.81 U	2.5	0.87	1.2

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW09	EPASW09-SW032411	Pb-214	Suspended	0.11 U	0.88	0.28	0.42
EPASW09	EPASW09-SW032411	Pb-214	Total	0.92	NA	0.91	0
EPASW09	EPASW09-SW032411	Sb-125	Filtered	-1.9 U	12	3.6	5.8
EPASW09	EPASW09-SW032411	Sb-125	Suspended	-0.9 U	4.7	1.4	2.3
EPASW09	EPASW09-SW032411	Sb-125	Total	-2.8	NA	3.8	0
EPASW09	EPASW09-SW032411	Sn-126	Filtered	0.39 U	1.2	0.37	0.6
EPASW09	EPASW09-SW032411	Sn-126	Suspended	0.16 U	0.62	0.18	0.29
EPASW09	EPASW09-SW032411	Sn-126	Total	0.54	NA	0.42	0
EPASW09	EPASW09-SW032411	Sr-90	Filtered	1.04	0.13	0.071	0.067
EPASW09	EPASW09-SW032411	Sr-90	Suspended	0.02 U	0.08	0.03	0.05
EPASW09	EPASW09-SW032411	Sr-90	Total	1.06	NA	0.08	0
EPASW09	EPASW09-SW032411	Te-125m	Filtered	-0.44 U	2.8	0.82	1.3
EPASW09	EPASW09-SW032411	Te-125m	Suspended	-0.2 U	1.1	0.33	0.53
EPASW09	EPASW09-SW032411	Te-125m	Total	-0.64	NA	0.89	0
EPASW09	EPASW09-SW032411	Th-231	Filtered	0.0026 U	0.0069	0.0026	0.0059
EPASW09	EPASW09-SW032411	Th-231	Suspended	0.0089	0.006	0.0045	0.0052
EPASW09	EPASW09-SW032411	Th-231	Total	0.0115	NA	0.0051	0
EPASW09	EPASW09-SW032411	Th-234	Filtered	1.6 U	22	7	11
EPASW09	EPASW09-SW032411	Th-234	Suspended	0.08 U	5.1	1.5	2.5
EPASW09	EPASW09-SW032411	Th-234	Total	1.7	NA	7.2	0
EPASW09	EPASW09-SW032411	Tl-208	Filtered	0.21 U	1.4	0.51	0.69
EPASW09	EPASW09-SW032411	Tl-208	Suspended	0.06 U	0.6	0.16	0.29
EPASW09	EPASW09-SW032411	Tl-208	Total	0.28	NA	0.53	0
EPASW09	EPASW09-SW032411	Tm-171	Filtered	100 U	340	100	170
EPASW09	EPASW09-SW032411	Tm-171	Suspended	31 U	83	25	40
EPASW09	EPASW09-SW032411	Tm-171	Total	130	NA	110	0
EPASW09	EPASW09-SW032411	U-233/234	Filtered	0.04	0.01	0.01	0
EPASW09	EPASW09-SW032411	U-233/234	Suspended	0.01	0.03	0.01	0.01
EPASW09	EPASW09-SW032411	U-233/234	Total	0.05	NA	0.02	0
EPASW09	EPASW09-SW032411	U-235/236	Filtered	0 U	0.01	0	0.01

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW09	EPASW09-SW032411	U-235/236	Suspended	0 U	0.04	0	0.01
EPASW09	EPASW09-SW032411	U-235/236	Total	0	NA	0	0
EPASW09	EPASW09-SW032411	U-238	Filtered	0.07	0.01	0.01	0
EPASW09	EPASW09-SW032411	U-238	Suspended	0.04	0.02	0.02	0.01
EPASW09	EPASW09-SW032411	U-238	Total	0.11	NA	0.02	0
EPASW10	EPASW10-SW032411	Ac-227	Filtered	-2.5 U	10	3.1	5
EPASW10	EPASW10-SW032411	Ac-227	Suspended	-3.2 UL	5	1.5	2.5
EPASW10	EPASW10-SW032411	Ac-227	Total	-5.7	NA	3.4	0
EPASW10	EPASW10-SW032411	Ac-228	Filtered	1 U	5.1	1.5	2.4
EPASW10	EPASW10-SW032411	Ac-228	Suspended	-2 UL	3	18	1
EPASW10	EPASW10-SW032411	Ac-228	Total	-1	NA	18	0
EPASW10	EPASW10-SW032411	Ag-108	Filtered	-0.001 U	0.11	0.032	0.053
EPASW10	EPASW10-SW032411	Ag-108	Suspended	-0.005 U	0.054	0.016	0.026
EPASW10	EPASW10-SW032411	Ag-108	Total	-0.006	NA	0.036	0
EPASW10	EPASW10-SW032411	Ag-108m	Filtered	-0.01 U	1.2	0.35	0.57
EPASW10	EPASW10-SW032411	Ag-108m	Suspended	-0.06 U	0.58	0.17	0.28
EPASW10	EPASW10-SW032411	Ag-108m	Total	-0.07	NA	0.39	0
EPASW10	EPASW10-SW032411	Ba-133	Filtered	2.4 U	14	4.3	6.9
EPASW10	EPASW10-SW032411	Ba-133	Suspended	-0.8 U	6.4	1.9	3.1
EPASW10	EPASW10-SW032411	Ba-133	Total	1.6	NA	4.6	0
EPASW10	EPASW10-SW032411	Ba-137m	Filtered	-0.48 U	1.6	0.47	0.74
EPASW10	EPASW10-SW032411	Ba-137m	Suspended	0.11 U	0.52	0.15	0.24
EPASW10	EPASW10-SW032411	Ba-137m	Total	-0.37	NA	0.49	0
EPASW10	EPASW10-SW032411	Bi-212	Filtered	6.4	12	3.6	5.6
EPASW10	EPASW10-SW032411	Bi-212	Suspended	2.5 U	5.4	1.6	2.6
EPASW10	EPASW10-SW032411	Bi-212	Total	8.8	NA	4	0
EPASW10	EPASW10-SW032411	Bi-214	Filtered	0.07 U	3.8	0.98	1.8
EPASW10	EPASW10-SW032411	Bi-214	Suspended	0.33 U	1.6	0.58	0.79
EPASW10	EPASW10-SW032411	Bi-214	Total	0.4	NA	1.1	0
EPASW10	EPASW10-SW032411	Cd-113m	Filtered	3800 U	16000	4800	7800

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW10	EPASW10-SW032411	Cd-113m	Suspended	2700 U	7200	2200	3500
EPASW10	EPASW10-SW032411	Cd-113m	Total	6500	NA	5300	0
EPASW10	EPASW10-SW032411	Cf-249	Filtered	2.1 U	7.4	2.2	3.6
EPASW10	EPASW10-SW032411	Cf-249	Suspended	0.44 U	3.2	0.93	1.5
EPASW10	EPASW10-SW032411	Cf-249	Total	2.5	NA	2.4	0
EPASW10	EPASW10-SW032411	Co-60	Filtered	-0.27 U	1.8	0.5	0.81
EPASW10	EPASW10-SW032411	Co-60	Suspended	0.02 U	0.67	0.19	0.31
EPASW10	EPASW10-SW032411	Co-60	Total	-0.25	NA	0.54	0
EPASW10	EPASW10-SW032411	Cs-134	Filtered	-0.03 U	1.2	0.35	0.57
EPASW10	EPASW10-SW032411	Cs-134	Suspended	-0.28 U	0.77	0.23	0.37
EPASW10	EPASW10-SW032411	Cs-134	Total	-0.31	NA	0.42	0
EPASW10	EPASW10-SW032411	Cs-137	Filtered	-0.51 U	1.7	0.49	0.79
EPASW10	EPASW10-SW032411	Cs-137	Suspended	0.11 U	0.55	0.16	0.26
EPASW10	EPASW10-SW032411	Cs-137	Total	-0.39	NA	0.52	0
EPASW10	EPASW10-SW032411	Eu-152	Filtered	0.09 U	4	1.2	1.9
EPASW10	EPASW10-SW032411	Eu-152	Suspended	0.45 U	1.9	0.56	0.91
EPASW10	EPASW10-SW032411	Eu-152	Total	0.5	NA	1.3	0
EPASW10	EPASW10-SW032411	Eu-154	Filtered	-1.7 U	12	3.4	5.5
EPASW10	EPASW10-SW032411	Eu-154	Suspended	0.03 U	5.2	1.5	2.4
EPASW10	EPASW10-SW032411	Eu-154	Total	-1.7	NA	3.7	0
EPASW10	EPASW10-SW032411	Eu-155	Filtered	-0.5 U	4.2	1.3	2.1
EPASW10	EPASW10-SW032411	Eu-155	Suspended	-0.02 U	1.2	0.36	0.59
EPASW10	EPASW10-SW032411	Eu-155	Total	-0.6	NA	1.3	0
EPASW10	EPASW10-SW032411	gross_alpha	Filtered	0.78 J	0.43	0.19	0.22
EPASW10	EPASW10-SW032411	gross_alpha	Suspended	0.76	0.44	0.2	0.22
EPASW10	EPASW10-SW032411	gross_alpha	Total	1.53	NA	0.27	0
EPASW10	EPASW10-SW032411	gross_beta	Filtered	0.83	0.66	0.24	0.39
EPASW10	EPASW10-SW032411	gross_beta	Suspended	0.32 U	1.1	0.33	0.64
EPASW10	EPASW10-SW032411	gross_beta	Total	1.3	NA	0.44	0
EPASW10	EPASW10-SW032411	H-3_Total	Total	-4	90	26	43

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW10	EPASW10-SW032411	Ho-166m	Filtered	0 U	3	0.87	1.4
EPASW10	EPASW10-SW032411	Ho-166m	Suspended	0.006 U	1.1	0.32	0.52
EPASW10	EPASW10-SW032411	Ho-166m	Total	0.006	NA	0.93	0
EPASW10	EPASW10-SW032411	K-40	Filtered	-6.7 U	25	9.5	12
EPASW10	EPASW10-SW032411	K-40	Suspended	-5.3 U	12	5.3	5.5
EPASW10	EPASW10-SW032411	K-40	Total	-12	NA	11	0
EPASW10	EPASW10-SW032411	Na-22	Filtered	-0.004 U	1.5	0.43	0.7
EPASW10	EPASW10-SW032411	Na-22	Suspended	0.15 U	0.76	0.22	0.36
EPASW10	EPASW10-SW032411	Na-22	Total	0.14	NA	0.48	0
EPASW10	EPASW10-SW032411	Nb-94	Filtered	0.31 U	1.4	0.4	0.64
EPASW10	EPASW10-SW032411	Nb-94	Suspended	-0.18 U	0.64	0.19	0.3
EPASW10	EPASW10-SW032411	Nb-94	Total	0.14	NA	0.45	0
EPASW10	EPASW10-SW032411	Np-236	Filtered	-1 U	3.6	1.1	1.8
EPASW10	EPASW10-SW032411	Np-236	Suspended	-0.11 U	1.2	0.35	0.57
EPASW10	EPASW10-SW032411	Np-236	Total	-1.1	NA	1.1	0
EPASW10	EPASW10-SW032411	Np-239	Filtered	1.7 U	9.4	2.8	4.6
EPASW10	EPASW10-SW032411	Np-239	Suspended	0.6 U	3.7	1.1	1.8
EPASW10	EPASW10-SW032411	Np-239	Total	2.3	NA	3	0
EPASW10	EPASW10-SW032411	Pa-231	Filtered	-0.5 U	62	18	30
EPASW10	EPASW10-SW032411	Pa-231	Suspended	5.9 U	25	7.5	12
EPASW10	EPASW10-SW032411	Pa-231	Total	5	NA	20	0
EPASW10	EPASW10-SW032411	Pb-212	Filtered	0.8 U	3	1.1	1.4
EPASW10	EPASW10-SW032411	Pb-212	Suspended	0.75	1.1	0.4	0.55
EPASW10	EPASW10-SW032411	Pb-212	Total	1.5	NA	1.1	0
EPASW10	EPASW10-SW032411	Pb-214	Filtered	1.3 U	3.2	1.2	1.5
EPASW10	EPASW10-SW032411	Pb-214	Suspended	0.14 U	1.4	0.47	0.69
EPASW10	EPASW10-SW032411	Pb-214	Total	1.5	NA	1.3	0
EPASW10	EPASW10-SW032411	Sb-125	Filtered	-3.5 U	17	5	8.1
EPASW10	EPASW10-SW032411	Sb-125	Suspended	-0.04 U	5.3	1.5	2.6
EPASW10	EPASW10-SW032411	Sb-125	Total	-3.6	NA	5.2	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW10	EPASW10-SW032411	Sn-126	Filtered	-0.37 U	1.8	0.52	0.84
EPASW10	EPASW10-SW032411	Sn-126	Suspended	0.29 U	0.77	0.23	0.37
EPASW10	EPASW10-SW032411	Sn-126	Total	-0.07	NA	0.57	0
EPASW10	EPASW10-SW032411	Sr-90	Filtered	0.633	0.077	0.043	0.039
EPASW10	EPASW10-SW032411	Sr-90	Suspended	-0.04 U	0.08	0.02	0.05
EPASW10	EPASW10-SW032411	Sr-90	Total	0.6	NA	0.05	0
EPASW10	EPASW10-SW032411	Te-125m	Filtered	-0.8 U	3.8	1.1	1.9
EPASW10	EPASW10-SW032411	Te-125m	Suspended	-0.009 U	1.2	0.36	0.59
EPASW10	EPASW10-SW032411	Te-125m	Total	-0.8	NA	1.2	0
EPASW10	EPASW10-SW032411	Th-231	Filtered	0.0114	0.01	0.0066	0.0088
EPASW10	EPASW10-SW032411	Th-231	Suspended	0 U	0.0062	0.0023	0.0053
EPASW10	EPASW10-SW032411	Th-231	Total	0.0114	NA	0.007	0
EPASW10	EPASW10-SW032411	Th-234	Filtered	-8 U	26	12	13
EPASW10	EPASW10-SW032411	Th-234	Suspended	3.8	7.4	2.4	3.6
EPASW10	EPASW10-SW032411	Th-234	Total	-4	NA	12	0
EPASW10	EPASW10-SW032411	Tl-208	Filtered	0.75 U	1.7	0.6	0.83
EPASW10	EPASW10-SW032411	Tl-208	Suspended	0.67	0.69	0.26	0.33
EPASW10	EPASW10-SW032411	Tl-208	Total	1.42	NA	0.66	0
EPASW10	EPASW10-SW032411	Tm-171	Filtered	4 U	460	140	230
EPASW10	EPASW10-SW032411	Tm-171	Suspended	21 U	110	33	53
EPASW10	EPASW10-SW032411	Tm-171	Total	20	NA	140	0
EPASW10	EPASW10-SW032411	U-233/234	Filtered	0.1	0.01	0.02	0.01
EPASW10	EPASW10-SW032411	U-233/234	Suspended	0.01 U	0.02	0.01	0.01
EPASW10	EPASW10-SW032411	U-233/234	Total	0.11	NA	0.02	0
EPASW10	EPASW10-SW032411	U-235/236	Filtered	0.01	0.01	0.01	0.01
EPASW10	EPASW10-SW032411	U-235/236	Suspended	0 U	0.03	0	0.01
EPASW10	EPASW10-SW032411	U-235/236	Total	0.01	NA	0.01	0
EPASW10	EPASW10-SW032411	U-238	Filtered	0.03	0.02	0.01	0.01
EPASW10	EPASW10-SW032411	U-238	Suspended	-0.01 UL	0.04	0	0.01
EPASW10	EPASW10-SW032411	U-238	Total	0.02	NA	0.01	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW11	EPASW11-SW032111	Ac-227	Filtered	-3.7 U	9.1	2.8	4.4
EPASW11	EPASW11-SW032111	Ac-227	Suspended	1.8 U	11	3.3	5.4
EPASW11	EPASW11-SW032111	Ac-227	Total	-1.9	NA	4.3	0
EPASW11	EPASW11-SW032111	Ac-228	Filtered	3.5	4.3	1.4	2
EPASW11	EPASW11-SW032111	Ac-228	Suspended	2.6 U	9.3	2.5	4.4
EPASW11	EPASW11-SW032111	Ac-228	Total	6.1	NA	2.8	0
EPASW11	EPASW11-SW032111	Ag-108	Filtered	0.012 U	0.092	0.027	0.043
EPASW11	EPASW11-SW032111	Ag-108	Suspended	-0.0002 U	0.14	0.042	0.069
EPASW11	EPASW11-SW032111	Ag-108	Total	0.012	NA	0.05	0
EPASW11	EPASW11-SW032111	Ag-108m	Filtered	0.13 U	0.99	0.29	0.46
EPASW11	EPASW11-SW032111	Ag-108m	Suspended	-0.002 U	1.6	0.45	0.74
EPASW11	EPASW11-SW032111	Ag-108m	Total	0.13	NA	0.53	0
EPASW11	EPASW11-SW032111	Ba-133	Filtered	-2.7 U	13	3.9	6.3
EPASW11	EPASW11-SW032111	Ba-133	Suspended	0 U	21	6	9.9
EPASW11	EPASW11-SW032111	Ba-133	Total	-2.7	NA	7.2	0
EPASW11	EPASW11-SW032111	Ba-137m	Filtered	0.25 U	1.2	0.35	0.56
EPASW11	EPASW11-SW032111	Ba-137m	Suspended	-0.48 U	2.8	0.83	1.3
EPASW11	EPASW11-SW032111	Ba-137m	Total	-0.24	NA	0.9	0
EPASW11	EPASW11-SW032111	Bi-212	Filtered	-1 U	11	3.2	5.3
EPASW11	EPASW11-SW032111	Bi-212	Suspended	7.4 U	20	6	9.5
EPASW11	EPASW11-SW032111	Bi-212	Total	6.4	NA	6.8	0
EPASW11	EPASW11-SW032111	Bi-214	Filtered	-0.03 U	2.3	0.67	1.1
EPASW11	EPASW11-SW032111	Bi-214	Suspended	-1.9 U	6.6	3.5	3.2
EPASW11	EPASW11-SW032111	Bi-214	Total	-1.9	NA	3.6	0
EPASW11	EPASW11-SW032111	Cd-113m	Filtered	-2300 U	14000	4000	6500
EPASW11	EPASW11-SW032111	Cd-113m	Suspended	6300 U	26000	7800	13000
EPASW11	EPASW11-SW032111	Cd-113m	Total	4000	NA	8800	0
EPASW11	EPASW11-SW032111	Cf-249	Filtered	0.3 U	6.3	1.8	3
EPASW11	EPASW11-SW032111	Cf-249	Suspended	0.04 U	10	3.1	5
EPASW11	EPASW11-SW032111	Cf-249	Total	0.4	NA	3.6	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW11	EPASW11-SW032111	Co-60	Filtered	-0.07 U	1.5	0.43	0.7
EPASW11	EPASW11-SW032111	Co-60	Suspended	-0.16 U	2.6	0.73	1.2
EPASW11	EPASW11-SW032111	Co-60	Total	-0.23	NA	0.84	0
EPASW11	EPASW11-SW032111	Cs-134	Filtered	-0.01 U	1.2	0.35	0.57
EPASW11	EPASW11-SW032111	Cs-134	Suspended	-0.82 U	2.8	0.83	1.3
EPASW11	EPASW11-SW032111	Cs-134	Total	-0.83	NA	0.9	0
EPASW11	EPASW11-SW032111	Cs-137	Filtered	0.26 U	1.3	0.37	0.59
EPASW11	EPASW11-SW032111	Cs-137	Suspended	-0.51 U	3	0.88	1.4
EPASW11	EPASW11-SW032111	Cs-137	Total	-0.25	NA	0.95	0
EPASW11	EPASW11-SW032111	Eu-152	Filtered	0.34 U	2.9	0.84	1.4
EPASW11	EPASW11-SW032111	Eu-152	Suspended	-0.4 U	6.3	1.8	3
EPASW11	EPASW11-SW032111	Eu-152	Total	-0.07	NA	2	0
EPASW11	EPASW11-SW032111	Eu-154	Filtered	-2.3 U	11	3.2	5.1
EPASW11	EPASW11-SW032111	Eu-154	Suspended	-7.3 U	23	6.8	11
EPASW11	EPASW11-SW032111	Eu-154	Total	-9.6	NA	7.5	0
EPASW11	EPASW11-SW032111	Eu-155	Filtered	-0.31 U	3	0.89	1.4
EPASW11	EPASW11-SW032111	Eu-155	Suspended	1.3 U	4.5	1.4	2.2
EPASW11	EPASW11-SW032111	Eu-155	Total	1	NA	1.6	0
EPASW11	EPASW11-SW032111	gross_alpha	Filtered	1.21	0.44	0.23	0.23
EPASW11	EPASW11-SW032111	gross_alpha	Suspended	0.5 J	0.45	0.17	0.24
EPASW11	EPASW11-SW032111	gross_alpha	Total	1.72	NA	0.28	0
EPASW11	EPASW11-SW032111	gross_beta	Filtered	2.11	0.95	0.38	0.55
EPASW11	EPASW11-SW032111	gross_beta	Suspended	0.8	0.89	0.29	0.53
EPASW11	EPASW11-SW032111	gross_beta	Total	2.91	NA	0.48	0
EPASW11	EPASW11-SW032111	H-3	Total	-27	61	16	29
EPASW11	EPASW11-SW032111	Ho-166m	Filtered	-0.15 U	2.1	0.59	0.96
EPASW11	EPASW11-SW032111	Ho-166m	Suspended	-0.4 U	4.6	1.4	2.2
EPASW11	EPASW11-SW032111	Ho-166m	Total	-0.5	NA	1.5	0
EPASW11	EPASW11-SW032111	K-40	Filtered	1.7 U	20	4.8	9.1
EPASW11	EPASW11-SW032111	K-40	Suspended	-1 U	42	11	20

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW11	EPASW11-SW032111	K-40	Total	0.4	NA	12	0
EPASW11	EPASW11-SW032111	Na-22	Filtered	-0.08 U	1.5	0.41	0.67
EPASW11	EPASW11-SW032111	Na-22	Suspended	0.39 U	2	0.58	0.93
EPASW11	EPASW11-SW032111	Na-22	Total	0.31	NA	0.71	0
EPASW11	EPASW11-SW032111	Nb-94	Filtered	0.03 U	1.2	0.35	0.58
EPASW11	EPASW11-SW032111	Nb-94	Suspended	-0.14 U	2.5	0.74	1.2
EPASW11	EPASW11-SW032111	Nb-94	Total	-0.11	NA	0.82	0
EPASW11	EPASW11-SW032111	Np-236	Filtered	0.63 U	2.2	0.67	1.1
EPASW11	EPASW11-SW032111	Np-236	Suspended	1 U	4.3	1.3	2.1
EPASW11	EPASW11-SW032111	Np-236	Total	1.7	NA	1.4	0
EPASW11	EPASW11-SW032111	Np-239	Filtered	-2.1 U	7.9	2.4	3.8
EPASW11	EPASW11-SW032111	Np-239	Suspended	-3.2 U	15	4.4	7.1
EPASW11	EPASW11-SW032111	Np-239	Total	-5.3	NA	5	0
EPASW11	EPASW11-SW032111	Pa-231	Filtered	0.9 U	54	16	26
EPASW11	EPASW11-SW032111	Pa-231	Suspended	2 U	100	30	50
EPASW11	EPASW11-SW032111	Pa-231	Total	3	NA	34	0
EPASW11	EPASW11-SW032111	Pb-212	Filtered	0.49 U	2.2	0.78	1
EPASW11	EPASW11-SW032111	Pb-212	Suspended	0.6 U	4	1.2	1.9
EPASW11	EPASW11-SW032111	Pb-212	Total	1.1	NA	1.4	0
EPASW11	EPASW11-SW032111	Pb-214	Filtered	0.01 U	2.9	0.81	1.4
EPASW11	EPASW11-SW032111	Pb-214	Suspended	-1.1 U	5.6	2.4	2.7
EPASW11	EPASW11-SW032111	Pb-214	Total	-1.1	NA	2.5	0
EPASW11	EPASW11-SW032111	Sb-125	Filtered	0.5 U	11	3.2	5.3
EPASW11	EPASW11-SW032111	Sb-125	Suspended	-0.3 U	21	6.1	10
EPASW11	EPASW11-SW032111	Sb-125	Total	0.3	NA	6.9	0
EPASW11	EPASW11-SW032111	Sn-126	Filtered	-0.07 U	1.9	0.55	0.9
EPASW11	EPASW11-SW032111	Sn-126	Suspended	0.34 U	2.9	0.86	1.4
EPASW11	EPASW11-SW032111	Sn-126	Total	0.3	NA	1	0
EPASW11	EPASW11-SW032111	Sr-90	Filtered	0.046 U	0.23	0.066	0.14
EPASW11	EPASW11-SW032111	Sr-90	Suspended	0.042 U	0.11	0.034	0.058

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW11	EPASW11-SW032111	Sr-90	Total	0.087	NA	0.074	0
EPASW11	EPASW11-SW032111	Te-125m	Filtered	0.12 U	2.5	0.75	1.2
EPASW11	EPASW11-SW032111	Te-125m	Suspended	-0.06 U	4.7	1.4	2.3
EPASW11	EPASW11-SW032111	Te-125m	Total	0.06	NA	1.6	0
EPASW11	EPASW11-SW032111	Th-231	Filtered	0.009	0.0081	0.0052	0.007
EPASW11	EPASW11-SW032111	Th-231	Suspended	0.0116	0.0063	0.0052	0.0054
EPASW11	EPASW11-SW032111	Th-231	Total	0.0206	NA	0.0074	0
EPASW11	EPASW11-SW032111	Th-234	Filtered	10.7 U	22	7.3	11
EPASW11	EPASW11-SW032111	Th-234	Suspended	18	29	4.7	14
EPASW11	EPASW11-SW032111	Th-234	Total	28.7	NA	8.7	0
EPASW11	EPASW11-SW032111	Tl-208	Filtered	-0.12 U	1.4	0.47	0.65
EPASW11	EPASW11-SW032111	Tl-208	Suspended	-0.6 U	3.1	1.1	1.5
EPASW11	EPASW11-SW032111	Tl-208	Total	-0.8	NA	1.2	0
EPASW11	EPASW11-SW032111	Tm-171	Filtered	-145 UL	260	81	130
EPASW11	EPASW11-SW032111	Tm-171	Suspended	-30 U	420	130	210
EPASW11	EPASW11-SW032111	Tm-171	Total	-180	NA	150	0
EPASW11	EPASW11-SW032111	U-233/234	Filtered	0.1	0.02	0.02	0.01
EPASW11	EPASW11-SW032111	U-233/234	Suspended	0.08	0.01	0.01	0
EPASW11	EPASW11-SW032111	U-233/234	Total	0.19	NA	0.02	0
EPASW11	EPASW11-SW032111	U-235/236	Filtered	0.01	0.01	0.01	0.01
EPASW11	EPASW11-SW032111	U-235/236	Suspended	0.01	0.01	0.01	0
EPASW11	EPASW11-SW032111	U-235/236	Total	0.02	NA	0.01	0
EPASW11	EPASW11-SW032111	U-238	Filtered	0.1	0.02	0.02	0.01
EPASW11	EPASW11-SW032111	U-238	Suspended	0.06	0.01	0.01	0
EPASW11	EPASW11-SW032111	U-238	Total	0.16	NA	0.02	0
EPASW12	EPASW12-SW032111	Ac-227	Filtered	-1.5 U	8.2	2.5	4
EPASW12	EPASW12-SW032111	Ac-227	Suspended	-3.2 UL	4.7	1.4	2.3
EPASW12	EPASW12-SW032111	Ac-227	Total	-4.7	NA	2.8	0
EPASW12	EPASW12-SW032111	Ac-228	Filtered	2.8	3.9	1.2	1.8
EPASW12	EPASW12-SW032111	Ac-228	Suspended	1.52	2.2	0.69	1

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW12	EPASW12-SW032111	Ac-228	Total	4.3	NA	1.4	0
EPASW12	EPASW12-SW032111	Ag-108	Filtered	-0.001 U	0.093	0.027	0.045
EPASW12	EPASW12-SW032111	Ag-108	Suspended	0.007 U	0.048	0.014	0.023
EPASW12	EPASW12-SW032111	Ag-108	Total	0.006	NA	0.031	0
EPASW12	EPASW12-SW032111	Ag-108m	Filtered	-0.01 U	1	0.29	0.48
EPASW12	EPASW12-SW032111	Ag-108m	Suspended	0.07 U	0.52	0.15	0.25
EPASW12	EPASW12-SW032111	Ag-108m	Total	0.06	NA	0.33	0
EPASW12	EPASW12-SW032111	Ba-133	Filtered	-0.7 U	12	3.5	5.7
EPASW12	EPASW12-SW032111	Ba-133	Suspended	-0.2 U	5.7	1.7	2.8
EPASW12	EPASW12-SW032111	Ba-133	Total	-0.9	NA	3.8	0
EPASW12	EPASW12-SW032111	Ba-137m	Filtered	0.17 U	1.1	0.32	0.51
EPASW12	EPASW12-SW032111	Ba-137m	Suspended	-0.007 U	0.68	0.2	0.33
EPASW12	EPASW12-SW032111	Ba-137m	Total	0.17	NA	0.37	0
EPASW12	EPASW12-SW032111	Bi-212	Filtered	-2.8 U	10	5.9	5
EPASW12	EPASW12-SW032111	Bi-212	Suspended	-0.7 U	5.7	3.1	2.7
EPASW12	EPASW12-SW032111	Bi-212	Total	-3.5	NA	6.7	0
EPASW12	EPASW12-SW032111	Bi-214	Filtered	0.72 U	2.9	0.99	1.4
EPASW12	EPASW12-SW032111	Bi-214	Suspended	0.78 U	1.8	0.7	0.86
EPASW12	EPASW12-SW032111	Bi-214	Total	1.5	NA	1.2	0
EPASW12	EPASW12-SW032111	Cd-113m	Filtered	1700 U	14000	4200	6800
EPASW12	EPASW12-SW032111	Cd-113m	Suspended	500 U	6300	1800	3000
EPASW12	EPASW12-SW032111	Cd-113m	Total	2200	NA	4500	0
EPASW12	EPASW12-SW032111	Cf-249	Filtered	-2 U	5.8	1.7	2.8
EPASW12	EPASW12-SW032111	Cf-249	Suspended	-0.64 U	3.2	0.95	1.5
EPASW12	EPASW12-SW032111	Cf-249	Total	-2.7	NA	2	0
EPASW12	EPASW12-SW032111	Co-60	Filtered	0 U	2	0.58	0.96
EPASW12	EPASW12-SW032111	Co-60	Suspended	0.16 U	0.72	0.21	0.33
EPASW12	EPASW12-SW032111	Co-60	Total	0.16	NA	0.62	0
EPASW12	EPASW12-SW032111	Cs-134	Filtered	-0.35 U	1.3	0.39	0.63
EPASW12	EPASW12-SW032111	Cs-134	Suspended	-0.18 U	0.81	0.24	0.39

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW12	EPASW12-SW032111	Cs-134	Total	-0.53	NA	0.46	0
EPASW12	EPASW12-SW032111	Cs-137	Filtered	0.18 U	1.1	0.34	0.54
EPASW12	EPASW12-SW032111	Cs-137	Suspended	-0.008 U	0.72	0.21	0.34
EPASW12	EPASW12-SW032111	Cs-137	Total	0.18	NA	0.4	0
EPASW12	EPASW12-SW032111	Eu-152	Filtered	-0.34 U	3.3	0.97	1.6
EPASW12	EPASW12-SW032111	Eu-152	Suspended	0.13 U	1.6	0.46	0.75
EPASW12	EPASW12-SW032111	Eu-152	Total	-0.2	NA	1.1	0
EPASW12	EPASW12-SW032111	Eu-154	Filtered	1.1 U	10	3	4.9
EPASW12	EPASW12-SW032111	Eu-154	Suspended	0 U	8.3	2.4	4
EPASW12	EPASW12-SW032111	Eu-154	Total	1.1	NA	3.8	0
EPASW12	EPASW12-SW032111	Eu-155	Filtered	0.02 U	2.9	0.85	1.4
EPASW12	EPASW12-SW032111	Eu-155	Suspended	0 U	1	0.31	0.51
EPASW12	EPASW12-SW032111	Eu-155	Total	0.02	NA	0.9	0
EPASW12	EPASW12-SW032111	gross_alpha	Filtered	2.96	0.65	0.41	0.34
EPASW12	EPASW12-SW032111	gross_alpha	Suspended	8.1 J	0.93	0.83	0.49
EPASW12	EPASW12-SW032111	gross_alpha	Total	11.1	NA	0.92	0
EPASW12	EPASW12-SW032111	gross_beta	Filtered	3.01	1.1	0.47	0.64
EPASW12	EPASW12-SW032111	gross_beta	Suspended	0.37 U	0.85	0.26	0.5
EPASW12	EPASW12-SW032111	gross_beta	Total	3.37	NA	0.54	0
EPASW12	EPASW12-SW032111	H-3	Total	16	61	18	29
EPASW12	EPASW12-SW032111	Ho-166m	Filtered	-0.35 U	2	0.6	0.98
EPASW12	EPASW12-SW032111	Ho-166m	Suspended	-0.23 U	1.1	0.31	0.5
EPASW12	EPASW12-SW032111	Ho-166m	Total	-0.58	NA	0.68	0
EPASW12	EPASW12-SW032111	K-40	Filtered	9.3	17	4.8	8.2
EPASW12	EPASW12-SW032111	K-40	Suspended	-2.9 U	11	3.9	5.3
EPASW12	EPASW12-SW032111	K-40	Total	6.5	NA	6.2	0
EPASW12	EPASW12-SW032111	Na-22	Filtered	-0.1 U	1.1	0.32	0.51
EPASW12	EPASW12-SW032111	Na-22	Suspended	-0.03 U	0.55	0.15	0.25
EPASW12	EPASW12-SW032111	Na-22	Total	-0.13	NA	0.35	0
EPASW12	EPASW12-SW032111	Nb-94	Filtered	0.4 U	1.1	0.33	0.53

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW12	EPASW12-SW032111	Nb-94	Suspended	0.08 U	0.54	0.16	0.26
EPASW12	EPASW12-SW032111	Nb-94	Total	0.48	NA	0.37	0
EPASW12	EPASW12-SW032111	Np-236	Filtered	0.47 U	1.9	0.57	0.93
EPASW12	EPASW12-SW032111	Np-236	Suspended	-0.25 U	1.2	0.35	0.57
EPASW12	EPASW12-SW032111	Np-236	Total	0.22	NA	0.67	0
EPASW12	EPASW12-SW032111	Np-239	Filtered	1.4 U	7.5	2.2	3.6
EPASW12	EPASW12-SW032111	Np-239	Suspended	0.1 U	3.5	1	1.7
EPASW12	EPASW12-SW032111	Np-239	Total	1.6	NA	2.4	0
EPASW12	EPASW12-SW032111	Pa-231	Filtered	-0.3 U	39	11	19
EPASW12	EPASW12-SW032111	Pa-231	Suspended	1.7 U	26	7.7	13
EPASW12	EPASW12-SW032111	Pa-231	Total	1	NA	14	0
EPASW12	EPASW12-SW032111	Pb-212	Filtered	0.64 U	2.4	0.81	1.2
EPASW12	EPASW12-SW032111	Pb-212	Suspended	0.22 U	1.3	0.34	0.61
EPASW12	EPASW12-SW032111	Pb-212	Total	0.86	NA	0.88	0
EPASW12	EPASW12-SW032111	Pb-214	Filtered	0.07 U	2.9	0.78	1.4
EPASW12	EPASW12-SW032111	Pb-214	Suspended	-0.15 U	1.4	0.48	0.67
EPASW12	EPASW12-SW032111	Pb-214	Total	-0.08	NA	0.91	0
EPASW12	EPASW12-SW032111	Sb-125	Filtered	-3.5 U	12	3.7	5.9
EPASW12	EPASW12-SW032111	Sb-125	Suspended	0.2 U	5.6	1.7	2.7
EPASW12	EPASW12-SW032111	Sb-125	Total	-3.4	NA	4	0
EPASW12	EPASW12-SW032111	Sn-126	Filtered	0.67	1	0.32	0.49
EPASW12	EPASW12-SW032111	Sn-126	Suspended	0.29 U	0.73	0.22	0.35
EPASW12	EPASW12-SW032111	Sn-126	Total	0.96	NA	0.39	0
EPASW12	EPASW12-SW032111	Sr-90	Filtered	0.03 R	0.82	0.23	0.49
EPASW12	EPASW12-SW032111	Sr-90	Suspended	0.081	0.1	0.032	0.052
EPASW12	EPASW12-SW032111	Sr-90	Total	0.11	NA	0.23	0
EPASW12	EPASW12-SW032111	Te-125m	Filtered	-0.81 U	2.8	0.84	1.4
EPASW12	EPASW12-SW032111	Te-125m	Suspended	0.04 U	1.3	0.38	0.63
EPASW12	EPASW12-SW032111	Te-125m	Total	-0.78	NA	0.93	0
EPASW12	EPASW12-SW032111	Th-231	Filtered	0.0191	0.0074	0.0073	0.0064

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW12	EPASW12-SW032111	Th-231	Suspended	0.0216	0.0065	0.0072	0.0056
EPASW12	EPASW12-SW032111	Th-231	Total	0.041	NA	0.01	0
EPASW12	EPASW12-SW032111	Th-234	Filtered	6.5 U	23	8.3	11
EPASW12	EPASW12-SW032111	Th-234	Suspended	2 U	7.2	2.3	3.5
EPASW12	EPASW12-SW032111	Th-234	Total	8.5	NA	8.6	0
EPASW12	EPASW12-SW032111	Tl-208	Filtered	0.73	1.3	0.49	0.63
EPASW12	EPASW12-SW032111	Tl-208	Suspended	-0.26 U	0.87	0.43	0.42
EPASW12	EPASW12-SW032111	Tl-208	Total	0.47	NA	0.65	0
EPASW12	EPASW12-SW032111	Tm-171	Filtered	130 U	330	100	160
EPASW12	EPASW12-SW032111	Tm-171	Suspended	16 U	110	32	53
EPASW12	EPASW12-SW032111	Tm-171	Total	150	NA	110	0
EPASW12	EPASW12-SW032111	U-233/234	Filtered	0.3	0.02	0.03	0.01
EPASW12	EPASW12-SW032111	U-233/234	Suspended	0.43	0.01	0.03	0
EPASW12	EPASW12-SW032111	U-233/234	Total	0.73	NA	0.05	0
EPASW12	EPASW12-SW032111	U-235/236	Filtered	0.02	0.01	0.01	0.01
EPASW12	EPASW12-SW032111	U-235/236	Suspended	0.02	0.01	0.01	0.01
EPASW12	EPASW12-SW032111	U-235/236	Total	0.04	NA	0.01	0
EPASW12	EPASW12-SW032111	U-238	Filtered	0.14	0.02	0.02	0.01
EPASW12	EPASW12-SW032111	U-238	Suspended	0.37	0.01	0.03	0
EPASW12	EPASW12-SW032111	U-238	Total	0.51	NA	0.04	0
EPASW13	EPASW13-SW032211	Ac-227	Filtered	-1.1 U	7.6	2.2	3.6
EPASW13	EPASW13-SW032211	Ac-227	Suspended	-3 UL	4.6	1.4	2.3
EPASW13	EPASW13-SW032211	Ac-227	Total	-4.2	NA	2.6	0
EPASW13	EPASW13-SW032211	Ac-228	Filtered	1.8	4	1.2	1.8
EPASW13	EPASW13-SW032211	Ac-228	Suspended	0.2 U	2.9	0.76	1.4
EPASW13	EPASW13-SW032211	Ac-228	Total	2	NA	1.4	0
EPASW13	EPASW13-SW032211	Ag-108	Filtered	-0.024 U	0.1	0.031	0.049
EPASW13	EPASW13-SW032211	Ag-108	Suspended	-0.01 U	0.051	0.015	0.025
EPASW13	EPASW13-SW032211	Ag-108	Total	-0.034	NA	0.034	0
EPASW13	EPASW13-SW032211	Ag-108m	Filtered	-0.26 U	1.1	0.33	0.53

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW13	EPASW13-SW032211	Ag-108m	Suspended	-0.1 U	0.55	0.16	0.26
EPASW13	EPASW13-SW032211	Ag-108m	Total	-0.36	NA	0.37	0
EPASW13	EPASW13-SW032211	Ba-133	Filtered	-0.1 U	12	3.5	5.7
EPASW13	EPASW13-SW032211	Ba-133	Suspended	-1 U	6.5	1.9	3.1
EPASW13	EPASW13-SW032211	Ba-133	Total	-1.2	NA	4	0
EPASW13	EPASW13-SW032211	Ba-137m	Filtered	0 U	1.8	0.51	0.83
EPASW13	EPASW13-SW032211	Ba-137m	Suspended	0.21 U	0.68	0.2	0.32
EPASW13	EPASW13-SW032211	Ba-137m	Total	0.21	NA	0.55	0
EPASW13	EPASW13-SW032211	Bi-212	Filtered	0.3 U	11	3.1	5
EPASW13	EPASW13-SW032211	Bi-212	Suspended	0.2 U	4.7	1.3	2.2
EPASW13	EPASW13-SW032211	Bi-212	Total	0.5	NA	3.4	0
EPASW13	EPASW13-SW032211	Bi-214	Filtered	1.43	2.5	0.76	1.2
EPASW13	EPASW13-SW032211	Bi-214	Suspended	-0.1 U	1.7	0.65	0.84
EPASW13	EPASW13-SW032211	Bi-214	Total	1.3	NA	1	0
EPASW13	EPASW13-SW032211	Cd-113m	Filtered	100 U	15000	4400	7200
EPASW13	EPASW13-SW032211	Cd-113m	Suspended	2000 U	6900	2100	3300
EPASW13	EPASW13-SW032211	Cd-113m	Total	2100	NA	4800	0
EPASW13	EPASW13-SW032211	Cf-249	Filtered	0.2 U	5.9	1.7	2.8
EPASW13	EPASW13-SW032211	Cf-249	Suspended	-0.26 U	3.3	0.97	1.6
EPASW13	EPASW13-SW032211	Cf-249	Total	-0.07	NA	2	0
EPASW13	EPASW13-SW032211	Co-60	Filtered	-0.13 U	1.6	0.44	0.7
EPASW13	EPASW13-SW032211	Co-60	Suspended	-0.05 U	0.76	0.22	0.35
EPASW13	EPASW13-SW032211	Co-60	Total	-0.18	NA	0.49	0
EPASW13	EPASW13-SW032211	Cs-134	Filtered	0.11 U	1.1	0.31	0.51
EPASW13	EPASW13-SW032211	Cs-134	Suspended	0.18 U	0.73	0.22	0.35
EPASW13	EPASW13-SW032211	Cs-134	Total	0.29	NA	0.38	0
EPASW13	EPASW13-SW032211	Cs-137	Filtered	0 U	1.9	0.54	0.88
EPASW13	EPASW13-SW032211	Cs-137	Suspended	0.22 U	0.72	0.21	0.34
EPASW13	EPASW13-SW032211	Cs-137	Total	0.22	NA	0.58	0
EPASW13	EPASW13-SW032211	Eu-152	Filtered	-0.62 U	3.3	0.98	1.6

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW13	EPASW13-SW032211	Eu-152	Suspended	0.07 U	1.8	0.53	0.87
EPASW13	EPASW13-SW032211	Eu-152	Total	-0.6	NA	1.1	0
EPASW13	EPASW13-SW032211	Eu-154	Filtered	-0.4 U	11	3	4.9
EPASW13	EPASW13-SW032211	Eu-154	Suspended	1.8 U	5.6	1.7	2.6
EPASW13	EPASW13-SW032211	Eu-154	Total	1.4	NA	3.4	0
EPASW13	EPASW13-SW032211	Eu-155	Filtered	-0.01 U	2.3	0.66	1.1
EPASW13	EPASW13-SW032211	Eu-155	Suspended	0.56	1.1	0.33	0.53
EPASW13	EPASW13-SW032211	Eu-155	Total	0.55	NA	0.74	0
EPASW13	EPASW13-SW032211	gross_alpha	Filtered	0.95	0.37	0.2	0.18
EPASW13	EPASW13-SW032211	gross_alpha	Suspended	0.45 J	0.37	0.15	0.19
EPASW13	EPASW13-SW032211	gross_alpha	Total	1.4	NA	0.25	0
EPASW13	EPASW13-SW032211	gross_beta	Filtered	4.31	1.2	0.52	0.7
EPASW13	EPASW13-SW032211	gross_beta	Suspended	0.38 U	0.93	0.28	0.55
EPASW13	EPASW13-SW032211	gross_beta	Total	4.69	NA	0.6	0
EPASW13	EPASW13-SW032211	H-3	Total	51	61	19	28
EPASW13	EPASW13-SW032211	Ho-166m	Filtered	-0.14 U	2.1	0.6	0.97
EPASW13	EPASW13-SW032211	Ho-166m	Suspended	0.47 U	1.1	0.33	0.52
EPASW13	EPASW13-SW032211	Ho-166m	Total	0.33	NA	0.68	0
EPASW13	EPASW13-SW032211	K-40	Filtered	-10 U	22	25	10
EPASW13	EPASW13-SW032211	K-40	Suspended	8.3	12	3.5	5.7
EPASW13	EPASW13-SW032211	K-40	Total	-2	NA	25	0
EPASW13	EPASW13-SW032211	Na-22	Filtered	-0.005 U	1.5	0.41	0.68
EPASW13	EPASW13-SW032211	Na-22	Suspended	-0.0006 U	0.59	0.16	0.27
EPASW13	EPASW13-SW032211	Na-22	Total	-0.006	NA	0.44	0
EPASW13	EPASW13-SW032211	Nb-94	Filtered	-0.22 U	1.3	0.37	0.59
EPASW13	EPASW13-SW032211	Nb-94	Suspended	0.21 U	0.59	0.18	0.28
EPASW13	EPASW13-SW032211	Nb-94	Total	-0.01	NA	0.41	0
EPASW13	EPASW13-SW032211	Np-236	Filtered	0.76 U	2.5	0.75	1.2
EPASW13	EPASW13-SW032211	Np-236	Suspended	0.01 U	1.2	0.35	0.58
EPASW13	EPASW13-SW032211	Np-236	Total	0.77	NA	0.83	0

Table A.1
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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW13	EPASW13-SW032211	Np-239	Filtered	-0.4 U	6.9	2	3.3
EPASW13	EPASW13-SW032211	Np-239	Suspended	0.7 U	3.8	1.1	1.9
EPASW13	EPASW13-SW032211	Np-239	Total	0.3	NA	2.3	0
EPASW13	EPASW13-SW032211	Pa-231	Filtered	-10 U	54	16	26
EPASW13	EPASW13-SW032211	Pa-231	Suspended	2.3 U	25	7.4	12
EPASW13	EPASW13-SW032211	Pa-231	Total	-8	NA	18	0
EPASW13	EPASW13-SW032211	Pb-212	Filtered	1.68	2.2	0.82	1
EPASW13	EPASW13-SW032211	Pb-212	Suspended	0.88	1.1	0.41	0.56
EPASW13	EPASW13-SW032211	Pb-212	Total	2.57	NA	0.92	0
EPASW13	EPASW13-SW032211	Pb-214	Filtered	0.21 U	2.9	0.82	1.4
EPASW13	EPASW13-SW032211	Pb-214	Suspended	-0.42 U	1.4	0.56	0.68
EPASW13	EPASW13-SW032211	Pb-214	Total	-0.21	NA	0.99	0
EPASW13	EPASW13-SW032211	Sb-125	Filtered	-2.1 U	12	3.7	6
EPASW13	EPASW13-SW032211	Sb-125	Suspended	-0.8 U	5.3	1.6	2.6
EPASW13	EPASW13-SW032211	Sb-125	Total	-2.9	NA	4	0
EPASW13	EPASW13-SW032211	Sn-126	Filtered	-0.04 U	1.6	0.47	0.77
EPASW13	EPASW13-SW032211	Sn-126	Suspended	0.26 U	0.71	0.21	0.34
EPASW13	EPASW13-SW032211	Sn-126	Total	0.22	NA	0.51	0
EPASW13	EPASW13-SW032211	Sr-90	Filtered	0.079 U	0.16	0.048	0.095
EPASW13	EPASW13-SW032211	Sr-90	Suspended	0.03 U	0.11	0.033	0.056
EPASW13	EPASW13-SW032211	Sr-90	Total	0.109	NA	0.059	0
EPASW13	EPASW13-SW032211	Te-125m	Filtered	-0.49 U	2.9	0.85	1.4
EPASW13	EPASW13-SW032211	Te-125m	Suspended	-0.18 U	1.2	0.36	0.59
EPASW13	EPASW13-SW032211	Te-125m	Total	-0.67	NA	0.93	0
EPASW13	EPASW13-SW032211	Th-231	Filtered	0 U	0.0085	0.0031	0.0073
EPASW13	EPASW13-SW032211	Th-231	Suspended	0.0023 U	0.0063	0.0023	0.0054
EPASW13	EPASW13-SW032211	Th-231	Total	0.0023	NA	0.0039	0
EPASW13	EPASW13-SW032211	Th-234	Filtered	3.9 U	22	6.9	11
EPASW13	EPASW13-SW032211	Th-234	Suspended	2.7 U	9	3.1	4.4
EPASW13	EPASW13-SW032211	Th-234	Total	6.6	NA	7.6	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW13	EPASW13-SW032211	Tl-208	Filtered	0.76	1.3	0.44	0.59
EPASW13	EPASW13-SW032211	Tl-208	Suspended	-0.41 UL	0.84	0.47	0.4
EPASW13	EPASW13-SW032211	Tl-208	Total	0.36	NA	0.64	0
EPASW13	EPASW13-SW032211	Tm-171	Filtered	-94 U	290	86	140
EPASW13	EPASW13-SW032211	Tm-171	Suspended	-6 U	110	34	56
EPASW13	EPASW13-SW032211	Tm-171	Total	-100	NA	93	0
EPASW13	EPASW13-SW032211	U-233/234	Filtered	0.12	0.01	0.02	0.01
EPASW13	EPASW13-SW032211	U-233/234	Suspended	0.03	0.02	0.01	0.01
EPASW13	EPASW13-SW032211	U-233/234	Total	0.15	NA	0.02	0
EPASW13	EPASW13-SW032211	U-235/236	Filtered	0 U	0.01	0	0.01
EPASW13	EPASW13-SW032211	U-235/236	Suspended	0 U	0.01	0	0
EPASW13	EPASW13-SW032211	U-235/236	Total	0	NA	0	0
EPASW13	EPASW13-SW032211	U-238	Filtered	0.13	0.02	0.02	0.01
EPASW13	EPASW13-SW032211	U-238	Suspended	0.05	0.02	0.01	0.01
EPASW13	EPASW13-SW032211	U-238	Total	0.17	NA	0.02	0
EPASW14	EPASW14-SW032211	Ac-227	Filtered	4.8	4.9	1.6	2.3
EPASW14	EPASW14-SW032211	Ac-227	Suspended	-2.2 U	4.6	1.4	2.3
EPASW14	EPASW14-SW032211	Ac-227	Total	2.6	NA	2.1	0
EPASW14	EPASW14-SW032211	Ac-228	Filtered	2.6	3.5	1.1	1.6
EPASW14	EPASW14-SW032211	Ac-228	Suspended	-1.5 UL	3	2.3	1.4
EPASW14	EPASW14-SW032211	Ac-228	Total	1.1	NA	2.6	0
EPASW14	EPASW14-SW032211	Ag-108	Filtered	0.01 U	0.091	0.027	0.043
EPASW14	EPASW14-SW032211	Ag-108	Suspended	-0.009 U	0.054	0.016	0.026
EPASW14	EPASW14-SW032211	Ag-108	Total	0.001	NA	0.031	0
EPASW14	EPASW14-SW032211	Ag-108m	Filtered	0.11 U	0.97	0.29	0.47
EPASW14	EPASW14-SW032211	Ag-108m	Suspended	-0.09 U	0.58	0.17	0.28
EPASW14	EPASW14-SW032211	Ag-108m	Total	0.01	NA	0.33	0
EPASW14	EPASW14-SW032211	Ba-133	Filtered	-0.4 U	12	3.4	5.6
EPASW14	EPASW14-SW032211	Ba-133	Suspended	0 U	5.6	1.6	2.7
EPASW14	EPASW14-SW032211	Ba-133	Total	-0.4	NA	3.8	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW14	EPASW14-SW032211	Ba-137m	Filtered	0.31 U	0.88	0.26	0.41
EPASW14	EPASW14-SW032211	Ba-137m	Suspended	-0.03 U	0.64	0.19	0.3
EPASW14	EPASW14-SW032211	Ba-137m	Total	0.28	NA	0.32	0
EPASW14	EPASW14-SW032211	Bi-212	Filtered	-0.5 U	9.5	3.3	4.5
EPASW14	EPASW14-SW032211	Bi-212	Suspended	0.2 U	5.5	1.5	2.6
EPASW14	EPASW14-SW032211	Bi-212	Total	-0.4	NA	3.6	0
EPASW14	EPASW14-SW032211	Bi-214	Filtered	0.9 U	2.7	0.96	1.3
EPASW14	EPASW14-SW032211	Bi-214	Suspended	-0.9 UL	1.7	1	0.8
EPASW14	EPASW14-SW032211	Bi-214	Total	0.03	NA	1.4	0
EPASW14	EPASW14-SW032211	Cd-113m	Filtered	-2100 U	13000	4000	6400
EPASW14	EPASW14-SW032211	Cd-113m	Suspended	1400 U	7000	2100	3400
EPASW14	EPASW14-SW032211	Cd-113m	Total	-700	NA	4500	0
EPASW14	EPASW14-SW032211	Cf-249	Filtered	0.07 U	5.4	1.6	2.6
EPASW14	EPASW14-SW032211	Cf-249	Suspended	0.47 U	3	0.89	1.4
EPASW14	EPASW14-SW032211	Cf-249	Total	0.5	NA	1.8	0
EPASW14	EPASW14-SW032211	Co-60	Filtered	0.35 U	1	0.3	0.46
EPASW14	EPASW14-SW032211	Co-60	Suspended	0.1 U	0.78	0.23	0.36
EPASW14	EPASW14-SW032211	Co-60	Total	0.44	NA	0.38	0
EPASW14	EPASW14-SW032211	Cs-134	Filtered	-0.46 U	1.2	0.36	0.57
EPASW14	EPASW14-SW032211	Cs-134	Suspended	0 U	0.89	0.26	0.43
EPASW14	EPASW14-SW032211	Cs-134	Total	-0.46	NA	0.44	0
EPASW14	EPASW14-SW032211	Cs-137	Filtered	0.32 U	0.93	0.28	0.44
EPASW14	EPASW14-SW032211	Cs-137	Suspended	-0.03 U	0.68	0.2	0.32
EPASW14	EPASW14-SW032211	Cs-137	Total	0.29	NA	0.34	0
EPASW14	EPASW14-SW032211	Eu-152	Filtered	0.75 U	3	0.89	1.4
EPASW14	EPASW14-SW032211	Eu-152	Suspended	0 U	1.7	0.5	0.82
EPASW14	EPASW14-SW032211	Eu-152	Total	0.7	NA	1	0
EPASW14	EPASW14-SW032211	Eu-154	Filtered	-0.5 U	8.8	2.5	4.1
EPASW14	EPASW14-SW032211	Eu-154	Suspended	1.2 U	6.2	1.8	2.9
EPASW14	EPASW14-SW032211	Eu-154	Total	0.7	NA	3.1	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW14	EPASW14-SW032211	Eu-155	Filtered	0.002 U	2.4	0.69	1.1
EPASW14	EPASW14-SW032211	Eu-155	Suspended	0.18 U	1.1	0.33	0.53
EPASW14	EPASW14-SW032211	Eu-155	Total	0.19	NA	0.77	0
EPASW14	EPASW14-SW032211	gross_alpha	Filtered	1	0.39	0.21	0.19
EPASW14	EPASW14-SW032211	gross_alpha	Suspended	2.05 J	0.53	0.3	0.29
EPASW14	EPASW14-SW032211	gross_alpha	Total	3.05	NA	0.37	0
EPASW14	EPASW14-SW032211	gross_beta	Filtered	2.38	1.2	0.45	0.68
EPASW14	EPASW14-SW032211	gross_beta	Suspended	1.45	0.97	0.35	0.57
EPASW14	EPASW14-SW032211	gross_beta	Total	3.83	NA	0.56	0
EPASW14	EPASW14-SW032211	H-3	Total	-16	61	16	28
EPASW14	EPASW14-SW032211	Ho-166m	Filtered	0.6 U	1.6	0.48	0.75
EPASW14	EPASW14-SW032211	Ho-166m	Suspended	-0.27 U	1.1	0.33	0.54
EPASW14	EPASW14-SW032211	Ho-166m	Total	0.33	NA	0.58	0
EPASW14	EPASW14-SW032211	K-40	Filtered	7 U	15	4.7	7.3
EPASW14	EPASW14-SW032211	K-40	Suspended	-1.9 U	11	3.4	5.4
EPASW14	EPASW14-SW032211	K-40	Total	5	NA	5.8	0
EPASW14	EPASW14-SW032211	Na-22	Filtered	0.09 U	1.1	0.31	0.5
EPASW14	EPASW14-SW032211	Na-22	Suspended	-0.08 U	0.75	0.22	0.35
EPASW14	EPASW14-SW032211	Na-22	Total	0.008	NA	0.38	0
EPASW14	EPASW14-SW032211	Nb-94	Filtered	0.11 U	1	0.29	0.48
EPASW14	EPASW14-SW032211	Nb-94	Suspended	0.35	0.63	0.19	0.3
EPASW14	EPASW14-SW032211	Nb-94	Total	0.46	NA	0.35	0
EPASW14	EPASW14-SW032211	Np-236	Filtered	0.85 U	2.5	0.74	1.2
EPASW14	EPASW14-SW032211	Np-236	Suspended	0.08 U	0.74	0.22	0.35
EPASW14	EPASW14-SW032211	Np-236	Total	0.93	NA	0.77	0
EPASW14	EPASW14-SW032211	Np-239	Filtered	0.5 U	6.6	1.9	3.2
EPASW14	EPASW14-SW032211	Np-239	Suspended	0.04 U	3.7	1.1	1.8
EPASW14	EPASW14-SW032211	Np-239	Total	0.5	NA	2.2	0
EPASW14	EPASW14-SW032211	Pa-231	Filtered	-30 UL	46	14	22
EPASW14	EPASW14-SW032211	Pa-231	Suspended	-1.8 U	23	6.6	11

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW14	EPASW14-SW032211	Pa-231	Total	-31	NA	16	0
EPASW14	EPASW14-SW032211	Pb-212	Filtered	0.44 U	2.4	0.82	1.2
EPASW14	EPASW14-SW032211	Pb-212	Suspended	0.13 U	1.1	0.39	0.56
EPASW14	EPASW14-SW032211	Pb-212	Total	0.57	NA	0.91	0
EPASW14	EPASW14-SW032211	Pb-214	Filtered	-1.3 U	2.8	1.7	1.4
EPASW14	EPASW14-SW032211	Pb-214	Suspended	-0.65 U	1.5	0.73	0.7
EPASW14	EPASW14-SW032211	Pb-214	Total	-2	NA	1.8	0
EPASW14	EPASW14-SW032211	Sb-125	Filtered	-0.2 U	12	3.4	5.6
EPASW14	EPASW14-SW032211	Sb-125	Suspended	-0.7 U	5.3	1.6	2.6
EPASW14	EPASW14-SW032211	Sb-125	Total	-0.9	NA	3.8	0
EPASW14	EPASW14-SW032211	Sn-126	Filtered	0.61	1.2	0.37	0.58
EPASW14	EPASW14-SW032211	Sn-126	Suspended	0.46	0.71	0.22	0.34
EPASW14	EPASW14-SW032211	Sn-126	Total	1.08	NA	0.43	0
EPASW14	EPASW14-SW032211	Sr-90	Filtered	0.25 U	0.69	0.21	0.41
EPASW14	EPASW14-SW032211	Sr-90	Suspended	0.088	0.11	0.036	0.059
EPASW14	EPASW14-SW032211	Sr-90	Total	0.33	NA	0.21	0
EPASW14	EPASW14-SW032211	Te-125m	Filtered	-0.05 U	2.7	0.79	1.3
EPASW14	EPASW14-SW032211	Te-125m	Suspended	-0.16 U	1.2	0.36	0.6
EPASW14	EPASW14-SW032211	Te-125m	Total	-0.21	NA	0.87	0
EPASW14	EPASW14-SW032211	Th-231	Filtered	0.0028 U	0.0076	0.0028	0.0065
EPASW14	EPASW14-SW032211	Th-231	Suspended	0.0133	0.006	0.0055	0.0052
EPASW14	EPASW14-SW032211	Th-231	Total	0.0161	NA	0.0062	0
EPASW14	EPASW14-SW032211	Th-234	Filtered	5.9 U	22	7.5	11
EPASW14	EPASW14-SW032211	Th-234	Suspended	3.2 U	7.4	2.5	3.6
EPASW14	EPASW14-SW032211	Th-234	Total	9.1	NA	7.9	0
EPASW14	EPASW14-SW032211	Tl-208	Filtered	0.16 U	1.2	0.33	0.57
EPASW14	EPASW14-SW032211	Tl-208	Suspended	-0.29 U	0.85	0.44	0.41
EPASW14	EPASW14-SW032211	Tl-208	Total	-0.14	NA	0.55	0
EPASW14	EPASW14-SW032211	Tm-171	Filtered	180	330	100	160
EPASW14	EPASW14-SW032211	Tm-171	Suspended	7 U	110	32	53

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW14	EPASW14-SW032211	Tm-171	Total	190	NA	110	0
EPASW14	EPASW14-SW032211	U-233/234	Filtered	0.17	0.01	0.02	0.01
EPASW14	EPASW14-SW032211	U-233/234	Suspended	0.16	0.01	0.02	0
EPASW14	EPASW14-SW032211	U-233/234	Total	0.33	NA	0.03	0
EPASW14	EPASW14-SW032211	U-235/236	Filtered	0 U	0.01	0	0.01
EPASW14	EPASW14-SW032211	U-235/236	Suspended	0.01	0.01	0.01	0
EPASW14	EPASW14-SW032211	U-235/236	Total	0.0161	NA	0.0062	0
EPASW14	EPASW14-SW032211	U-235/236	Total	0.02	NA	0.01	0
EPASW14	EPASW14-SW032211	U-238	Filtered	0.12	0.02	0.02	0.01
EPASW14	EPASW14-SW032211	U-238	Suspended	0.17	0.01	0.02	0
EPASW14	EPASW14-SW032211	U-238	Total	0.29	NA	0.03	0
EPASW15	EPASW15-SW032311	Ac-227	Filtered	-2.6 U	9.4	2.8	4.6
EPASW15	EPASW15-SW032311	Ac-227	Suspended	-1.6 U	4.6	1.4	2.3
EPASW15	EPASW15-SW032311	Ac-227	Total	-4.2	NA	3.1	0
EPASW15	EPASW15-SW032311	Ac-228	Filtered	0 U	5.4	1.5	2.5
EPASW15	EPASW15-SW032311	Ac-228	Suspended	2.09	2.2	0.72	1
EPASW15	EPASW15-SW032311	Ac-228	Total	2.1	NA	1.7	0
EPASW15	EPASW15-SW032311	Ag-108	Filtered	-0.004 U	0.14	0.041	0.067
EPASW15	EPASW15-SW032311	Ag-108	Suspended	0.01 U	0.056	0.016	0.027
EPASW15	EPASW15-SW032311	Ag-108	Total	0.006	NA	0.044	0
EPASW15	EPASW15-SW032311	Ag-108m	Filtered	-0.04 U	1.5	0.44	0.72
EPASW15	EPASW15-SW032311	Ag-108m	Suspended	0.11 U	0.6	0.18	0.29
EPASW15	EPASW15-SW032311	Ag-108m	Total	0.07	NA	0.47	0
EPASW15	EPASW15-SW032311	Ba-133	Filtered	0 U	14	4	6.6
EPASW15	EPASW15-SW032311	Ba-133	Suspended	-0.7 U	4.4	1.3	2.1
EPASW15	EPASW15-SW032311	Ba-133	Total	-0.7	NA	4.2	0
EPASW15	EPASW15-SW032311	Ba-137m	Filtered	0.44 U	1.2	0.37	0.58
EPASW15	EPASW15-SW032311	Ba-137m	Suspended	0.03 U	0.66	0.19	0.31
EPASW15	EPASW15-SW032311	Ba-137m	Total	0.47	NA	0.42	0
EPASW15	EPASW15-SW032311	Bi-212	Filtered	2.1 U	10	3	4.8

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW15	EPASW15-SW032311	Bi-212	Suspended	-2 U	6	14	3
EPASW15	EPASW15-SW032311	Bi-212	Total	0.3	NA	14	0
EPASW15	EPASW15-SW032311	Bi-214	Filtered	0.86 U	2.8	0.83	1.3
EPASW15	EPASW15-SW032311	Bi-214	Suspended	1.45	1.7	0.43	0.84
EPASW15	EPASW15-SW032311	Bi-214	Total	2.3	NA	0.94	0
EPASW15	EPASW15-SW032311	Cd-113m	Filtered	200 U	13000	3800	6200
EPASW15	EPASW15-SW032311	Cd-113m	Suspended	2600 U	6700	2000	3300
EPASW15	EPASW15-SW032311	Cd-113m	Total	2800	NA	4300	0
EPASW15	EPASW15-SW032311	Cf-249	Filtered	-1.5 U	6.5	1.9	3.1
EPASW15	EPASW15-SW032311	Cf-249	Suspended	0.22 U	2.9	0.86	1.4
EPASW15	EPASW15-SW032311	Cf-249	Total	-1.2	NA	2.1	0
EPASW15	EPASW15-SW032311	Co-60	Filtered	0 U	1.7	0.48	0.79
EPASW15	EPASW15-SW032311	Co-60	Suspended	0.04 U	0.7	0.2	0.32
EPASW15	EPASW15-SW032311	Co-60	Total	0.04	NA	0.52	0
EPASW15	EPASW15-SW032311	Cs-134	Filtered	-0.005 U	1.3	0.38	0.62
EPASW15	EPASW15-SW032311	Cs-134	Suspended	-0.2 U	0.82	0.25	0.4
EPASW15	EPASW15-SW032311	Cs-134	Total	-0.21	NA	0.45	0
EPASW15	EPASW15-SW032311	Cs-137	Filtered	0.47 U	1.3	0.39	0.61
EPASW15	EPASW15-SW032311	Cs-137	Suspended	0.03 U	0.69	0.2	0.33
EPASW15	EPASW15-SW032311	Cs-137	Total	0.5	NA	0.44	0
EPASW15	EPASW15-SW032311	Eu-152	Filtered	-1.3 U	4.2	1.3	2
EPASW15	EPASW15-SW032311	Eu-152	Suspended	0.0003 U	1.9	0.55	0.91
EPASW15	EPASW15-SW032311	Eu-152	Total	-1.3	NA	1.4	0
EPASW15	EPASW15-SW032311	Eu-154	Filtered	-0.7 U	11	3.2	5.2
EPASW15	EPASW15-SW032311	Eu-154	Suspended	-0.3 U	6.3	1.8	3
EPASW15	EPASW15-SW032311	Eu-154	Total	-1	NA	3.7	0
EPASW15	EPASW15-SW032311	Eu-155	Filtered	-0.78 U	2.3	0.7	1.1
EPASW15	EPASW15-SW032311	Eu-155	Suspended	0.24 U	1.2	0.35	0.57
EPASW15	EPASW15-SW032311	Eu-155	Total	-0.54	NA	0.78	0
EPASW15	EPASW15-SW032311	gross_alpha	Filtered	1.1 J	0.35	0.21	0.17

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW15	EPASW15-SW032311	gross_alpha	Suspended	0.67	0.42	0.19	0.21
EPASW15	EPASW15-SW032311	gross_alpha	Total	1.77	NA	0.28	0
EPASW15	EPASW15-SW032311	gross_beta	Filtered	2.37	0.75	0.33	0.45
EPASW15	EPASW15-SW032311	gross_beta	Suspended	0.45 U	1.1	0.32	0.63
EPASW15	EPASW15-SW032311	gross_beta	Total	2.91	NA	0.49	0
EPASW15	EPASW15-SW032311	H-3_Total	Total	22	90	26	43
EPASW15	EPASW15-SW032311	Ho-166m	Filtered	-0.75 U	2.6	0.77	1.2
EPASW15	EPASW15-SW032311	Ho-166m	Suspended	-0.03 U	0.91	0.26	0.43
EPASW15	EPASW15-SW032311	Ho-166m	Total	-0.77	NA	0.81	0
EPASW15	EPASW15-SW032311	K-40	Filtered	-8 U	20	13	9
EPASW15	EPASW15-SW032311	K-40	Suspended	-1.7 U	9.6	3	4.5
EPASW15	EPASW15-SW032311	K-40	Total	-9	NA	13	0
EPASW15	EPASW15-SW032311	Na-22	Filtered	0.08 U	1.4	0.38	0.62
EPASW15	EPASW15-SW032311	Na-22	Suspended	0.01 U	0.79	0.22	0.37
EPASW15	EPASW15-SW032311	Na-22	Total	0.1	NA	0.44	0
EPASW15	EPASW15-SW032311	Nb-94	Filtered	0 U	1.1	0.32	0.53
EPASW15	EPASW15-SW032311	Nb-94	Suspended	-0.07 U	0.68	0.2	0.32
EPASW15	EPASW15-SW032311	Nb-94	Total	-0.07	NA	0.38	0
EPASW15	EPASW15-SW032311	Np-236	Filtered	-0.15 U	2.5	0.74	1.2
EPASW15	EPASW15-SW032311	Np-236	Suspended	-0.34 U	1.2	0.36	0.58
EPASW15	EPASW15-SW032311	Np-236	Total	-0.49	NA	0.82	0
EPASW15	EPASW15-SW032311	Np-239	Filtered	0.7 U	7.4	2.2	3.6
EPASW15	EPASW15-SW032311	Np-239	Suspended	-0.23 U	3.2	0.93	1.5
EPASW15	EPASW15-SW032311	Np-239	Total	0.5	NA	2.4	0
EPASW15	EPASW15-SW032311	Pa-231	Filtered	-1 U	58	17	28
EPASW15	EPASW15-SW032311	Pa-231	Suspended	-2.5 U	26	7.6	12
EPASW15	EPASW15-SW032311	Pa-231	Total	-4	NA	19	0
EPASW15	EPASW15-SW032311	Pb-212	Filtered	1.02	2.1	0.71	1
EPASW15	EPASW15-SW032311	Pb-212	Suspended	0.34 U	1.2	0.46	0.6
EPASW15	EPASW15-SW032311	Pb-212	Total	1.36	NA	0.84	0

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Analytical Results Summary
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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW15	EPASW15-SW032311	Pb-214	Filtered	2.37	2.1	0.83	1
EPASW15	EPASW15-SW032311	Pb-214	Suspended	-1.01 UL	1.6	0.93	0.78
EPASW15	EPASW15-SW032311	Pb-214	Total	1.4	NA	1.2	0
EPASW15	EPASW15-SW032311	Sb-125	Filtered	-4.9 U	13	3.8	6.1
EPASW15	EPASW15-SW032311	Sb-125	Suspended	1.3 U	5.6	1.7	2.7
EPASW15	EPASW15-SW032311	Sb-125	Total	-3.6	NA	4.2	0
EPASW15	EPASW15-SW032311	Sn-126	Filtered	0.37 U	1.4	0.42	0.67
EPASW15	EPASW15-SW032311	Sn-126	Suspended	0.51	0.79	0.24	0.38
EPASW15	EPASW15-SW032311	Sn-126	Total	0.88	NA	0.49	0
EPASW15	EPASW15-SW032311	Sr-90	Filtered	1.03	0.12	0.069	0.063
EPASW15	EPASW15-SW032311	Sr-90	Suspended	0.08	0.08	0.03	0.04
EPASW15	EPASW15-SW032311	Sr-90	Total	1.11	NA	0.07	0
EPASW15	EPASW15-SW032311	Te-125m	Filtered	-1.13 U	2.9	0.88	1.4
EPASW15	EPASW15-SW032311	Te-125m	Suspended	0.3 U	1.3	0.39	0.63
EPASW15	EPASW15-SW032311	Te-125m	Total	-0.82	NA	0.96	0
EPASW15	EPASW15-SW032311	Th-231	Filtered	0.0205	0.0069	0.0073	0.006
EPASW15	EPASW15-SW032311	Th-231	Suspended	0.0068	0.0061	0.0039	0.0053
EPASW15	EPASW15-SW032311	Th-231	Total	0.0273	NA	0.0083	0
EPASW15	EPASW15-SW032311	Th-234	Filtered	5.6 U	23	7.9	11
EPASW15	EPASW15-SW032311	Th-234	Suspended	0.4 U	7.1	2.1	3.4
EPASW15	EPASW15-SW032311	Th-234	Total	6	NA	8.2	0
EPASW15	EPASW15-SW032311	Tl-208	Filtered	-0.37 U	1.6	0.97	0.74
EPASW15	EPASW15-SW032311	Tl-208	Suspended	-0.29 U	0.87	0.45	0.42
EPASW15	EPASW15-SW032311	Tl-208	Total	-0.7	NA	1.1	0
EPASW15	EPASW15-SW032311	Tm-171	Filtered	27 U	290	85	140
EPASW15	EPASW15-SW032311	Tm-171	Suspended	39 U	110	33	52
EPASW15	EPASW15-SW032311	Tm-171	Total	65	NA	91	0
EPASW15	EPASW15-SW032311	U-233/234	Filtered	0.26	0.01	0.03	0
EPASW15	EPASW15-SW032311	U-233/234	Suspended	0.09	0.01	0.01	0
EPASW15	EPASW15-SW032311	U-233/234	Total	0.35	NA	0.03	0

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Analytical Results Summary
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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW15	EPASW15-SW032311	U-235/236	Filtered	0.02	0.01	0.01	0.01
EPASW15	EPASW15-SW032311	U-235/236	Suspended	0.01	0.01	0	0
EPASW15	EPASW15-SW032311	U-235/236	Total	0.03	NA	0.01	0
EPASW15	EPASW15-SW032311	U-238	Filtered	0.22	0.01	0.02	0
EPASW15	EPASW15-SW032311	U-238	Suspended	0.11	0.01	0.02	0
EPASW15	EPASW15-SW032311	U-238	Total	0.33	NA	0.03	0
EPASW16	EPASW16-SW032411	Ac-227	Filtered	-2.7 U	9.4	2.8	4.6
EPASW16	EPASW16-SW032411	Ac-227	Suspended	-3.4 UL	5.2	1.6	2.5
EPASW16	EPASW16-SW032411	Ac-227	Total	-6.1	NA	3.2	0
EPASW16	EPASW16-SW032411	Ac-228	Filtered	0.9 U	4.6	1.3	2.1
EPASW16	EPASW16-SW032411	Ac-228	Suspended	1.34	2.4	0.73	1.1
EPASW16	EPASW16-SW032411	Ac-228	Total	2.2	NA	1.5	0
EPASW16	EPASW16-SW032411	Ag-108	Filtered	0.003 U	0.11	0.031	0.051
EPASW16	EPASW16-SW032411	Ag-108	Suspended	-0.0008 U	0.055	0.016	0.026
EPASW16	EPASW16-SW032411	Ag-108	Total	0.002	NA	0.035	0
EPASW16	EPASW16-SW032411	Ag-108m	Filtered	0.03 U	1.2	0.34	0.55
EPASW16	EPASW16-SW032411	Ag-108m	Suspended	-0.009 U	0.59	0.17	0.28
EPASW16	EPASW16-SW032411	Ag-108m	Total	0.03	NA	0.38	0
EPASW16	EPASW16-SW032411	Ba-133	Filtered	4 U	15	4.5	7.2
EPASW16	EPASW16-SW032411	Ba-133	Suspended	0.9 U	5.8	1.7	2.8
EPASW16	EPASW16-SW032411	Ba-133	Total	4.9	NA	4.8	0
EPASW16	EPASW16-SW032411	Ba-137m	Filtered	0.03 U	1.3	0.37	0.6
EPASW16	EPASW16-SW032411	Ba-137m	Suspended	0.29	0.55	0.17	0.25
EPASW16	EPASW16-SW032411	Ba-137m	Total	0.33	NA	0.4	0
EPASW16	EPASW16-SW032411	Bi-212	Filtered	4.1 U	11	3.2	5
EPASW16	EPASW16-SW032411	Bi-212	Suspended	1 U	6.3	1.8	3
EPASW16	EPASW16-SW032411	Bi-212	Total	5.1	NA	3.7	0
EPASW16	EPASW16-SW032411	Bi-214	Filtered	2.7	3.8	1.6	1.8
EPASW16	EPASW16-SW032411	Bi-214	Suspended	1.29	1.7	0.62	0.82
EPASW16	EPASW16-SW032411	Bi-214	Total	4	NA	1.7	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW16	EPASW16-SW032411	Cd-113m	Filtered	-2200 U	18000	5400	8900
EPASW16	EPASW16-SW032411	Cd-113m	Suspended	1100 U	7100	2100	3400
EPASW16	EPASW16-SW032411	Cd-113m	Total	-1100	NA	5800	0
EPASW16	EPASW16-SW032411	Cf-249	Filtered	1.6 U	6.6	2	3.2
EPASW16	EPASW16-SW032411	Cf-249	Suspended	0.17 U	3.1	0.89	1.5
EPASW16	EPASW16-SW032411	Cf-249	Total	1.8	NA	2.2	0
EPASW16	EPASW16-SW032411	Co-60	Filtered	-0.06 U	1.6	0.46	0.75
EPASW16	EPASW16-SW032411	Co-60	Suspended	0.07 U	0.78	0.22	0.35
EPASW16	EPASW16-SW032411	Co-60	Total	0.003	NA	0.51	0
EPASW16	EPASW16-SW032411	Cs-134	Filtered	-0.46 U	1.7	0.5	0.81
EPASW16	EPASW16-SW032411	Cs-134	Suspended	-0.26 U	0.78	0.23	0.37
EPASW16	EPASW16-SW032411	Cs-134	Total	-0.71	NA	0.55	0
EPASW16	EPASW16-SW032411	Cs-137	Filtered	0.04 U	1.4	0.39	0.64
EPASW16	EPASW16-SW032411	Cs-137	Suspended	0.31	0.58	0.18	0.27
EPASW16	EPASW16-SW032411	Cs-137	Total	0.35	NA	0.43	0
EPASW16	EPASW16-SW032411	Eu-152	Filtered	-0.9 U	4.4	1.3	2.1
EPASW16	EPASW16-SW032411	Eu-152	Suspended	0.04 U	1.9	0.55	0.91
EPASW16	EPASW16-SW032411	Eu-152	Total	-0.8	NA	1.4	0
EPASW16	EPASW16-SW032411	Eu-154	Filtered	0.9 U	13	3.8	6.2
EPASW16	EPASW16-SW032411	Eu-154	Suspended	-0.3 U	5.8	1.7	2.7
EPASW16	EPASW16-SW032411	Eu-154	Total	0.6	NA	4.1	0
EPASW16	EPASW16-SW032411	Eu-155	Filtered	-0.7 U	4	1.2	2
EPASW16	EPASW16-SW032411	Eu-155	Suspended	-0.05 U	1.3	0.37	0.61
EPASW16	EPASW16-SW032411	Eu-155	Total	-0.8	NA	1.3	0
EPASW16	EPASW16-SW032411	gross_alpha	Filtered	1.09 J	0.53	0.24	0.29
EPASW16	EPASW16-SW032411	gross_alpha	Suspended	2.54	0.68	0.42	0.34
EPASW16	EPASW16-SW032411	gross_alpha	Total	3.62	NA	0.48	0
EPASW16	EPASW16-SW032411	gross_beta	Filtered	2.3	0.75	0.33	0.45
EPASW16	EPASW16-SW032411	gross_beta	Suspended	2.41	1.1	0.44	0.65
EPASW16	EPASW16-SW032411	gross_beta	Total	5.24	NA	0.6	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW16	EPASW16-SW032411	H-3_Total	Total	-10	91	26	44
EPASW16	EPASW16-SW032411	Ho-166m	Filtered	0.99	2.1	0.62	0.95
EPASW16	EPASW16-SW032411	Ho-166m	Suspended	-0.02 U	1.3	0.37	0.61
EPASW16	EPASW16-SW032411	Ho-166m	Total	0.97	NA	0.72	0
EPASW16	EPASW16-SW032411	K-40	Filtered	-8.9 U	23	9.7	11
EPASW16	EPASW16-SW032411	K-40	Suspended	0.7 U	12	2.8	5.5
EPASW16	EPASW16-SW032411	K-40	Total	-8	NA	10	0
EPASW16	EPASW16-SW032411	Na-22	Filtered	-0.17 U	1.5	0.42	0.67
EPASW16	EPASW16-SW032411	Na-22	Suspended	-0.01 U	0.71	0.19	0.32
EPASW16	EPASW16-SW032411	Na-22	Total	-0.18	NA	0.46	0
EPASW16	EPASW16-SW032411	Nb-94	Filtered	-0.008 U	1.4	0.4	0.65
EPASW16	EPASW16-SW032411	Nb-94	Suspended	0.15 U	0.63	0.19	0.3
EPASW16	EPASW16-SW032411	Nb-94	Total	0.14	NA	0.44	0
EPASW16	EPASW16-SW032411	Np-236	Filtered	0.79 U	2.6	0.79	1.3
EPASW16	EPASW16-SW032411	Np-236	Suspended	-0.39 U	1.2	0.36	0.57
EPASW16	EPASW16-SW032411	Np-236	Total	0.4	NA	0.86	0
EPASW16	EPASW16-SW032411	Np-239	Filtered	-1.9 U	9.2	2.8	4.5
EPASW16	EPASW16-SW032411	Np-239	Suspended	-0.5 U	4	1.2	1.9
EPASW16	EPASW16-SW032411	Np-239	Total	-2.4	NA	3	0
EPASW16	EPASW16-SW032411	Pa-231	Filtered	-23 U	69	21	34
EPASW16	EPASW16-SW032411	Pa-231	Suspended	-4.3 U	31	9.3	15
EPASW16	EPASW16-SW032411	Pa-231	Total	-27	NA	23	0
EPASW16	EPASW16-SW032411	Pb-212	Filtered	0.46 U	2.7	0.84	1.3
EPASW16	EPASW16-SW032411	Pb-212	Suspended	1.06	1.3	0.46	0.62
EPASW16	EPASW16-SW032411	Pb-212	Total	1.52	NA	0.96	0
EPASW16	EPASW16-SW032411	Pb-214	Filtered	-0.2 U	3.4	1	1.6
EPASW16	EPASW16-SW032411	Pb-214	Suspended	-0.17 U	1.6	0.52	0.78
EPASW16	EPASW16-SW032411	Pb-214	Total	-0.3	NA	1.2	0
EPASW16	EPASW16-SW032411	Sb-125	Filtered	-2.9 U	17	5	8.2
EPASW16	EPASW16-SW032411	Sb-125	Suspended	-1.4 U	6.2	1.8	3

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW16	EPASW16-SW032411	Sb-125	Total	-4.4	NA	5.3	0
EPASW16	EPASW16-SW032411	Sn-126	Filtered	0.03 U	1.6	0.47	0.77
EPASW16	EPASW16-SW032411	Sn-126	Suspended	-0.03 U	0.82	0.23	0.38
EPASW16	EPASW16-SW032411	Sn-126	Total	0.002	NA	0.52	0
EPASW16	EPASW16-SW032411	Sr-90	Filtered	0.08	0.09	0.03	0.05
EPASW16	EPASW16-SW032411	Sr-90	Suspended	0.05	0.09	0.03	0.05
EPASW16	EPASW16-SW032411	Sr-90	Total	0.13	NA	0.04	0
EPASW16	EPASW16-SW032411	Te-125m	Filtered	-0.7 U	3.9	1.2	1.9
EPASW16	EPASW16-SW032411	Te-125m	Suspended	-0.33 U	1.4	0.43	0.69
EPASW16	EPASW16-SW032411	Te-125m	Total	-1	NA	1.2	0
EPASW16	EPASW16-SW032411	Th-231	Filtered	0.006 U	0.0081	0.0043	0.007
EPASW16	EPASW16-SW032411	Th-231	Suspended	0.009	0.0061	0.0045	0.0052
EPASW16	EPASW16-SW032411	Th-231	Total	0.015	NA	0.0062	0
EPASW16	EPASW16-SW032411	Th-234	Filtered	8.9 U	27	9.5	13
EPASW16	EPASW16-SW032411	Th-234	Suspended	-0.6 U	8.8	3.1	4.3
EPASW16	EPASW16-SW032411	Th-234	Total	8	NA	10	0
EPASW16	EPASW16-SW032411	Tl-208	Filtered	0.23 U	1.9	0.69	0.91
EPASW16	EPASW16-SW032411	Tl-208	Suspended	0.07 U	0.89	0.23	0.42
EPASW16	EPASW16-SW032411	Tl-208	Total	0.3	NA	0.73	0
EPASW16	EPASW16-SW032411	Tm-171	Filtered	150 U	430	130	210
EPASW16	EPASW16-SW032411	Tm-171	Suspended	-25 U	140	43	69
EPASW16	EPASW16-SW032411	Tm-171	Total	130	NA	140	0
EPASW16	EPASW16-SW032411	U-233/234	Filtered	0.03	0.02	0.01	0.01
EPASW16	EPASW16-SW032411	U-233/234	Suspended	0.1	0.02	0.02	0.01
EPASW16	EPASW16-SW032411	U-233/234	Total	0.13	NA	0.02	0
EPASW16	EPASW16-SW032411	U-235/236	Filtered	0.01 U	0.01	0	0.01
EPASW16	EPASW16-SW032411	U-235/236	Suspended	0.01	0.01	0	0
EPASW16	EPASW16-SW032411	U-235/236	Total	0.01	NA	0.01	0
EPASW16	EPASW16-SW032411	U-238	Filtered	0.04	0.01	0.01	0.01
EPASW16	EPASW16-SW032411	U-238	Suspended	0.11	0.01	0.02	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW16	EPASW16-SW032411	U-238	Total	0.15	NA	0.02	0
EPASW17	EPASW17-SW032111	Ac-227	Filtered	0.2 U	10	3.1	5.1
EPASW17	EPASW17-SW032111	Ac-227	Suspended	-0.1 U	5.6	1.7	2.7
EPASW17	EPASW17-SW032111	Ac-227	Total	0.1	NA	3.5	0
EPASW17	EPASW17-SW032111	Ac-228	Filtered	2	3.7	1.1	1.7
EPASW17	EPASW17-SW032111	Ac-228	Suspended	1.96	2.4	0.75	1.1
EPASW17	EPASW17-SW032111	Ac-228	Total	3.9	NA	1.4	0
EPASW17	EPASW17-SW032111	Ag-108	Filtered	-0.006 U	0.085	0.025	0.04
EPASW17	EPASW17-SW032111	Ag-108	Suspended	-0.002 U	0.053	0.016	0.026
EPASW17	EPASW17-SW032111	Ag-108	Total	-0.008	NA	0.029	0
EPASW17	EPASW17-SW032111	Ag-108m	Filtered	-0.07 U	0.91	0.27	0.44
EPASW17	EPASW17-SW032111	Ag-108m	Suspended	-0.02 U	0.57	0.17	0.28
EPASW17	EPASW17-SW032111	Ag-108m	Total	-0.09	NA	0.31	0
EPASW17	EPASW17-SW032111	Ba-133	Filtered	2.7 U	11	3.2	5.2
EPASW17	EPASW17-SW032111	Ba-133	Suspended	1.2 U	5.5	1.6	2.6
EPASW17	EPASW17-SW032111	Ba-133	Total	3.9	NA	3.6	0
EPASW17	EPASW17-SW032111	Ba-137m	Filtered	0.2 U	1.1	0.33	0.53
EPASW17	EPASW17-SW032111	Ba-137m	Suspended	0.21 U	0.68	0.2	0.32
EPASW17	EPASW17-SW032111	Ba-137m	Total	0.41	NA	0.39	0
EPASW17	EPASW17-SW032111	Bi-212	Filtered	-7 UL	10	150	5
EPASW17	EPASW17-SW032111	Bi-212	Suspended	-1.1 U	5.6	4.4	2.6
EPASW17	EPASW17-SW032111	Bi-212	Total	-9	NA	150	0
EPASW17	EPASW17-SW032111	Bi-214	Filtered	2.2	2.8	1	1.3
EPASW17	EPASW17-SW032111	Bi-214	Suspended	-1.4 UL	2	1.5	1
EPASW17	EPASW17-SW032111	Bi-214	Total	0.8	NA	1.8	0
EPASW17	EPASW17-SW032111	Cd-113m	Filtered	1300 U	13000	3800	6200
EPASW17	EPASW17-SW032111	Cd-113m	Suspended	400 U	6800	2000	3300
EPASW17	EPASW17-SW032111	Cd-113m	Total	1700	NA	4300	0
EPASW17	EPASW17-SW032111	Cf-249	Filtered	0.7 U	5.1	1.5	2.5
EPASW17	EPASW17-SW032111	Cf-249	Suspended	0 U	3.2	0.94	1.5

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW17	EPASW17-SW032111	Cf-249	Total	0.7	NA	1.8	0
EPASW17	EPASW17-SW032111	Co-60	Filtered	0.2 U	1.3	0.38	0.61
EPASW17	EPASW17-SW032111	Co-60	Suspended	0 U	0.98	0.28	0.46
EPASW17	EPASW17-SW032111	Co-60	Total	0.2	NA	0.47	0
EPASW17	EPASW17-SW032111	Cs-134	Filtered	-0.52 U	1.2	0.37	0.59
EPASW17	EPASW17-SW032111	Cs-134	Suspended	0.46	0.83	0.14	0.4
EPASW17	EPASW17-SW032111	Cs-134	Total	-0.07	NA	0.39	0
EPASW17	EPASW17-SW032111	Cs-137	Filtered	0.22 U	1.2	0.35	0.56
EPASW17	EPASW17-SW032111	Cs-137	Suspended	0.22 U	0.72	0.21	0.34
EPASW17	EPASW17-SW032111	Cs-137	Total	0.44	NA	0.41	0
EPASW17	EPASW17-SW032111	Eu-152	Filtered	0.1 U	3.4	1	1.7
EPASW17	EPASW17-SW032111	Eu-152	Suspended	-0.25 U	1.8	0.52	0.85
EPASW17	EPASW17-SW032111	Eu-152	Total	-0.1	NA	1.1	0
EPASW17	EPASW17-SW032111	Eu-154	Filtered	-0.9 U	10	2.9	4.8
EPASW17	EPASW17-SW032111	Eu-154	Suspended	0.9 U	4.8	1.4	2.2
EPASW17	EPASW17-SW032111	Eu-154	Total	-0.04	NA	3.2	0
EPASW17	EPASW17-SW032111	Eu-155	Filtered	0.02 U	2.2	0.64	1
EPASW17	EPASW17-SW032111	Eu-155	Suspended	0.12 U	1.2	0.35	0.57
EPASW17	EPASW17-SW032111	Eu-155	Total	0.14	NA	0.73	0
EPASW17	EPASW17-SW032111	gross_alpha	Filtered	1.02	0.4	0.21	0.2
EPASW17	EPASW17-SW032111	gross_alpha	Suspended	0.57 J	0.42	0.17	0.22
EPASW17	EPASW17-SW032111	gross_alpha	Total	1.59	NA	0.27	0
EPASW17	EPASW17-SW032111	gross_beta	Filtered	1.92	1.1	0.41	0.64
EPASW17	EPASW17-SW032111	gross_beta	Suspended	0.58	0.89	0.28	0.53
EPASW17	EPASW17-SW032111	gross_beta	Total	2.5	NA	0.5	0
EPASW17	EPASW17-SW032111	H-3	Total	10	64	18	30
EPASW17	EPASW17-SW032111	Ho-166m	Filtered	-0.6 U	1.7	0.52	0.82
EPASW17	EPASW17-SW032111	Ho-166m	Suspended	0.04 U	1.1	0.33	0.54
EPASW17	EPASW17-SW032111	Ho-166m	Total	-0.56	NA	0.61	0
EPASW17	EPASW17-SW032111	K-40	Filtered	-7.4 U	19	6.7	9.2

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW17	EPASW17-SW032111	K-40	Suspended	11.2	9.4	3.1	4.4
EPASW17	EPASW17-SW032111	K-40	Total	3.8	NA	7.4	0
EPASW17	EPASW17-SW032111	Na-22	Filtered	-0.38 U	1.3	0.37	0.58
EPASW17	EPASW17-SW032111	Na-22	Suspended	-0.1 U	0.79	0.23	0.37
EPASW17	EPASW17-SW032111	Na-22	Total	-0.48	NA	0.44	0
EPASW17	EPASW17-SW032111	Nb-94	Filtered	-0.08 U	1	0.3	0.49
EPASW17	EPASW17-SW032111	Nb-94	Suspended	0.07 U	0.67	0.2	0.32
EPASW17	EPASW17-SW032111	Nb-94	Total	-0.008	NA	0.36	0
EPASW17	EPASW17-SW032111	Np-236	Filtered	-0.06 U	2.4	0.72	1.2
EPASW17	EPASW17-SW032111	Np-236	Suspended	0.02 U	1.2	0.34	0.57
EPASW17	EPASW17-SW032111	Np-236	Total	-0.04	NA	0.79	0
EPASW17	EPASW17-SW032111	Np-239	Filtered	-2 U	7.7	2.3	3.7
EPASW17	EPASW17-SW032111	Np-239	Suspended	-0.1 U	3.9	1.1	1.9
EPASW17	EPASW17-SW032111	Np-239	Total	-2.1	NA	2.6	0
EPASW17	EPASW17-SW032111	Pa-231	Filtered	-0.3 U	52	15	25
EPASW17	EPASW17-SW032111	Pa-231	Suspended	-7.4 U	28	8.3	13
EPASW17	EPASW17-SW032111	Pa-231	Total	-8	NA	18	0
EPASW17	EPASW17-SW032111	Pb-212	Filtered	1.36	2.3	0.8	1.1
EPASW17	EPASW17-SW032111	Pb-212	Suspended	-0.008 U	1.2	0.43	0.58
EPASW17	EPASW17-SW032111	Pb-212	Total	1.35	NA	0.91	0
EPASW17	EPASW17-SW032111	Pb-214	Filtered	-0.41 U	2.7	0.89	1.3
EPASW17	EPASW17-SW032111	Pb-214	Suspended	0.27 U	1.5	0.55	0.73
EPASW17	EPASW17-SW032111	Pb-214	Total	-0.1	NA	1	0
EPASW17	EPASW17-SW032111	Sb-125	Filtered	0 U	12	3.6	6
EPASW17	EPASW17-SW032111	Sb-125	Suspended	3.1	5.3	1.6	2.6
EPASW17	EPASW17-SW032111	Sb-125	Total	3.1	NA	4	0
EPASW17	EPASW17-SW032111	Sn-126	Filtered	0.22 U	1.2	0.36	0.59
EPASW17	EPASW17-SW032111	Sn-126	Suspended	0.52	0.72	0.22	0.34
EPASW17	EPASW17-SW032111	Sn-126	Total	0.75	NA	0.43	0
EPASW17	EPASW17-SW032111	Sr-90	Filtered	0.095 U	0.22	0.068	0.13

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW17	EPASW17-SW032111	Sr-90	Suspended	0.076	0.11	0.035	0.058
EPASW17	EPASW17-SW032111	Sr-90	Total	0.171	NA	0.076	0
EPASW17	EPASW17-SW032111	Te-125m	Filtered	0 U	2.8	0.84	1.4
EPASW17	EPASW17-SW032111	Te-125m	Suspended	0.72	1.2	0.38	0.6
EPASW17	EPASW17-SW032111	Te-125m	Total	0.72	NA	0.92	0
EPASW17	EPASW17-SW032111	Th-231	Filtered	0.0186	0.0084	0.0076	0.0072
EPASW17	EPASW17-SW032111	Th-231	Suspended	0 U	0.0062	0.0023	0.0054
EPASW17	EPASW17-SW032111	Th-231	Total	0.0186	NA	0.008	0
EPASW17	EPASW17-SW032111	Th-234	Filtered	-0.6 U	20	6.3	9.8
EPASW17	EPASW17-SW032111	Th-234	Suspended	5.1	7.4	2.6	3.6
EPASW17	EPASW17-SW032111	Th-234	Total	4.6	NA	6.8	0
EPASW17	EPASW17-SW032111	Tl-208	Filtered	0.69	1.3	0.47	0.63
EPASW17	EPASW17-SW032111	Tl-208	Suspended	0.31 U	0.81	0.33	0.39
EPASW17	EPASW17-SW032111	Tl-208	Total	1	NA	0.58	0
EPASW17	EPASW17-SW032111	Tm-171	Filtered	2 U	340	100	160
EPASW17	EPASW17-SW032111	Tm-171	Suspended	23 U	110	34	56
EPASW17	EPASW17-SW032111	Tm-171	Total	20	NA	110	0
EPASW17	EPASW17-SW032111	U-233/234	Filtered	0.13	0.01	0.02	0.01
EPASW17	EPASW17-SW032111	U-233/234	Suspended	0.03	0.02	0.01	0.01
EPASW17	EPASW17-SW032111	U-233/234	Total	0.15	NA	0.02	0
EPASW17	EPASW17-SW032111	U-235/236	Filtered	0.02	0.01	0.01	0.01
EPASW17	EPASW17-SW032111	U-235/236	Suspended	0 U	0.01	0	0
EPASW17	EPASW17-SW032111	U-235/236	Total	0.02	NA	0.01	0
EPASW17	EPASW17-SW032111	U-238	Filtered	0.08	0.02	0.02	0.01
EPASW17	EPASW17-SW032111	U-238	Suspended	0.03	0.01	0.01	0
EPASW17	EPASW17-SW032111	U-238	Total	0.11	NA	0.02	0
EPASW18	EPASW18-SW032411	Ac-227	Filtered	-7.3 UL	9.9	3.1	4.9
EPASW18	EPASW18-SW032411	Ac-227	Suspended	0.4 U	3.9	1.2	1.9
EPASW18	EPASW18-SW032411	Ac-227	Total	-6.9	NA	3.3	0
EPASW18	EPASW18-SW032411	Ac-228	Filtered	2.3	3.6	1.1	1.7

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW18	EPASW18-SW032411	Ac-228	Suspended	0.09 U	2.7	0.7	1.3
EPASW18	EPASW18-SW032411	Ac-228	Total	2.4	NA	1.3	0
EPASW18	EPASW18-SW032411	Ag-108	Filtered	-0.0001 U	0.084	0.024	0.04
EPASW18	EPASW18-SW032411	Ag-108	Suspended	0.01 U	0.052	0.015	0.025
EPASW18	EPASW18-SW032411	Ag-108	Total	0.01	NA	0.029	0
EPASW18	EPASW18-SW032411	Ag-108m	Filtered	-0.001 U	0.9	0.26	0.43
EPASW18	EPASW18-SW032411	Ag-108m	Suspended	0.11 U	0.56	0.17	0.27
EPASW18	EPASW18-SW032411	Ag-108m	Total	0.11	NA	0.31	0
EPASW18	EPASW18-SW032411	Ba-133	Filtered	1.1 U	10	3.1	5.1
EPASW18	EPASW18-SW032411	Ba-133	Suspended	-0.3 U	6.1	1.8	2.9
EPASW18	EPASW18-SW032411	Ba-133	Total	0.8	NA	3.6	0
EPASW18	EPASW18-SW032411	Ba-137m	Filtered	-0.21 U	1.2	0.35	0.56
EPASW18	EPASW18-SW032411	Ba-137m	Suspended	0.2 U	0.64	0.19	0.3
EPASW18	EPASW18-SW032411	Ba-137m	Total	-0.005	NA	0.4	0
EPASW18	EPASW18-SW032411	Bi-212	Filtered	0.4 U	9.1	2.5	4.3
EPASW18	EPASW18-SW032411	Bi-212	Suspended	1.2 U	4.8	1.4	2.2
EPASW18	EPASW18-SW032411	Bi-212	Total	1.7	NA	2.9	0
EPASW18	EPASW18-SW032411	Bi-214	Filtered	0.15 U	2.7	0.96	1.3
EPASW18	EPASW18-SW032411	Bi-214	Suspended	-1 UL	1.9	1.2	0.9
EPASW18	EPASW18-SW032411	Bi-214	Total	-0.9	NA	1.5	0
EPASW18	EPASW18-SW032411	Cd-113m	Filtered	3900 U	12000	3500	5600
EPASW18	EPASW18-SW032411	Cd-113m	Suspended	900 U	6800	2000	3300
EPASW18	EPASW18-SW032411	Cd-113m	Total	4800	NA	4000	0
EPASW18	EPASW18-SW032411	Cf-249	Filtered	1.1 U	5.3	1.6	2.5
EPASW18	EPASW18-SW032411	Cf-249	Suspended	0.48 U	2.9	0.85	1.4
EPASW18	EPASW18-SW032411	Cf-249	Total	1.6	NA	1.8	0
EPASW18	EPASW18-SW032411	Co-60	Filtered	0.03 U	0.91	0.25	0.41
EPASW18	EPASW18-SW032411	Co-60	Suspended	-0.1 U	0.77	0.22	0.36
EPASW18	EPASW18-SW032411	Co-60	Total	-0.08	NA	0.33	0
EPASW18	EPASW18-SW032411	Cs-134	Filtered	-0.16 U	1.1	0.32	0.52

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW18	EPASW18-SW032411	Cs-134	Suspended	-0.13 U	0.85	0.25	0.41
EPASW18	EPASW18-SW032411	Cs-134	Total	-0.29	NA	0.41	0
EPASW18	EPASW18-SW032411	Cs-137	Filtered	-0.22 U	1.2	0.37	0.6
EPASW18	EPASW18-SW032411	Cs-137	Suspended	0.21 U	0.68	0.2	0.32
EPASW18	EPASW18-SW032411	Cs-137	Total	-0.006	NA	0.42	0
EPASW18	EPASW18-SW032411	Eu-152	Filtered	-1.42 U	3.3	0.99	1.6
EPASW18	EPASW18-SW032411	Eu-152	Suspended	-0.63 U	1.9	0.57	0.92
EPASW18	EPASW18-SW032411	Eu-152	Total	-2	NA	1.1	0
EPASW18	EPASW18-SW032411	Eu-154	Filtered	-0.5 U	11	3.3	5.4
EPASW18	EPASW18-SW032411	Eu-154	Suspended	1 U	4.1	1.2	1.9
EPASW18	EPASW18-SW032411	Eu-154	Total	0.6	NA	3.5	0
EPASW18	EPASW18-SW032411	Eu-155	Filtered	-0.14 U	2.9	0.86	1.4
EPASW18	EPASW18-SW032411	Eu-155	Suspended	-0.02 U	1.2	0.36	0.59
EPASW18	EPASW18-SW032411	Eu-155	Total	-0.15	NA	0.93	0
EPASW18	EPASW18-SW032411	gross_alpha	Filtered	1.82 J	0.57	0.3	0.32
EPASW18	EPASW18-SW032411	gross_alpha	Suspended	0.42	0.4	0.15	0.2
EPASW18	EPASW18-SW032411	gross_alpha	Total	2.24	NA	0.34	0
EPASW18	EPASW18-SW032411	gross_beta	Filtered	0.72	0.81	0.27	0.48
EPASW18	EPASW18-SW032411	gross_beta	Suspended	0.28 U	0.98	0.29	0.58
EPASW18	EPASW18-SW032411	gross_beta	Total	1.38	NA	0.44	0
EPASW18	EPASW18-SW032411	H-3_Total	Total	46	91	27	44
EPASW18	EPASW18-SW032411	Ho-166m	Filtered	0 U	2.2	0.64	1
EPASW18	EPASW18-SW032411	Ho-166m	Suspended	0.13 U	1	0.3	0.49
EPASW18	EPASW18-SW032411	Ho-166m	Total	0.13	NA	0.7	0
EPASW18	EPASW18-SW032411	K-40	Filtered	13.7	16	6.3	7.7
EPASW18	EPASW18-SW032411	K-40	Suspended	3.6 U	10	3.6	4.8
EPASW18	EPASW18-SW032411	K-40	Total	17.4	NA	7.2	0
EPASW18	EPASW18-SW032411	Na-22	Filtered	-0.03 U	1.1	0.32	0.53
EPASW18	EPASW18-SW032411	Na-22	Suspended	0.005 U	0.73	0.21	0.34
EPASW18	EPASW18-SW032411	Na-22	Total	-0.02	NA	0.38	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW18	EPASW18-SW032411	Nb-94	Filtered	0.02 U	0.94	0.27	0.45
EPASW18	EPASW18-SW032411	Nb-94	Suspended	-0.01 U	0.57	0.17	0.27
EPASW18	EPASW18-SW032411	Nb-94	Total	0.009	NA	0.32	0
EPASW18	EPASW18-SW032411	Np-236	Filtered	0.45 U	2.3	0.7	1.1
EPASW18	EPASW18-SW032411	Np-236	Suspended	0.03 U	1.2	0.36	0.6
EPASW18	EPASW18-SW032411	Np-236	Total	0.48	NA	0.78	0
EPASW18	EPASW18-SW032411	Np-239	Filtered	-0.02 U	7	2.1	3.4
EPASW18	EPASW18-SW032411	Np-239	Suspended	0.05 U	3.9	1.1	1.9
EPASW18	EPASW18-SW032411	Np-239	Total	0.02	NA	2.4	0
EPASW18	EPASW18-SW032411	Pa-231	Filtered	4 U	45	13	22
EPASW18	EPASW18-SW032411	Pa-231	Suspended	0 U	28	8.3	14
EPASW18	EPASW18-SW032411	Pa-231	Total	4	NA	16	0
EPASW18	EPASW18-SW032411	Pb-212	Filtered	0.87 U	2.5	0.85	1.2
EPASW18	EPASW18-SW032411	Pb-212	Suspended	0.54 U	1.2	0.43	0.56
EPASW18	EPASW18-SW032411	Pb-212	Total	1.41	NA	0.95	0
EPASW18	EPASW18-SW032411	Pb-214	Filtered	0.35 U	2.6	0.72	1.3
EPASW18	EPASW18-SW032411	Pb-214	Suspended	0.07 U	1.5	0.51	0.71
EPASW18	EPASW18-SW032411	Pb-214	Total	0.42	NA	0.88	0
EPASW18	EPASW18-SW032411	Sb-125	Filtered	3.6 U	11	3.4	5.5
EPASW18	EPASW18-SW032411	Sb-125	Suspended	0.08 U	5.5	1.6	2.7
EPASW18	EPASW18-SW032411	Sb-125	Total	3.7	NA	3.8	0
EPASW18	EPASW18-SW032411	Sn-126	Filtered	0.76	1.1	0.34	0.51
EPASW18	EPASW18-SW032411	Sn-126	Suspended	-0.12 U	0.78	0.23	0.37
EPASW18	EPASW18-SW032411	Sn-126	Total	0.64	NA	0.41	0
EPASW18	EPASW18-SW032411	Sr-90	Filtered	0.02 U	0.17	0.05	0.1
EPASW18	EPASW18-SW032411	Sr-90	Suspended	-0.01 U	0.09	0.03	0.05
EPASW18	EPASW18-SW032411	Sr-90	Total	0.02	NA	0.06	0
EPASW18	EPASW18-SW032411	Te-125m	Filtered	0.83 U	2.6	0.78	1.3
EPASW18	EPASW18-SW032411	Te-125m	Suspended	0.02 U	1.3	0.37	0.61
EPASW18	EPASW18-SW032411	Te-125m	Total	0.84	NA	0.87	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW18	EPASW18-SW032411	Th-231	Filtered	0.0059 U	0.008	0.0042	0.0069
EPASW18	EPASW18-SW032411	Th-231	Suspended	0.0044 U	0.0059	0.0031	0.0051
EPASW18	EPASW18-SW032411	Th-231	Total	0.0103	NA	0.0052	0
EPASW18	EPASW18-SW032411	Th-234	Filtered	-0.7 U	21	7.4	10
EPASW18	EPASW18-SW032411	Th-234	Suspended	-2.4 U	8.2	3.8	4
EPASW18	EPASW18-SW032411	Th-234	Total	-3.1	NA	8.3	0
EPASW18	EPASW18-SW032411	Tl-208	Filtered	1.17	1.4	0.52	0.66
EPASW18	EPASW18-SW032411	Tl-208	Suspended	-0.11 U	0.83	0.32	0.4
EPASW18	EPASW18-SW032411	Tl-208	Total	1.06	NA	0.61	0
EPASW18	EPASW18-SW032411	Tm-171	Filtered	-10 U	350	100	170
EPASW18	EPASW18-SW032411	Tm-171	Suspended	19 U	120	35	57
EPASW18	EPASW18-SW032411	Tm-171	Total	4	NA	110	0
EPASW18	EPASW18-SW032411	U-233/234	Filtered	0.16	0.01	0.02	0.01
EPASW18	EPASW18-SW032411	U-233/234	Suspended	0.01	0.02	0.01	0.01
EPASW18	EPASW18-SW032411	U-233/234	Total	0.17	NA	0.02	0
EPASW18	EPASW18-SW032411	U-235/236	Filtered	0.01 U	0.01	0	0.01
EPASW18	EPASW18-SW032411	U-235/236	Suspended	0 U	0.04	0	0.01
EPASW18	EPASW18-SW032411	U-235/236	Total	0	NA	0	0
EPASW18	EPASW18-SW032411	U-238	Filtered	0.12	0.02	0.02	0.01
EPASW18	EPASW18-SW032411	U-238	Suspended	0.04	0.03	0.02	0.01
EPASW18	EPASW18-SW032411	U-238	Total	0.16	NA	0.03	0
EPASW19	EPASW19-SW032411	Ac-227	Filtered	-6.7 UL	10	3.1	4.9
EPASW19	EPASW19-SW032411	Ac-227	Suspended	-0.06 U	5.1	1.5	2.5
EPASW19	EPASW19-SW032411	Ac-227	Total	-6.8	NA	3.4	0
EPASW19	EPASW19-SW032411	Ac-228	Filtered	2.9	3.9	1.2	1.8
EPASW19	EPASW19-SW032411	Ac-228	Suspended	1.8	1.8	0.59	0.85
EPASW19	EPASW19-SW032411	Ac-228	Total	4.7	NA	1.3	0
EPASW19	EPASW19-SW032411	Ag-108	Filtered	0.021 U	0.083	0.025	0.04
EPASW19	EPASW19-SW032411	Ag-108	Suspended	-0.001 U	0.053	0.015	0.025
EPASW19	EPASW19-SW032411	Ag-108	Total	0.02	NA	0.029	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW19	EPASW19-SW032411	Ag-108m	Filtered	0.23 U	0.89	0.27	0.43
EPASW19	EPASW19-SW032411	Ag-108m	Suspended	-0.01 U	0.56	0.17	0.27
EPASW19	EPASW19-SW032411	Ag-108m	Total	0.21	NA	0.31	0
EPASW19	EPASW19-SW032411	Ba-133	Filtered	0.4 U	11	3.2	5.2
EPASW19	EPASW19-SW032411	Ba-133	Suspended	-1.5 U	5.3	1.6	2.6
EPASW19	EPASW19-SW032411	Ba-133	Total	-1.1	NA	3.5	0
EPASW19	EPASW19-SW032411	Ba-137m	Filtered	0.29 U	0.99	0.29	0.47
EPASW19	EPASW19-SW032411	Ba-137m	Suspended	0.22 U	0.53	0.16	0.25
EPASW19	EPASW19-SW032411	Ba-137m	Total	0.51	NA	0.33	0
EPASW19	EPASW19-SW032411	Bi-212	Filtered	0.4 U	9.9	2.8	4.7
EPASW19	EPASW19-SW032411	Bi-212	Suspended	1.9 U	4.6	1.4	2.2
EPASW19	EPASW19-SW032411	Bi-212	Total	2.2	NA	3.1	0
EPASW19	EPASW19-SW032411	Bi-214	Filtered	-1.5 U	3.1	1.5	1.5
EPASW19	EPASW19-SW032411	Bi-214	Suspended	0.44 U	1.4	0.42	0.66
EPASW19	EPASW19-SW032411	Bi-214	Total	-1	NA	1.5	0
EPASW19	EPASW19-SW032411	Cd-113m	Filtered	-4700 U	14000	4300	6900
EPASW19	EPASW19-SW032411	Cd-113m	Suspended	600 U	6000	1800	2900
EPASW19	EPASW19-SW032411	Cd-113m	Total	-4100	NA	4600	0
EPASW19	EPASW19-SW032411	Cf-249	Filtered	-1.6 U	5.5	1.6	2.7
EPASW19	EPASW19-SW032411	Cf-249	Suspended	0.12 U	2.7	0.78	1.3
EPASW19	EPASW19-SW032411	Cf-249	Total	-1.5	NA	1.8	0
EPASW19	EPASW19-SW032411	Co-60	Filtered	0.02 U	1	0.29	0.47
EPASW19	EPASW19-SW032411	Co-60	Suspended	0.001 U	0.68	0.19	0.31
EPASW19	EPASW19-SW032411	Co-60	Total	0.03	NA	0.35	0
EPASW19	EPASW19-SW032411	Cs-134	Filtered	-0.03 U	1.7	0.49	0.81
EPASW19	EPASW19-SW032411	Cs-134	Suspended	0.2 U	0.63	0.19	0.3
EPASW19	EPASW19-SW032411	Cs-134	Total	0.17	NA	0.53	0
EPASW19	EPASW19-SW032411	Cs-137	Filtered	0.3 U	1	0.31	0.5
EPASW19	EPASW19-SW032411	Cs-137	Suspended	0.24 U	0.56	0.17	0.26
EPASW19	EPASW19-SW032411	Cs-137	Total	0.54	NA	0.35	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW19	EPASW19-SW032411	Eu-152	Filtered	-0.03 U	3.1	0.91	1.5
EPASW19	EPASW19-SW032411	Eu-152	Suspended	0.04 U	1.7	0.51	0.84
EPASW19	EPASW19-SW032411	Eu-152	Total	0.005	NA	1	0
EPASW19	EPASW19-SW032411	Eu-154	Filtered	-1.4 U	9.5	2.8	4.5
EPASW19	EPASW19-SW032411	Eu-154	Suspended	1 U	4.9	1.4	2.3
EPASW19	EPASW19-SW032411	Eu-154	Total	-0.4	NA	3.1	0
EPASW19	EPASW19-SW032411	Eu-155	Filtered	0.73 U	3	0.9	1.5
EPASW19	EPASW19-SW032411	Eu-155	Suspended	0.17 U	1	0.3	0.49
EPASW19	EPASW19-SW032411	Eu-155	Total	0.9	NA	0.95	0
EPASW19	EPASW19-SW032411	gross_alpha	Filtered	0.72 J	0.46	0.19	0.25
EPASW19	EPASW19-SW032411	gross_alpha	Suspended	0.22	0.35	0.12	0.17
EPASW19	EPASW19-SW032411	gross_alpha	Total	0.94	NA	0.22	0
EPASW19	EPASW19-SW032411	gross_beta	Filtered	0.78	0.76	0.26	0.45
EPASW19	EPASW19-SW032411	gross_beta	Suspended	0.45 U	0.96	0.29	0.57
EPASW19	EPASW19-SW032411	gross_beta	Total	0.95	NA	0.39	0
EPASW19	EPASW19-SW032411	H-3_Total	Total	35	88	27	42
EPASW19	EPASW19-SW032411	Ho-166m	Filtered	-0.29 U	1.9	0.57	0.92
EPASW19	EPASW19-SW032411	Ho-166m	Suspended	-0.26 U	1.1	0.33	0.54
EPASW19	EPASW19-SW032411	Ho-166m	Total	-0.54	NA	0.66	0
EPASW19	EPASW19-SW032411	K-40	Filtered	-13 UL	18	12	9
EPASW19	EPASW19-SW032411	K-40	Suspended	5.8	9.8	2.8	4.7
EPASW19	EPASW19-SW032411	K-40	Total	-7	NA	13	0
EPASW19	EPASW19-SW032411	Na-22	Filtered	0.05 U	1.2	0.33	0.55
EPASW19	EPASW19-SW032411	Na-22	Suspended	-0.01 U	0.65	0.18	0.3
EPASW19	EPASW19-SW032411	Na-22	Total	0.03	NA	0.38	0
EPASW19	EPASW19-SW032411	Nb-94	Filtered	0.43 U	1.1	0.32	0.5
EPASW19	EPASW19-SW032411	Nb-94	Suspended	0.12 U	0.58	0.17	0.28
EPASW19	EPASW19-SW032411	Nb-94	Total	0.55	NA	0.36	0
EPASW19	EPASW19-SW032411	Np-236	Filtered	0.64 U	2.5	0.74	1.2
EPASW19	EPASW19-SW032411	Np-236	Suspended	0.32 U	0.91	0.27	0.44

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW19	EPASW19-SW032411	Np-236	Total	0.96	NA	0.79	0
EPASW19	EPASW19-SW032411	Np-239	Filtered	-1.9 U	7.2	2.1	3.5
EPASW19	EPASW19-SW032411	Np-239	Suspended	0.7 U	3.5	1	1.7
EPASW19	EPASW19-SW032411	Np-239	Total	-1.2	NA	2.4	0
EPASW19	EPASW19-SW032411	Pa-231	Filtered	4 U	49	15	24
EPASW19	EPASW19-SW032411	Pa-231	Suspended	2 U	25	7.3	12
EPASW19	EPASW19-SW032411	Pa-231	Total	6	NA	16	0
EPASW19	EPASW19-SW032411	Pb-212	Filtered	0.82 U	2.4	0.79	1.2
EPASW19	EPASW19-SW032411	Pb-212	Suspended	0.18 U	1.1	0.32	0.53
EPASW19	EPASW19-SW032411	Pb-212	Total	1	NA	0.85	0
EPASW19	EPASW19-SW032411	Pb-214	Filtered	1.21	2.2	0.76	1.1
EPASW19	EPASW19-SW032411	Pb-214	Suspended	0.03 U	1.2	0.41	0.6
EPASW19	EPASW19-SW032411	Pb-214	Total	1.24	NA	0.86	0
EPASW19	EPASW19-SW032411	Sb-125	Filtered	-2.1 U	12	3.7	6
EPASW19	EPASW19-SW032411	Sb-125	Suspended	-1.2 U	5.3	1.6	2.6
EPASW19	EPASW19-SW032411	Sb-125	Total	-3.2	NA	4	0
EPASW19	EPASW19-SW032411	Sn-126	Filtered	0.48 U	1.2	0.36	0.58
EPASW19	EPASW19-SW032411	Sn-126	Suspended	0.28 U	0.7	0.21	0.33
EPASW19	EPASW19-SW032411	Sn-126	Total	0.76	NA	0.42	0
EPASW19	EPASW19-SW032411	Sr-90	Filtered	0.093	0.13	0.04	0.065
EPASW19	EPASW19-SW032411	Sr-90	Suspended	0.03 U	0.08	0.03	0.05
EPASW19	EPASW19-SW032411	Sr-90	Total	0.12	NA	0.05	0
EPASW19	EPASW19-SW032411	Te-125m	Filtered	-0.48 U	2.9	0.85	1.4
EPASW19	EPASW19-SW032411	Te-125m	Suspended	-0.27 U	1.2	0.36	0.59
EPASW19	EPASW19-SW032411	Te-125m	Total	-0.74	NA	0.93	0
EPASW19	EPASW19-SW032411	Th-231	Filtered	0.0091	0.0083	0.0053	0.0071
EPASW19	EPASW19-SW032411	Th-231	Suspended	0.0046 U	0.0063	0.0033	0.0054
EPASW19	EPASW19-SW032411	Th-231	Total	0.0138	NA	0.0062	0
EPASW19	EPASW19-SW032411	Th-234	Filtered	2.1 U	21	6.3	10
EPASW19	EPASW19-SW032411	Th-234	Suspended	0.2 U	7.2	2.3	3.5

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW19	EPASW19-SW032411	Th-234	Total	2.3	NA	6.7	0
EPASW19	EPASW19-SW032411	Tl-208	Filtered	1.05	1.4	0.54	0.68
EPASW19	EPASW19-SW032411	Tl-208	Suspended	-0.09 U	0.78	0.24	0.37
EPASW19	EPASW19-SW032411	Tl-208	Total	0.96	NA	0.59	0
EPASW19	EPASW19-SW032411	Tm-171	Filtered	-6 U	360	110	180
EPASW19	EPASW19-SW032411	Tm-171	Suspended	-6 U	110	31	51
EPASW19	EPASW19-SW032411	Tm-171	Total	-10	NA	110	0
EPASW19	EPASW19-SW032411	U-233/234	Filtered	0.12	0.02	0.02	0.01
EPASW19	EPASW19-SW032411	U-233/234	Suspended	0.01 U	0.04	0.01	0.01
EPASW19	EPASW19-SW032411	U-233/234	Total	0.13	NA	0.02	0
EPASW19	EPASW19-SW032411	U-235/236	Filtered	0.01	0.01	0.01	0.01
EPASW19	EPASW19-SW032411	U-235/236	Suspended	0.03	0.03	0.02	0.01
EPASW19	EPASW19-SW032411	U-235/236	Total	0.04	NA	0.02	0
EPASW19	EPASW19-SW032411	U-238	Filtered	0.08	0.01	0.02	0.01
EPASW19	EPASW19-SW032411	U-238	Suspended	0.01 U	0.03	0.01	0.01
EPASW19	EPASW19-SW032411	U-238	Total	0.08	NA	0.02	0
EPASW20	EPASW20-SW032511	Ac-227	Filtered	-7 UL	12	3.8	6
EPASW20	EPASW20-SW032511	Ac-227	Suspended	0.2 U	3.6	1	1.7
EPASW20	EPASW20-SW032511	Ac-227	Total	-6.8	NA	3.9	0
EPASW20	EPASW20-SW032511	Ac-228	Filtered	1.6 U	5.1	1.5	2.4
EPASW20	EPASW20-SW032511	Ac-228	Suspended	-0.9 U	3	1.7	1.4
EPASW20	EPASW20-SW032511	Ac-228	Total	0.7	NA	2.3	0
EPASW20	EPASW20-SW032511	Ag-108	Filtered	0.044 U	0.12	0.035	0.055
EPASW20	EPASW20-SW032511	Ag-108	Suspended	0.0004 U	0.056	0.016	0.027
EPASW20	EPASW20-SW032511	Ag-108	Total	0.045	NA	0.039	0
EPASW20	EPASW20-SW032511	Ag-108m	Filtered	0.48 U	1.3	0.38	0.59
EPASW20	EPASW20-SW032511	Ag-108m	Suspended	0.005 U	0.6	0.18	0.29
EPASW20	EPASW20-SW032511	Ag-108m	Total	0.48	NA	0.42	0
EPASW20	EPASW20-SW032511	Ba-133	Filtered	3.4 U	17	5	8
EPASW20	EPASW20-SW032511	Ba-133	Suspended	-0.7 U	7.1	2.1	3.4

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW20	EPASW20-SW032511	Ba-133	Total	2.7	NA	5.4	0
EPASW20	EPASW20-SW032511	Ba-137m	Filtered	-0.24 U	1.6	0.46	0.74
EPASW20	EPASW20-SW032511	Ba-137m	Suspended	0.12 U	0.62	0.18	0.29
EPASW20	EPASW20-SW032511	Ba-137m	Total	-0.12	NA	0.49	0
EPASW20	EPASW20-SW032511	Bi-212	Filtered	0 U	15	4.3	7.1
EPASW20	EPASW20-SW032511	Bi-212	Suspended	2.3 U	6.3	1.9	3
EPASW20	EPASW20-SW032511	Bi-212	Total	2.3	NA	4.7	0
EPASW20	EPASW20-SW032511	Bi-214	Filtered	4.6	3.9	1.7	1.9
EPASW20	EPASW20-SW032511	Bi-214	Suspended	3.26	1.9	0.82	0.91
EPASW20	EPASW20-SW032511	Bi-214	Total	7.9	NA	1.9	0
EPASW20	EPASW20-SW032511	Cd-113m	Filtered	2300 U	18000	5200	8500
EPASW20	EPASW20-SW032511	Cd-113m	Suspended	600 U	7500	2200	3600
EPASW20	EPASW20-SW032511	Cd-113m	Total	2900	NA	5700	0
EPASW20	EPASW20-SW032511	Cf-249	Filtered	-0.8 U	7.6	2.2	3.7
EPASW20	EPASW20-SW032511	Cf-249	Suspended	-0.6 U	3.4	1	1.6
EPASW20	EPASW20-SW032511	Cf-249	Total	-1.3	NA	2.5	0
EPASW20	EPASW20-SW032511	Co-60	Filtered	-0.16 U	1.6	0.44	0.71
EPASW20	EPASW20-SW032511	Co-60	Suspended	0.14 U	0.83	0.24	0.39
EPASW20	EPASW20-SW032511	Co-60	Total	-0.02	NA	0.5	0
EPASW20	EPASW20-SW032511	Cs-134	Filtered	0 U	2.5	0.74	1.2
EPASW20	EPASW20-SW032511	Cs-134	Suspended	0.259 UJ	0.91	0.076	0.44
EPASW20	EPASW20-SW032511	Cs-134	Total	0.26	NA	0.75	0
EPASW20	EPASW20-SW032511	Cs-137	Filtered	-0.25 U	1.7	0.48	0.78
EPASW20	EPASW20-SW032511	Cs-137	Suspended	0.13 U	0.66	0.19	0.31
EPASW20	EPASW20-SW032511	Cs-137	Total	-0.12	NA	0.52	0
EPASW20	EPASW20-SW032511	Eu-152	Filtered	0.5 U	3.8	1.1	1.8
EPASW20	EPASW20-SW032511	Eu-152	Suspended	-0.59 U	2	0.59	0.96
EPASW20	EPASW20-SW032511	Eu-152	Total	-0.1	NA	1.3	0
EPASW20	EPASW20-SW032511	Eu-154	Filtered	-0.2 U	11	3.1	5.1
EPASW20	EPASW20-SW032511	Eu-154	Suspended	1.5 U	5	1.5	2.3

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW20	EPASW20-SW032511	Eu-154	Total	1.3	NA	3.4	0
EPASW20	EPASW20-SW032511	Eu-155	Filtered	1.6 U	4	1.2	2
EPASW20	EPASW20-SW032511	Eu-155	Suspended	-0.14 U	1.2	0.34	0.56
EPASW20	EPASW20-SW032511	Eu-155	Total	1.4	NA	1.3	0
EPASW20	EPASW20-SW032511	gross_alpha	Filtered	1.07	0.71	0.29	0.38
EPASW20	EPASW20-SW032511	gross_alpha	Suspended	0.96	0.67	0.28	0.35
EPASW20	EPASW20-SW032511	gross_alpha	Total	2.03	NA	0.4	0
EPASW20	EPASW20-SW032511	gross_beta	Filtered	3.08	1.2	0.47	0.69
EPASW20	EPASW20-SW032511	gross_beta	Suspended	0.15 U	0.71	0.21	0.42
EPASW20	EPASW20-SW032511	gross_beta	Total	3.24	NA	0.52	0
EPASW20	EPASW20-SW032511	H-3_Total	Total	61	73	23	34
EPASW20	EPASW20-SW032511	Ho-166m	Filtered	0.36 U	1.9	0.55	0.88
EPASW20	EPASW20-SW032511	Ho-166m	Suspended	0.19 U	1.2	0.36	0.59
EPASW20	EPASW20-SW032511	Ho-166m	Total	0.55	NA	0.66	0
EPASW20	EPASW20-SW032511	K-40	Filtered	20.5	22	7.7	10
EPASW20	EPASW20-SW032511	K-40	Suspended	8.9	10	3.6	4.9
EPASW20	EPASW20-SW032511	K-40	Total	29.5	NA	8.5	0
EPASW20	EPASW20-SW032511	Na-22	Filtered	0 U	2.8	0.79	1.3
EPASW20	EPASW20-SW032511	Na-22	Suspended	-0.05 U	0.87	0.25	0.41
EPASW20	EPASW20-SW032511	Na-22	Total	-0.05	NA	0.83	0
EPASW20	EPASW20-SW032511	Nb-94	Filtered	0.31 U	1.5	0.43	0.7
EPASW20	EPASW20-SW032511	Nb-94	Suspended	-0.01 U	0.66	0.19	0.32
EPASW20	EPASW20-SW032511	Nb-94	Total	0.29	NA	0.47	0
EPASW20	EPASW20-SW032511	Np-236	Filtered	-0.6 U	3.4	1	1.7
EPASW20	EPASW20-SW032511	Np-236	Suspended	-0.31 U	1.3	0.39	0.64
EPASW20	EPASW20-SW032511	Np-236	Total	-0.9	NA	1.1	0
EPASW20	EPASW20-SW032511	Np-239	Filtered	-0.2 U	10	3	5
EPASW20	EPASW20-SW032511	Np-239	Suspended	-0.6 U	4.1	1.2	2
EPASW20	EPASW20-SW032511	Np-239	Total	-0.8	NA	3.2	0
EPASW20	EPASW20-SW032511	Pa-231	Filtered	9 U	68	20	33

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW20	EPASW20-SW032511	Pa-231	Suspended	-1 U	27	7.9	13
EPASW20	EPASW20-SW032511	Pa-231	Total	8	NA	22	0
EPASW20	EPASW20-SW032511	Pb-212	Filtered	1.6 K	3.1	1.1	1.5
EPASW20	EPASW20-SW032511	Pb-212	Suspended	0.81	1.2	0.45	0.6
EPASW20	EPASW20-SW032511	Pb-212	Total	2.4	NA	1.2	0
EPASW20	EPASW20-SW032511	Pb-214	Filtered	0.5 U	3.3	1.2	1.6
EPASW20	EPASW20-SW032511	Pb-214	Suspended	2.12	1.6	0.66	0.79
EPASW20	EPASW20-SW032511	Pb-214	Total	2.6	NA	1.3	0
EPASW20	EPASW20-SW032511	Sb-125	Filtered	0.06 U	17	4.9	8
EPASW20	EPASW20-SW032511	Sb-125	Suspended	-0.03 U	6.2	1.8	3
EPASW20	EPASW20-SW032511	Sb-125	Total	0.02	NA	5.2	0
EPASW20	EPASW20-SW032511	Sn-126	Filtered	0.56 U	1.7	0.5	0.79
EPASW20	EPASW20-SW032511	Sn-126	Suspended	0.3 U	0.87	0.26	0.41
EPASW20	EPASW20-SW032511	Sn-126	Total	0.86	NA	0.57	0
EPASW20	EPASW20-SW032511	Sr-90	Filtered	0.085	0.14	0.043	0.079
EPASW20	EPASW20-SW032511	Sr-90	Suspended	0.025 U	0.12	0.036	0.069
EPASW20	EPASW20-SW032511	Sr-90	Total	0.111	NA	0.056	0
EPASW20	EPASW20-SW032511	Te-125m	Filtered	0.01 U	3.8	1.1	1.9
EPASW20	EPASW20-SW032511	Te-125m	Suspended	-0.008 U	1.4	0.42	0.7
EPASW20	EPASW20-SW032511	Te-125m	Total	0.006	NA	1.2	0
EPASW20	EPASW20-SW032511	Th-231	Filtered	0.0197	0.0089	0.0081	0.0076
EPASW20	EPASW20-SW032511	Th-231	Suspended	0.0047 U	0.0064	0.0033	0.0055
EPASW20	EPASW20-SW032511	Th-231	Total	0.0244	NA	0.0087	0
EPASW20	EPASW20-SW032511	Th-234	Filtered	12.3 U	27	9.1	13
EPASW20	EPASW20-SW032511	Th-234	Suspended	0.1 U	7.9	2.5	3.8
EPASW20	EPASW20-SW032511	Th-234	Total	12.4	NA	9.5	0
EPASW20	EPASW20-SW032511	Tl-208	Filtered	0.23 U	1.7	0.54	0.8
EPASW20	EPASW20-SW032511	Tl-208	Suspended	0.77	0.79	0.33	0.38
EPASW20	EPASW20-SW032511	Tl-208	Total	0.99	NA	0.63	0
EPASW20	EPASW20-SW032511	Tm-171	Filtered	100 U	470	140	230

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW20	EPASW20-SW032511	Tm-171	Suspended	36 U	120	36	59
EPASW20	EPASW20-SW032511	Tm-171	Total	140	NA	140	0
EPASW20	EPASW20-SW032511	U-233/234	Filtered	0.34	0.01	0.03	0.01
EPASW20	EPASW20-SW032511	U-233/234	Suspended	0.01	0.02	0.01	0.01
EPASW20	EPASW20-SW032511	U-233/234	Total	0.35	NA	0.03	0
EPASW20	EPASW20-SW032511	U-235/236	Filtered	0.02	0.01	0.01	0.01
EPASW20	EPASW20-SW032511	U-235/236	Suspended	0 U	0.01	0	0
EPASW20	EPASW20-SW032511	U-235/236	Total	0.02	NA	0.01	0
EPASW20	EPASW20-SW032511	U-238	Filtered	0.28	0.02	0.03	0.01
EPASW20	EPASW20-SW032511	U-238	Suspended	0.01	0.01	0.01	0
EPASW20	EPASW20-SW032511	U-238	Total	0.29	NA	0.03	0
EPASW21	EPASW21-SW032511	Ac-227	Filtered	-4.8 UL	9.3	2.8	4.6
EPASW21	EPASW21-SW032511	Ac-227	Suspended	0.1 U	3.5	1	1.7
EPASW21	EPASW21-SW032511	Ac-227	Total	-4.7	NA	3	0
EPASW21	EPASW21-SW032511	Ac-228	Filtered	3	3.4	1.1	1.6
EPASW21	EPASW21-SW032511	Ac-228	Suspended	1.01	1.8	0.54	0.82
EPASW21	EPASW21-SW032511	Ac-228	Total	4	NA	1.2	0
EPASW21	EPASW21-SW032511	Ag-108	Filtered	0.016 U	0.075	0.022	0.036
EPASW21	EPASW21-SW032511	Ag-108	Suspended	-0.006 U	0.037	0.011	0.018
EPASW21	EPASW21-SW032511	Ag-108	Total	0.01	NA	0.025	0
EPASW21	EPASW21-SW032511	Ag-108m	Filtered	0.17 U	0.8	0.24	0.38
EPASW21	EPASW21-SW032511	Ag-108m	Suspended	-0.06 U	0.4	0.12	0.19
EPASW21	EPASW21-SW032511	Ag-108m	Total	0.11	NA	0.26	0
EPASW21	EPASW21-SW032511	Ba-133	Filtered	-0.5 U	12	3.4	5.6
EPASW21	EPASW21-SW032511	Ba-133	Suspended	-0.8 U	4.7	1.4	2.3
EPASW21	EPASW21-SW032511	Ba-133	Total	-1.3	NA	3.7	0
EPASW21	EPASW21-SW032511	Ba-137m	Filtered	0.34 U	1	0.31	0.49
EPASW21	EPASW21-SW032511	Ba-137m	Suspended	0 U	0.59	0.17	0.28
EPASW21	EPASW21-SW032511	Ba-137m	Total	0.34	NA	0.35	0
EPASW21	EPASW21-SW032511	Bi-212	Filtered	4.2	8.6	2.6	4

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW21	EPASW21-SW032511	Bi-212	Suspended	0.8 U	4.1	1.2	1.9
EPASW21	EPASW21-SW032511	Bi-212	Total	5	NA	2.9	0
EPASW21	EPASW21-SW032511	Bi-214	Filtered	1.51	2.7	0.93	1.3
EPASW21	EPASW21-SW032511	Bi-214	Suspended	0.74	1.4	0.62	0.7
EPASW21	EPASW21-SW032511	Bi-214	Total	2.3	NA	1.1	0
EPASW21	EPASW21-SW032511	Cd-113m	Filtered	-900 U	14000	4200	6900
EPASW21	EPASW21-SW032511	Cd-113m	Suspended	500 U	5300	1600	2600
EPASW21	EPASW21-SW032511	Cd-113m	Total	-400	NA	4500	0
EPASW21	EPASW21-SW032511	Cf-249	Filtered	-0.4 U	5.5	1.6	2.7
EPASW21	EPASW21-SW032511	Cf-249	Suspended	0.02 U	2.4	0.69	1.1
EPASW21	EPASW21-SW032511	Cf-249	Total	-0.4	NA	1.8	0
EPASW21	EPASW21-SW032511	Co-60	Filtered	0.005 U	1.2	0.33	0.54
EPASW21	EPASW21-SW032511	Co-60	Suspended	-0.03 U	0.57	0.16	0.26
EPASW21	EPASW21-SW032511	Co-60	Total	-0.03	NA	0.37	0
EPASW21	EPASW21-SW032511	Cs-134	Filtered	-0.56 U	1.2	0.38	0.6
EPASW21	EPASW21-SW032511	Cs-134	Suspended	-0.12 UJ	0.66	0.2	0.32
EPASW21	EPASW21-SW032511	Cs-134	Total	-0.67	NA	0.43	0
EPASW21	EPASW21-SW032511	Cs-137	Filtered	0.36 U	1.1	0.33	0.52
EPASW21	EPASW21-SW032511	Cs-137	Suspended	0 U	0.63	0.18	0.3
EPASW21	EPASW21-SW032511	Cs-137	Total	0.36	NA	0.37	0
EPASW21	EPASW21-SW032511	Eu-152	Filtered	0.7 U	3.4	1	1.6
EPASW21	EPASW21-SW032511	Eu-152	Suspended	-0.31 U	1.4	0.42	0.68
EPASW21	EPASW21-SW032511	Eu-152	Total	0.4	NA	1.1	0
EPASW21	EPASW21-SW032511	Eu-154	Filtered	-0.4 U	9.2	2.6	4.3
EPASW21	EPASW21-SW032511	Eu-154	Suspended	0.7 U	3.7	1.1	1.7
EPASW21	EPASW21-SW032511	Eu-154	Total	0.3	NA	2.8	0
EPASW21	EPASW21-SW032511	Eu-155	Filtered	-0.57 U	2.9	0.88	1.4
EPASW21	EPASW21-SW032511	Eu-155	Suspended	-0.01 U	0.88	0.26	0.43
EPASW21	EPASW21-SW032511	Eu-155	Total	-0.58	NA	0.91	0
EPASW21	EPASW21-SW032511	gross_alpha	Filtered	0.36	0.62	0.2	0.34

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW21	EPASW21-SW032511	gross_alpha	Suspended	1.24	0.74	0.33	0.39
EPASW21	EPASW21-SW032511	gross_alpha	Total	1.61	NA	0.38	0
EPASW21	EPASW21-SW032511	gross_beta	Filtered	1.67	1.3	0.45	0.79
EPASW21	EPASW21-SW032511	gross_beta	Suspended	0.57	0.7	0.23	0.41
EPASW21	EPASW21-SW032511	gross_beta	Total	2.24	NA	0.51	0
EPASW21	EPASW21-SW032511	H-3_Total	Total	-3	75	21	35
EPASW21	EPASW21-SW032511	Ho-166m	Filtered	-0.6 U	1.9	0.58	0.92
EPASW21	EPASW21-SW032511	Ho-166m	Suspended	0.18 U	0.68	0.2	0.32
EPASW21	EPASW21-SW032511	Ho-166m	Total	-0.42	NA	0.61	0
EPASW21	EPASW21-SW032511	K-40	Filtered	7.9 U	18	5.4	8.6
EPASW21	EPASW21-SW032511	K-40	Suspended	-3.6 U	9.1	3.7	4.3
EPASW21	EPASW21-SW032511	K-40	Total	4.3	NA	6.5	0
EPASW21	EPASW21-SW032511	Na-22	Filtered	0 U	1.7	0.5	0.82
EPASW21	EPASW21-SW032511	Na-22	Suspended	-0.15 U	0.62	0.18	0.29
EPASW21	EPASW21-SW032511	Na-22	Total	-0.15	NA	0.53	0
EPASW21	EPASW21-SW032511	Nb-94	Filtered	-0.003 U	1.1	0.32	0.53
EPASW21	EPASW21-SW032511	Nb-94	Suspended	-0.16 U	0.57	0.17	0.27
EPASW21	EPASW21-SW032511	Nb-94	Total	-0.17	NA	0.36	0
EPASW21	EPASW21-SW032511	Np-236	Filtered	-0.31 U	2.5	0.74	1.2
EPASW21	EPASW21-SW032511	Np-236	Suspended	0.41 U	0.95	0.29	0.46
EPASW21	EPASW21-SW032511	Np-236	Total	0.1	NA	0.8	0
EPASW21	EPASW21-SW032511	Np-239	Filtered	-0.7 U	7	2.1	3.4
EPASW21	EPASW21-SW032511	Np-239	Suspended	-0.0009 U	3.1	0.91	1.5
EPASW21	EPASW21-SW032511	Np-239	Total	-0.7	NA	2.3	0
EPASW21	EPASW21-SW032511	Pa-231	Filtered	20 U	45	14	22
EPASW21	EPASW21-SW032511	Pa-231	Suspended	3.2 U	20	6.1	9.9
EPASW21	EPASW21-SW032511	Pa-231	Total	23	NA	15	0
EPASW21	EPASW21-SW032511	Pb-212	Filtered	0.84 U	2.5	0.85	1.2
EPASW21	EPASW21-SW032511	Pb-212	Suspended	0.33	0.66	0.22	0.32
EPASW21	EPASW21-SW032511	Pb-212	Total	1.17	NA	0.88	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW21	EPASW21-SW032511	Pb-214	Filtered	0.13 U	2.8	0.77	1.4
EPASW21	EPASW21-SW032511	Pb-214	Suspended	0.24 U	1.2	0.32	0.56
EPASW21	EPASW21-SW032511	Pb-214	Total	0.37	NA	0.83	0
EPASW21	EPASW21-SW032511	Sb-125	Filtered	-0.3 U	12	3.6	6
EPASW21	EPASW21-SW032511	Sb-125	Suspended	0.5 U	4.6	1.4	2.2
EPASW21	EPASW21-SW032511	Sb-125	Total	0.3	NA	3.9	0
EPASW21	EPASW21-SW032511	Sn-126	Filtered	0.23 U	1.2	0.37	0.59
EPASW21	EPASW21-SW032511	Sn-126	Suspended	0.29	0.55	0.17	0.26
EPASW21	EPASW21-SW032511	Sn-126	Total	0.52	NA	0.4	0
EPASW21	EPASW21-SW032511	Sr-90	Filtered	0.019 U	0.19	0.055	0.11
EPASW21	EPASW21-SW032511	Sr-90	Suspended	0.019 U	0.11	0.033	0.064
EPASW21	EPASW21-SW032511	Sr-90	Total	0.038	NA	0.065	0
EPASW21	EPASW21-SW032511	Te-125m	Filtered	-0.07 U	2.8	0.84	1.4
EPASW21	EPASW21-SW032511	Te-125m	Suspended	0.12 U	1.1	0.32	0.52
EPASW21	EPASW21-SW032511	Te-125m	Total	0.06	NA	0.89	0
EPASW21	EPASW21-SW032511	Th-231	Filtered	0.0107	0.0072	0.0054	0.0062
EPASW21	EPASW21-SW032511	Th-231	Suspended	0.0023 U	0.0063	0.0023	0.0054
EPASW21	EPASW21-SW032511	Th-231	Total	0.013	NA	0.0058	0
EPASW21	EPASW21-SW032511	Th-234	Filtered	-12 U	24	12	12
EPASW21	EPASW21-SW032511	Th-234	Suspended	0.5 U	5.1	1.5	2.5
EPASW21	EPASW21-SW032511	Th-234	Total	-12	NA	12	0
EPASW21	EPASW21-SW032511	Tl-208	Filtered	0.99	1.3	0.48	0.62
EPASW21	EPASW21-SW032511	Tl-208	Suspended	-0.01 U	0.63	0.18	0.3
EPASW21	EPASW21-SW032511	Tl-208	Total	0.98	NA	0.51	0
EPASW21	EPASW21-SW032511	Tm-171	Filtered	-150 U	350	110	170
EPASW21	EPASW21-SW032511	Tm-171	Suspended	25 U	84	25	41
EPASW21	EPASW21-SW032511	Tm-171	Total	-120	NA	110	0
EPASW21	EPASW21-SW032511	U-233/234	Filtered	0.23	0.01	0.03	0
EPASW21	EPASW21-SW032511	U-233/234	Suspended	0 U	0.01	0	0
EPASW21	EPASW21-SW032511	U-233/234	Total	0.23	NA	0.03	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW21	EPASW21-SW032511	U-235/236	Filtered	0.01	0.01	0.01	0.01
EPASW21	EPASW21-SW032511	U-235/236	Suspended	0 U	0.01	0	0
EPASW21	EPASW21-SW032511	U-235/236	Total	0.01	NA	0.01	0
EPASW21	EPASW21-SW032511	U-238	Filtered	0.19	0.01	0.02	0
EPASW21	EPASW21-SW032511	U-238	Suspended	0 U	0.01	0	0
EPASW21	EPASW21-SW032511	U-238	Total	0.19	NA	0.02	0
EPASW22	EPASW22-SW032211	Ac-227	Filtered	0.2 U	11	3.4	5.6
EPASW22	EPASW22-SW032211	Ac-227	Suspended	0.55 U	1.8	0.54	0.86
EPASW22	EPASW22-SW032211	Ac-227	Total	0.8	NA	3.5	0
EPASW22	EPASW22-SW032211	Ac-228	Filtered	1.24 U	3.2	0.95	1.5
EPASW22	EPASW22-SW032211	Ac-228	Suspended	0.62 U	2	0.58	0.92
EPASW22	EPASW22-SW032211	Ac-228	Total	1.9	NA	1.1	0
EPASW22	EPASW22-SW032211	Ag-108	Filtered	-0.026 U	0.092	0.027	0.044
EPASW22	EPASW22-SW032211	Ag-108	Suspended	0.0065 U	0.029	0.0086	0.014
EPASW22	EPASW22-SW032211	Ag-108	Total	-0.02	NA	0.029	0
EPASW22	EPASW22-SW032211	Ag-108m	Filtered	-0.28 U	0.99	0.3	0.47
EPASW22	EPASW22-SW032211	Ag-108m	Suspended	0.07 U	0.32	0.093	0.15
EPASW22	EPASW22-SW032211	Ag-108m	Total	-0.21	NA	0.31	0
EPASW22	EPASW22-SW032211	Ba-133	Filtered	-0.07 U	11	3.4	5.6
EPASW22	EPASW22-SW032211	Ba-133	Suspended	-0.03 U	3.5	1	1.7
EPASW22	EPASW22-SW032211	Ba-133	Total	-0.1	NA	3.5	0
EPASW22	EPASW22-SW032211	Ba-137m	Filtered	0.05 U	1.1	0.33	0.55
EPASW22	EPASW22-SW032211	Ba-137m	Suspended	0.08 U	0.48	0.14	0.22
EPASW22	EPASW22-SW032211	Ba-137m	Total	0.13	NA	0.36	0
EPASW22	EPASW22-SW032211	Bi-212	Filtered	-2.2 U	9.9	7.6	4.7
EPASW22	EPASW22-SW032211	Bi-212	Suspended	1.8	3.5	1.1	1.6
EPASW22	EPASW22-SW032211	Bi-212	Total	-0.4	NA	7.7	0
EPASW22	EPASW22-SW032211	Bi-214	Filtered	0.5 U	2.8	1.1	1.4
EPASW22	EPASW22-SW032211	Bi-214	Suspended	0.68	0.97	0.3	0.46
EPASW22	EPASW22-SW032211	Bi-214	Total	1.2	NA	1.1	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW22	EPASW22-SW032211	Cd-113m	Filtered	-3700 U	13000	3800	6200
EPASW22	EPASW22-SW032211	Cd-113m	Suspended	1600 U	4200	1300	2000
EPASW22	EPASW22-SW032211	Cd-113m	Total	-2100	NA	4000	0
EPASW22	EPASW22-SW032211	Cf-249	Filtered	-1.4 U	5.4	1.6	2.6
EPASW22	EPASW22-SW032211	Cf-249	Suspended	0.004 U	1.8	0.52	0.85
EPASW22	EPASW22-SW032211	Cf-249	Total	-1.4	NA	1.7	0
EPASW22	EPASW22-SW032211	Co-60	Filtered	0.18 U	1.1	0.31	0.49
EPASW22	EPASW22-SW032211	Co-60	Suspended	0.06 U	0.63	0.18	0.29
EPASW22	EPASW22-SW032211	Co-60	Total	0.24	NA	0.36	0
EPASW22	EPASW22-SW032211	Cs-134	Filtered	-0.21 U	1.2	0.35	0.57
EPASW22	EPASW22-SW032211	Cs-134	Suspended	0.02 U	0.48	0.14	0.23
EPASW22	EPASW22-SW032211	Cs-134	Total	-0.19	NA	0.38	0
EPASW22	EPASW22-SW032211	Cs-137	Filtered	0.06 U	1.2	0.35	0.58
EPASW22	EPASW22-SW032211	Cs-137	Suspended	0.08 U	0.5	0.15	0.24
EPASW22	EPASW22-SW032211	Cs-137	Total	0.14	NA	0.38	0
EPASW22	EPASW22-SW032211	Eu-152	Filtered	0.86 U	3	0.91	1.5
EPASW22	EPASW22-SW032211	Eu-152	Suspended	-0.22 U	1.2	0.36	0.57
EPASW22	EPASW22-SW032211	Eu-152	Total	0.65	NA	0.98	0
EPASW22	EPASW22-SW032211	Eu-154	Filtered	2.9 U	8.6	2.6	4.1
EPASW22	EPASW22-SW032211	Eu-154	Suspended	-0.29 U	3.5	0.98	1.6
EPASW22	EPASW22-SW032211	Eu-154	Total	2.7	NA	2.8	0
EPASW22	EPASW22-SW032211	Eu-155	Filtered	0.1 U	2.9	0.85	1.4
EPASW22	EPASW22-SW032211	Eu-155	Suspended	0.12 U	0.6	0.18	0.29
EPASW22	EPASW22-SW032211	Eu-155	Total	0.22	NA	0.87	0
EPASW22	EPASW22-SW032211	gross_alpha	Filtered	0.72	0.3	0.17	0.14
EPASW22	EPASW22-SW032211	gross_alpha	Suspended	0.3 J	0.46	0.15	0.25
EPASW22	EPASW22-SW032211	gross_alpha	Total	1.02	NA	0.22	0
EPASW22	EPASW22-SW032211	gross_beta	Filtered	2.54	1.1	0.44	0.62
EPASW22	EPASW22-SW032211	gross_beta	Suspended	0.43 U	0.84	0.27	0.49
EPASW22	EPASW22-SW032211	gross_beta	Total	2.97	NA	0.51	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW22	EPASW22-SW032211	H-3	Total	-8	57	16	27
EPASW22	EPASW22-SW032211	Ho-166m	Filtered	-0.38 U	2	0.59	0.95
EPASW22	EPASW22-SW032211	Ho-166m	Suspended	-0.28 U	0.96	0.28	0.45
EPASW22	EPASW22-SW032211	Ho-166m	Total	-0.66	NA	0.65	0
EPASW22	EPASW22-SW032211	K-40	Filtered	-12.1 UL	17	9.5	7.9
EPASW22	EPASW22-SW032211	K-40	Suspended	2.6 U	6.6	1.9	3
EPASW22	EPASW22-SW032211	K-40	Total	-9.5	NA	9.7	0
EPASW22	EPASW22-SW032211	Na-22	Filtered	0.06 U	1.1	0.3	0.49
EPASW22	EPASW22-SW032211	Na-22	Suspended	0.03 U	0.6	0.17	0.27
EPASW22	EPASW22-SW032211	Na-22	Total	0.1	NA	0.34	0
EPASW22	EPASW22-SW032211	Nb-94	Filtered	0.07 U	0.84	0.24	0.39
EPASW22	EPASW22-SW032211	Nb-94	Suspended	0 U	0.59	0.17	0.28
EPASW22	EPASW22-SW032211	Nb-94	Total	0.07	NA	0.3	0
EPASW22	EPASW22-SW032211	Np-236	Filtered	0.08 U	2.6	0.78	1.3
EPASW22	EPASW22-SW032211	Np-236	Suspended	0.15 U	0.64	0.19	0.31
EPASW22	EPASW22-SW032211	Np-236	Total	0.23	NA	0.81	0
EPASW22	EPASW22-SW032211	Np-239	Filtered	-1.6 U	7.4	2.2	3.6
EPASW22	EPASW22-SW032211	Np-239	Suspended	-0.23 U	2.5	0.74	1.2
EPASW22	EPASW22-SW032211	Np-239	Total	-1.9	NA	2.3	0
EPASW22	EPASW22-SW032211	Pa-231	Filtered	10 U	48	14	23
EPASW22	EPASW22-SW032211	Pa-231	Suspended	1.9 U	16	4.6	7.5
EPASW22	EPASW22-SW032211	Pa-231	Total	11	NA	15	0
EPASW22	EPASW22-SW032211	Pb-212	Filtered	0.86 U	2.5	0.87	1.2
EPASW22	EPASW22-SW032211	Pb-212	Suspended	0.42	0.67	0.23	0.32
EPASW22	EPASW22-SW032211	Pb-212	Total	1.28	NA	0.9	0
EPASW22	EPASW22-SW032211	Pb-214	Filtered	0.21 U	2.3	0.79	1.1
EPASW22	EPASW22-SW032211	Pb-214	Suspended	0.16 U	0.88	0.25	0.42
EPASW22	EPASW22-SW032211	Pb-214	Total	0.37	NA	0.82	0
EPASW22	EPASW22-SW032211	Sb-125	Filtered	1.8 U	12	3.5	5.7
EPASW22	EPASW22-SW032211	Sb-125	Suspended	0.42 U	3.3	0.96	1.6

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW22	EPASW22-SW032211	Sb-125	Total	2.2	NA	3.6	0
EPASW22	EPASW22-SW032211	Sn-126	Filtered	0.06 U	1.3	0.37	0.61
EPASW22	EPASW22-SW032211	Sn-126	Suspended	0 U	0.67	0.19	0.32
EPASW22	EPASW22-SW032211	Sn-126	Total	0.06	NA	0.42	0
EPASW22	EPASW22-SW032211	Sr-90	Filtered	0.04 U	0.35	0.098	0.2
EPASW22	EPASW22-SW032211	Sr-90	Suspended	0.113	0.11	0.036	0.058
EPASW22	EPASW22-SW032211	Sr-90	Total	0.15	NA	0.1	0
EPASW22	EPASW22-SW032211	Te-125m	Filtered	0.42 U	2.7	0.8	1.3
EPASW22	EPASW22-SW032211	Te-125m	Suspended	0.1 U	0.76	0.22	0.36
EPASW22	EPASW22-SW032211	Te-125m	Total	0.51	NA	0.83	0
EPASW22	EPASW22-SW032211	Th-231	Filtered	0.0051 U	0.0069	0.0036	0.0059
EPASW22	EPASW22-SW032211	Th-231	Suspended	0.0049 U	0.0066	0.0034	0.0056
EPASW22	EPASW22-SW032211	Th-231	Total	0.0099	NA	0.005	0
EPASW22	EPASW22-SW032211	Th-234	Filtered	-4 U	23	9.5	11
EPASW22	EPASW22-SW032211	Th-234	Suspended	0.3 U	5.2	1.7	2.6
EPASW22	EPASW22-SW032211	Th-234	Total	-3.6	NA	9.6	0
EPASW22	EPASW22-SW032211	Tl-208	Filtered	0.43 U	1.2	0.37	0.58
EPASW22	EPASW22-SW032211	Tl-208	Suspended	-0.06 U	0.58	0.23	0.28
EPASW22	EPASW22-SW032211	Tl-208	Total	0.37	NA	0.43	0
EPASW22	EPASW22-SW032211	Tm-171	Filtered	200	330	100	160
EPASW22	EPASW22-SW032211	Tm-171	Suspended	8 U	66	19	32
EPASW22	EPASW22-SW032211	Tm-171	Total	210	NA	100	0
EPASW22	EPASW22-SW032211	U-233/234	Filtered	0.09	0.01	0.02	0
EPASW22	EPASW22-SW032211	U-233/234	Suspended	0.03	0.02	0.01	0.01
EPASW22	EPASW22-SW032211	U-233/234	Total	0.12	NA	0.02	0
EPASW22	EPASW22-SW032211	U-235/236	Filtered	0.01 U	0.01	0	0.01
EPASW22	EPASW22-SW032211	U-235/236	Suspended	0 U	0.01	0	0.01
EPASW22	EPASW22-SW032211	U-235/236	Total	0.01	NA	0.01	0
EPASW22	EPASW22-SW032211	U-238	Filtered	0.06	0.01	0.01	0
EPASW22	EPASW22-SW032211	U-238	Suspended	0.03	0.01	0.01	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW22	EPASW22-SW032211	U-238	Total	0.09	NA	0.02	0
EPASW23	EPASW23-SW032511	Ac-227	Filtered	-6 UL	9.5	2.9	4.6
EPASW23	EPASW23-SW032511	Ac-227	Suspended	0.9 U	4.1	1.2	2
EPASW23	EPASW23-SW032511	Ac-227	Total	-5.1	NA	3.2	0
EPASW23	EPASW23-SW032511	Ac-228	Filtered	3.8	4.6	1.5	2.1
EPASW23	EPASW23-SW032511	Ac-228	Suspended	-1 U	3.1	1.5	1.5
EPASW23	EPASW23-SW032511	Ac-228	Total	2.8	NA	2.1	0
EPASW23	EPASW23-SW032511	Ag-108	Filtered	-0.0001 U	0.1	0.028	0.047
EPASW23	EPASW23-SW032511	Ag-108	Suspended	0.0005 U	0.05	0.015	0.024
EPASW23	EPASW23-SW032511	Ag-108	Total	0.0003	NA	0.032	0
EPASW23	EPASW23-SW032511	Ag-108m	Filtered	-0.001 U	1.1	0.31	0.5
EPASW23	EPASW23-SW032511	Ag-108m	Suspended	0.005 U	0.54	0.16	0.26
EPASW23	EPASW23-SW032511	Ag-108m	Total	0.003	NA	0.34	0
EPASW23	EPASW23-SW032511	Ba-133	Filtered	0.4 U	12	3.4	5.6
EPASW23	EPASW23-SW032511	Ba-133	Suspended	-0.7 U	6	1.8	2.9
EPASW23	EPASW23-SW032511	Ba-133	Total	-0.4	NA	3.8	0
EPASW23	EPASW23-SW032511	Ba-137m	Filtered	0.16 U	1.4	0.41	0.67
EPASW23	EPASW23-SW032511	Ba-137m	Suspended	0.21 U	0.68	0.2	0.32
EPASW23	EPASW23-SW032511	Ba-137m	Total	0.36	NA	0.46	0
EPASW23	EPASW23-SW032511	Bi-212	Filtered	0.4 U	12	3.4	5.6
EPASW23	EPASW23-SW032511	Bi-212	Suspended	1.7 U	6.1	1.8	2.9
EPASW23	EPASW23-SW032511	Bi-212	Total	2.1	NA	3.9	0
EPASW23	EPASW23-SW032511	Bi-214	Filtered	3.2	3	1.1	1.4
EPASW23	EPASW23-SW032511	Bi-214	Suspended	1.88	1.5	0.57	0.72
EPASW23	EPASW23-SW032511	Bi-214	Total	5.1	NA	1.3	0
EPASW23	EPASW23-SW032511	Cd-113m	Filtered	4500 U	14000	4300	6800
EPASW23	EPASW23-SW032511	Cd-113m	Suspended	1500 U	6500	1900	3100
EPASW23	EPASW23-SW032511	Cd-113m	Total	6000	NA	4700	0
EPASW23	EPASW23-SW032511	Cf-249	Filtered	0.07 U	6.4	1.8	3
EPASW23	EPASW23-SW032511	Cf-249	Suspended	-0.5 U	3.2	0.94	1.5

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW23	EPASW23-SW032511	Cf-249	Total	-0.4	NA	2.1	0
EPASW23	EPASW23-SW032511	Co-60	Filtered	0.13 U	1.8	0.5	0.81
EPASW23	EPASW23-SW032511	Co-60	Suspended	0.05 U	0.78	0.22	0.36
EPASW23	EPASW23-SW032511	Co-60	Total	0.18	NA	0.55	0
EPASW23	EPASW23-SW032511	Cs-134	Filtered	-0.44 U	1.4	0.42	0.66
EPASW23	EPASW23-SW032511	Cs-134	Suspended	-0.12 UJ	0.6	0.18	0.29
EPASW23	EPASW23-SW032511	Cs-134	Total	-0.56	NA	0.45	0
EPASW23	EPASW23-SW032511	Cs-137	Filtered	0.17 U	1.5	0.44	0.71
EPASW23	EPASW23-SW032511	Cs-137	Suspended	0.22 U	0.71	0.21	0.34
EPASW23	EPASW23-SW032511	Cs-137	Total	0.38	NA	0.49	0
EPASW23	EPASW23-SW032511	Eu-152	Filtered	0.1 U	4.1	1.2	1.9
EPASW23	EPASW23-SW032511	Eu-152	Suspended	0.02 U	1.6	0.46	0.75
EPASW23	EPASW23-SW032511	Eu-152	Total	0.1	NA	1.3	0
EPASW23	EPASW23-SW032511	Eu-154	Filtered	0.09 U	11	3	5
EPASW23	EPASW23-SW032511	Eu-154	Suspended	-1.1 U	6.1	1.8	2.9
EPASW23	EPASW23-SW032511	Eu-154	Total	-1	NA	3.5	0
EPASW23	EPASW23-SW032511	Eu-155	Filtered	-0.01 U	3.1	0.92	1.5
EPASW23	EPASW23-SW032511	Eu-155	Suspended	0.35 U	1.3	0.39	0.64
EPASW23	EPASW23-SW032511	Eu-155	Total	0.341	NA	0.999	0
EPASW23	EPASW23-SW032511	gross_alpha	Filtered	2.57	1.4	0.59	0.75
EPASW23	EPASW23-SW032511	gross_alpha	Suspended	0.9	0.73	0.29	0.38
EPASW23	EPASW23-SW032511	gross_alpha	Total	3.47	NA	0.66	0
EPASW23	EPASW23-SW032511	gross_beta	Filtered	1.28	1	0.35	0.59
EPASW23	EPASW23-SW032511	gross_beta	Suspended	0.86	0.82	0.28	0.49
EPASW23	EPASW23-SW032511	gross_beta	Total	2.14	NA	0.45	0
EPASW23	EPASW23-SW032511	H-3_Total	Total	138	71	25	34
EPASW23	EPASW23-SW032511	Ho-166m	Filtered	0.46 U	2.3	0.67	1.1
EPASW23	EPASW23-SW032511	Ho-166m	Suspended	-0.3 U	1.2	0.36	0.58
EPASW23	EPASW23-SW032511	Ho-166m	Total	0.16	NA	0.76	0
EPASW23	EPASW23-SW032511	K-40	Filtered	-7 U	24	12	11

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW23	EPASW23-SW032511	K-40	Suspended	-8.1 UL	13	4.9	6.2
EPASW23	EPASW23-SW032511	K-40	Total	-15	NA	13	0
EPASW23	EPASW23-SW032511	Na-22	Filtered	0 U	2.2	0.62	1
EPASW23	EPASW23-SW032511	Na-22	Suspended	0.08 U	0.72	0.21	0.33
EPASW23	EPASW23-SW032511	Na-22	Total	0.08	NA	0.65	0
EPASW23	EPASW23-SW032511	Nb-94	Filtered	-0.24 U	1.3	0.39	0.63
EPASW23	EPASW23-SW032511	Nb-94	Suspended	-0.06 U	0.73	0.21	0.35
EPASW23	EPASW23-SW032511	Nb-94	Total	-0.3	NA	0.45	0
EPASW23	EPASW23-SW032511	Np-236	Filtered	0.21 U	2.2	0.63	1
EPASW23	EPASW23-SW032511	Np-236	Suspended	-0.17 U	1	0.31	0.5
EPASW23	EPASW23-SW032511	Np-236	Total	0.03	NA	0.7	0
EPASW23	EPASW23-SW032511	Np-239	Filtered	0 U	9.9	2.9	4.8
EPASW23	EPASW23-SW032511	Np-239	Suspended	0.01 U	3.3	0.97	1.6
EPASW23	EPASW23-SW032511	Np-239	Total	0.01	NA	3.1	0
EPASW23	EPASW23-SW032511	Pa-231	Filtered	20 U	61	18	29
EPASW23	EPASW23-SW032511	Pa-231	Suspended	0.8 U	27	7.8	13
EPASW23	EPASW23-SW032511	Pa-231	Total	21	NA	20	0
EPASW23	EPASW23-SW032511	Pb-212	Filtered	0.62 U	2.3	0.71	1.1
EPASW23	EPASW23-SW032511	Pb-212	Suspended	0.53 U	1.1	0.39	0.55
EPASW23	EPASW23-SW032511	Pb-212	Total	1.15	NA	0.81	0
EPASW23	EPASW23-SW032511	Pb-214	Filtered	4	3.3	1.3	1.6
EPASW23	EPASW23-SW032511	Pb-214	Suspended	2.18	1.3	0.49	0.61
EPASW23	EPASW23-SW032511	Pb-214	Total	6.2	NA	1.4	0
EPASW23	EPASW23-SW032511	Sb-125	Filtered	-1.8 U	14	4	6.6
EPASW23	EPASW23-SW032511	Sb-125	Suspended	-0.6 U	5.8	1.7	2.8
EPASW23	EPASW23-SW032511	Sb-125	Total	-2.5	NA	4.4	0
EPASW23	EPASW23-SW032511	Sn-126	Filtered	0 U	2.1	0.61	1
EPASW23	EPASW23-SW032511	Sn-126	Suspended	0.32 U	0.78	0.23	0.37
EPASW23	EPASW23-SW032511	Sn-126	Total	0.32	NA	0.65	0
EPASW23	EPASW23-SW032511	Sr-90	Filtered	-0.055 U	0.3	0.085	0.17

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW23	EPASW23-SW032511	Sr-90	Suspended	-0.034 U	0.12	0.032	0.065
EPASW23	EPASW23-SW032511	Sr-90	Total	-0.089	NA	0.091	0
EPASW23	EPASW23-SW032511	Te-125m	Filtered	-0.42 U	3.1	0.93	1.5
EPASW23	EPASW23-SW032511	Te-125m	Suspended	-0.15 U	1.4	0.4	0.66
EPASW23	EPASW23-SW032511	Te-125m	Total	-0.6	NA	1	0
EPASW23	EPASW23-SW032511	Th-231	Filtered	0.0062 U	0.0084	0.0044	0.0072
EPASW23	EPASW23-SW032511	Th-231	Suspended	0 U	0.0062	0.0023	0.0053
EPASW23	EPASW23-SW032511	Th-231	Total	0.0062	NA	0.0049	0
EPASW23	EPASW23-SW032511	Th-234	Filtered	10.6 U	22	7.7	11
EPASW23	EPASW23-SW032511	Th-234	Suspended	1.5 U	9.2	3	4.5
EPASW23	EPASW23-SW032511	Th-234	Total	12.1	NA	8.3	0
EPASW23	EPASW23-SW032511	Tl-208	Filtered	0.24 U	1.5	0.47	0.7
EPASW23	EPASW23-SW032511	Tl-208	Suspended	0.51	0.8	0.3	0.39
EPASW23	EPASW23-SW032511	Tl-208	Total	0.75	NA	0.56	0
EPASW23	EPASW23-SW032511	Tm-171	Filtered	44 U	320	94	150
EPASW23	EPASW23-SW032511	Tm-171	Suspended	-24 U	110	34	55
EPASW23	EPASW23-SW032511	Tm-171	Total	20	NA	100	0
EPASW23	EPASW23-SW032511	U-233/234	Filtered	0.2	0.01	0.02	0.01
EPASW23	EPASW23-SW032511	U-233/234	Suspended	0.07	0.01	0.01	0
EPASW23	EPASW23-SW032511	U-233/234	Total	0.26	NA	0.03	0
EPASW23	EPASW23-SW032511	U-235/236	Filtered	0.01 U	0.01	0	0.01
EPASW23	EPASW23-SW032511	U-235/236	Suspended	0 U	0.01	0	0
EPASW23	EPASW23-SW032511	U-235/236	Total	0.01	NA	0	0
EPASW23	EPASW23-SW032511	U-238	Filtered	0.14	0.01	0.02	0.01
EPASW23	EPASW23-SW032511	U-238	Suspended	0.05	0.01	0.01	0
EPASW23	EPASW23-SW032511	U-238	Total	0.19	NA	0.02	0
EPASW24	EPASW24-SW032511	Ac-227	Filtered	-0.5 U	11	3.4	5.6
EPASW24	EPASW24-SW032511	Ac-227	Suspended	-3.2 UL	4	1.2	1.9
EPASW24	EPASW24-SW032511	Ac-227	Total	-3.7	NA	3.6	0
EPASW24	EPASW24-SW032511	Ac-228	Filtered	2.5	3.5	1.1	1.7

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW24	EPASW24-SW032511	Ac-228	Suspended	2.35	2.1	0.68	0.99
EPASW24	EPASW24-SW032511	Ac-228	Total	4.9	NA	1.3	0
EPASW24	EPASW24-SW032511	Ag-108	Filtered	0.011 U	0.089	0.026	0.043
EPASW24	EPASW24-SW032511	Ag-108	Suspended	-0.007 U	0.041	0.012	0.02
EPASW24	EPASW24-SW032511	Ag-108	Total	0.005	NA	0.029	0
EPASW24	EPASW24-SW032511	Ag-108m	Filtered	0.12 U	0.95	0.28	0.46
EPASW24	EPASW24-SW032511	Ag-108m	Suspended	-0.07 U	0.44	0.13	0.21
EPASW24	EPASW24-SW032511	Ag-108m	Total	0.05	NA	0.31	0
EPASW24	EPASW24-SW032511	Ba-133	Filtered	1.2 U	12	3.5	5.8
EPASW24	EPASW24-SW032511	Ba-133	Suspended	-0.3 U	4.9	1.4	2.4
EPASW24	EPASW24-SW032511	Ba-133	Total	0.9	NA	3.8	0
EPASW24	EPASW24-SW032511	Ba-137m	Filtered	-0.06 U	1.1	0.32	0.53
EPASW24	EPASW24-SW032511	Ba-137m	Suspended	0.29	0.57	0.17	0.27
EPASW24	EPASW24-SW032511	Ba-137m	Total	0.23	NA	0.36	0
EPASW24	EPASW24-SW032511	Bi-212	Filtered	-1.1 U	9.3	4.1	4.4
EPASW24	EPASW24-SW032511	Bi-212	Suspended	6.1	3.3	1.6	1.5
EPASW24	EPASW24-SW032511	Bi-212	Total	5	NA	4.4	0
EPASW24	EPASW24-SW032511	Bi-214	Filtered	1.77	2.5	0.84	1.2
EPASW24	EPASW24-SW032511	Bi-214	Suspended	1.3	1.2	0.45	0.57
EPASW24	EPASW24-SW032511	Bi-214	Total	3.07	NA	0.95	0
EPASW24	EPASW24-SW032511	Cd-113m	Filtered	2300 U	12000	3700	6000
EPASW24	EPASW24-SW032511	Cd-113m	Suspended	300 U	5100	1500	2500
EPASW24	EPASW24-SW032511	Cd-113m	Total	2600	NA	4000	0
EPASW24	EPASW24-SW032511	Cf-249	Filtered	0.008 U	5.7	1.7	2.8
EPASW24	EPASW24-SW032511	Cf-249	Suspended	-0.71 U	2.7	0.81	1.3
EPASW24	EPASW24-SW032511	Cf-249	Total	-0.7	NA	1.9	0
EPASW24	EPASW24-SW032511	Co-60	Filtered	-0.12 U	1.2	0.33	0.54
EPASW24	EPASW24-SW032511	Co-60	Suspended	0.1 U	0.62	0.18	0.29
EPASW24	EPASW24-SW032511	Co-60	Total	-0.02	NA	0.38	0
EPASW24	EPASW24-SW032511	Cs-134	Filtered	0.27 U	1.2	0.35	0.57

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW24	EPASW24-SW032511	Cs-134	Suspended	0.11 UJ	0.64	0.19	0.31
EPASW24	EPASW24-SW032511	Cs-134	Total	0.38	NA	0.4	0
EPASW24	EPASW24-SW032511	Cs-137	Filtered	-0.06 U	1.2	0.34	0.56
EPASW24	EPASW24-SW032511	Cs-137	Suspended	0.3	0.6	0.18	0.29
EPASW24	EPASW24-SW032511	Cs-137	Total	0.24	NA	0.39	0
EPASW24	EPASW24-SW032511	Eu-152	Filtered	-0.77 U	3.3	0.99	1.6
EPASW24	EPASW24-SW032511	Eu-152	Suspended	0.17 U	1.5	0.45	0.74
EPASW24	EPASW24-SW032511	Eu-152	Total	-0.6	NA	1.1	0
EPASW24	EPASW24-SW032511	Eu-154	Filtered	-1.8 U	10	2.9	4.7
EPASW24	EPASW24-SW032511	Eu-154	Suspended	-0.1 U	4.3	1.2	2
EPASW24	EPASW24-SW032511	Eu-154	Total	-1.9	NA	3.2	0
EPASW24	EPASW24-SW032511	Eu-155	Filtered	-1.28 U	3.2	0.97	1.6
EPASW24	EPASW24-SW032511	Eu-155	Suspended	0.31 U	1.1	0.33	0.53
EPASW24	EPASW24-SW032511	Eu-155	Total	-1	NA	1	0
EPASW24	EPASW24-SW032511	gross_alpha	Filtered	1.33	0.76	0.33	0.4
EPASW24	EPASW24-SW032511	gross_alpha	Suspended	15.4	3.1	2.1	1.7
EPASW24	EPASW24-SW032511	gross_alpha	Total	16.7	NA	2.1	0
EPASW24	EPASW24-SW032511	gross_beta	Filtered	10.3	0.99	0.75	0.58
EPASW24	EPASW24-SW032511	gross_beta	Suspended	40.9	1.7	2.1	1
EPASW24	EPASW24-SW032511	gross_beta	Total	51.2	NA	2.3	0
EPASW24	EPASW24-SW032511	H-3_Total	Total	83	72	24	34
EPASW24	EPASW24-SW032511	Ho-166m	Filtered	-0.07 U	1.6	0.46	0.76
EPASW24	EPASW24-SW032511	Ho-166m	Suspended	0.22 U	0.83	0.25	0.39
EPASW24	EPASW24-SW032511	Ho-166m	Total	0.15	NA	0.52	0
EPASW24	EPASW24-SW032511	K-40	Filtered	17.7	14	4.1	6.6
EPASW24	EPASW24-SW032511	K-40	Suspended	22.9	7.9	3	3.7
EPASW24	EPASW24-SW032511	K-40	Total	40.6	NA	5.1	0
EPASW24	EPASW24-SW032511	Na-22	Filtered	-0.07 U	1.3	0.36	0.58
EPASW24	EPASW24-SW032511	Na-22	Suspended	0.0004 U	0.65	0.18	0.3
EPASW24	EPASW24-SW032511	Na-22	Total	-0.07	NA	0.4	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW24	EPASW24-SW032511	Nb-94	Filtered	0.02 U	1.2	0.34	0.55
EPASW24	EPASW24-SW032511	Nb-94	Suspended	-0.004 U	0.54	0.16	0.26
EPASW24	EPASW24-SW032511	Nb-94	Total	0.02	NA	0.37	0
EPASW24	EPASW24-SW032511	Np-236	Filtered	-0.004 U	2.6	0.76	1.3
EPASW24	EPASW24-SW032511	Np-236	Suspended	-0.09 U	1	0.3	0.49
EPASW24	EPASW24-SW032511	Np-236	Total	-0.09	NA	0.82	0
EPASW24	EPASW24-SW032511	Np-239	Filtered	0.9 U	7.5	2.2	3.6
EPASW24	EPASW24-SW032511	Np-239	Suspended	-0.81 U	3.2	0.97	1.6
EPASW24	EPASW24-SW032511	Np-239	Total	0.1	NA	2.4	0
EPASW24	EPASW24-SW032511	Pa-231	Filtered	-1 U	52	15	25
EPASW24	EPASW24-SW032511	Pa-231	Suspended	0.07 U	21	6.2	10
EPASW24	EPASW24-SW032511	Pa-231	Total	-1	NA	16	0
EPASW24	EPASW24-SW032511	Pb-212	Filtered	0.41 U	2.3	0.68	1.1
EPASW24	EPASW24-SW032511	Pb-212	Suspended	2.25	0.76	0.35	0.37
EPASW24	EPASW24-SW032511	Pb-212	Total	2.66	NA	0.77	0
EPASW24	EPASW24-SW032511	Pb-214	Filtered	0.57 U	2.7	0.73	1.3
EPASW24	EPASW24-SW032511	Pb-214	Suspended	1.69	1	0.42	0.5
EPASW24	EPASW24-SW032511	Pb-214	Total	2.26	NA	0.84	0
EPASW24	EPASW24-SW032511	Sb-125	Filtered	-4.2 U	13	3.9	6.3
EPASW24	EPASW24-SW032511	Sb-125	Suspended	0.08 U	4.6	1.3	2.2
EPASW24	EPASW24-SW032511	Sb-125	Total	-4.1	NA	4.1	0
EPASW24	EPASW24-SW032511	Sn-126	Filtered	0 U	1.5	0.43	0.72
EPASW24	EPASW24-SW032511	Sn-126	Suspended	-0.06 U	0.72	0.21	0.35
EPASW24	EPASW24-SW032511	Sn-126	Total	-0.06	NA	0.48	0
EPASW24	EPASW24-SW032511	Sr-90	Filtered	0.01 U	0.17	0.049	0.096
EPASW24	EPASW24-SW032511	Sr-90	Suspended	-0.057 U	0.15	0.042	0.085
EPASW24	EPASW24-SW032511	Sr-90	Total	-0.047	NA	0.064	0
EPASW24	EPASW24-SW032511	Te-125m	Filtered	-0.96 U	3	0.9	1.5
EPASW24	EPASW24-SW032511	Te-125m	Suspended	0.02 U	1.1	0.31	0.51
EPASW24	EPASW24-SW032511	Te-125m	Total	-0.94	NA	0.95	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW24	EPASW24-SW032511	Th-231	Filtered	0.0123	0.0066	0.0055	0.0057
EPASW24	EPASW24-SW032511	Th-231	Suspended	0.102	0.008	0.018	0.007
EPASW24	EPASW24-SW032511	Th-231	Total	0.114	NA	0.019	0
EPASW24	EPASW24-SW032511	Th-234	Filtered	12.7	20	6.6	9.9
EPASW24	EPASW24-SW032511	Th-234	Suspended	2.3 U	5.5	1.7	2.7
EPASW24	EPASW24-SW032511	Th-234	Total	15	NA	6.8	0
EPASW24	EPASW24-SW032511	Tl-208	Filtered	0.22 U	1.4	0.44	0.66
EPASW24	EPASW24-SW032511	Tl-208	Suspended	1.08	0.54	0.24	0.26
EPASW24	EPASW24-SW032511	Tl-208	Total	1.3	NA	0.5	0
EPASW24	EPASW24-SW032511	Tm-171	Filtered	100 U	370	110	180
EPASW24	EPASW24-SW032511	Tm-171	Suspended	24 U	95	29	46
EPASW24	EPASW24-SW032511	Tm-171	Total	130	NA	110	0
EPASW24	EPASW24-SW032511	U-233/234	Filtered	0.17	0.01	0.02	0
EPASW24	EPASW24-SW032511	U-233/234	Suspended	1.45	0.02	0.09	0.01
EPASW24	EPASW24-SW032511	U-233/234	Total	1.61	NA	0.09	0
EPASW24	EPASW24-SW032511	U-235/236	Filtered	0.01	0.01	0.01	0.01
EPASW24	EPASW24-SW032511	U-235/236	Suspended	0.1	0.01	0.02	0.01
EPASW24	EPASW24-SW032511	U-235/236	Total	0.11	NA	0.02	0
EPASW24	EPASW24-SW032511	U-238	Filtered	0.09	0.01	0.02	0
EPASW24	EPASW24-SW032511	U-238	Suspended	1.51	0.01	0.09	0.01
EPASW24	EPASW24-SW032511	U-238	Total	1.6	NA	0.09	0
EPASW25	EPASW25-SW032211	Ac-227	Filtered	0 U	13	3.9	6.4
EPASW25	EPASW25-SW032211	Ac-227	Suspended	0.7 U	3.5	1	1.7
EPASW25	EPASW25-SW032211	Ac-227	Total	0.7	NA	4	0
EPASW25	EPASW25-SW032211	Ac-228	Filtered	0.4 U	4.7	1.3	2.2
EPASW25	EPASW25-SW032211	Ac-228	Suspended	2.05	2.1	0.69	1
EPASW25	EPASW25-SW032211	Ac-228	Total	2.4	NA	1.5	0
EPASW25	EPASW25-SW032211	Ag-108	Filtered	0.024 U	0.12	0.035	0.056
EPASW25	EPASW25-SW032211	Ag-108	Suspended	0.012 U	0.052	0.016	0.025
EPASW25	EPASW25-SW032211	Ag-108	Total	0.036	NA	0.038	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW25	EPASW25-SW032211	Ag-108m	Filtered	0.26 U	1.3	0.37	0.6
EPASW25	EPASW25-SW032211	Ag-108m	Suspended	0.13 U	0.56	0.17	0.27
EPASW25	EPASW25-SW032211	Ag-108m	Total	0.38	NA	0.41	0
EPASW25	EPASW25-SW032211	Ba-133	Filtered	-4 U	15	4.5	7.3
EPASW25	EPASW25-SW032211	Ba-133	Suspended	-0.9 U	6.2	1.9	3
EPASW25	EPASW25-SW032211	Ba-133	Total	-5	NA	4.9	0
EPASW25	EPASW25-SW032211	Ba-137m	Filtered	0.19 U	1.3	0.38	0.61
EPASW25	EPASW25-SW032211	Ba-137m	Suspended	-0.08 U	0.64	0.19	0.31
EPASW25	EPASW25-SW032211	Ba-137m	Total	0.11	NA	0.42	0
EPASW25	EPASW25-SW032211	Bi-212	Filtered	-0.08 U	9.3	2.6	4.3
EPASW25	EPASW25-SW032211	Bi-212	Suspended	-2 U	6	90	3
EPASW25	EPASW25-SW032211	Bi-212	Total	-2	NA	90	0
EPASW25	EPASW25-SW032211	Bi-214	Filtered	1.5 U	3.3	1.1	1.6
EPASW25	EPASW25-SW032211	Bi-214	Suspended	-0.68 U	1.8	0.71	0.86
EPASW25	EPASW25-SW032211	Bi-214	Total	0.8	NA	1.3	0
EPASW25	EPASW25-SW032211	Cd-113m	Filtered	1900 U	18000	5300	8700
EPASW25	EPASW25-SW032211	Cd-113m	Suspended	1000 U	6800	2000	3300
EPASW25	EPASW25-SW032211	Cd-113m	Total	3000	NA	5700	0
EPASW25	EPASW25-SW032211	Cf-249	Filtered	-1.3 U	7.5	2.2	3.6
EPASW25	EPASW25-SW032211	Cf-249	Suspended	0.38 U	3.1	0.92	1.5
EPASW25	EPASW25-SW032211	Cf-249	Total	-0.9	NA	2.4	0
EPASW25	EPASW25-SW032211	Co-60	Filtered	0.2 U	1.6	0.44	0.71
EPASW25	EPASW25-SW032211	Co-60	Suspended	-0.13 U	0.79	0.23	0.37
EPASW25	EPASW25-SW032211	Co-60	Total	0.07	NA	0.5	0
EPASW25	EPASW25-SW032211	Cs-134	Filtered	0.01 U	1.7	0.49	0.8
EPASW25	EPASW25-SW032211	Cs-134	Suspended	-0.17 U	0.74	0.22	0.36
EPASW25	EPASW25-SW032211	Cs-134	Total	-0.16	NA	0.54	0
EPASW25	EPASW25-SW032211	Cs-137	Filtered	0.2 U	1.4	0.4	0.65
EPASW25	EPASW25-SW032211	Cs-137	Suspended	-0.09 U	0.68	0.2	0.32
EPASW25	EPASW25-SW032211	Cs-137	Total	0.11	NA	0.45	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW25	EPASW25-SW032211	Eu-152	Filtered	0.5 U	4.2	1.2	2
EPASW25	EPASW25-SW032211	Eu-152	Suspended	-0.15 U	1.7	0.51	0.84
EPASW25	EPASW25-SW032211	Eu-152	Total	0.4	NA	1.3	0
EPASW25	EPASW25-SW032211	Eu-154	Filtered	-2.4 U	13	3.9	6.3
EPASW25	EPASW25-SW032211	Eu-154	Suspended	-0.07 U	6.3	1.8	3
EPASW25	EPASW25-SW032211	Eu-154	Total	-2.5	NA	4.3	0
EPASW25	EPASW25-SW032211	Eu-155	Filtered	-1.2 U	4	1.2	2
EPASW25	EPASW25-SW032211	Eu-155	Suspended	0.19 U	1.2	0.34	0.56
EPASW25	EPASW25-SW032211	Eu-155	Total	-1	NA	1.3	0
EPASW25	EPASW25-SW032211	gross_alpha	Filtered	1.16	0.35	0.21	0.17
EPASW25	EPASW25-SW032211	gross_alpha	Suspended	0.73 J	0.42	0.18	0.22
EPASW25	EPASW25-SW032211	gross_alpha	Total	1.89	NA	0.28	0
EPASW25	EPASW25-SW032211	gross_beta	Filtered	1.69	1	0.37	0.6
EPASW25	EPASW25-SW032211	gross_beta	Suspended	1.11	0.41	0.17	0.24
EPASW25	EPASW25-SW032211	gross_beta	Total	2.8	NA	0.41	0
EPASW25	EPASW25-SW032211	H-3	Total	36	58	18	27
EPASW25	EPASW25-SW032211	Ho-166m	Filtered	0.73 U	2.3	0.68	1.1
EPASW25	EPASW25-SW032211	Ho-166m	Suspended	0.0003 U	1.1	0.31	0.51
EPASW25	EPASW25-SW032211	Ho-166m	Total	0.73	NA	0.75	0
EPASW25	EPASW25-SW032211	K-40	Filtered	-4.4 U	25	7.9	12
EPASW25	EPASW25-SW032211	K-40	Suspended	5	9.3	2.6	4.4
EPASW25	EPASW25-SW032211	K-40	Total	0.6	NA	8.3	0
EPASW25	EPASW25-SW032211	Na-22	Filtered	0.16 U	1.6	0.45	0.72
EPASW25	EPASW25-SW032211	Na-22	Suspended	-0.15 U	0.84	0.25	0.39
EPASW25	EPASW25-SW032211	Na-22	Total	0.01	NA	0.51	0
EPASW25	EPASW25-SW032211	Nb-94	Filtered	-0.4 U	1.5	0.45	0.71
EPASW25	EPASW25-SW032211	Nb-94	Suspended	0.05 U	0.62	0.18	0.29
EPASW25	EPASW25-SW032211	Nb-94	Total	-0.36	NA	0.48	0
EPASW25	EPASW25-SW032211	Np-236	Filtered	-0.5 U	3.6	1.1	1.8
EPASW25	EPASW25-SW032211	Np-236	Suspended	0.19 U	1.2	0.36	0.59

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW25	EPASW25-SW032211	Np-236	Total	-0.3	NA	1.1	0
EPASW25	EPASW25-SW032211	Np-239	Filtered	1.6 U	9.7	2.9	4.7
EPASW25	EPASW25-SW032211	Np-239	Suspended	0 U	3.8	1.1	1.8
EPASW25	EPASW25-SW032211	Np-239	Total	1.6	NA	3.1	0
EPASW25	EPASW25-SW032211	Pa-231	Filtered	0.3 U	68	20	33
EPASW25	EPASW25-SW032211	Pa-231	Suspended	-6.8 U	27	8.2	13
EPASW25	EPASW25-SW032211	Pa-231	Total	-6	NA	21	0
EPASW25	EPASW25-SW032211	Pb-212	Filtered	0.1 U	2.9	1	1.4
EPASW25	EPASW25-SW032211	Pb-212	Suspended	0.46 U	1.1	0.34	0.51
EPASW25	EPASW25-SW032211	Pb-212	Total	0.6	NA	1.1	0
EPASW25	EPASW25-SW032211	Pb-214	Filtered	-0.2 U	3.5	1.1	1.7
EPASW25	EPASW25-SW032211	Pb-214	Suspended	-1.13 UL	1.6	0.99	0.75
EPASW25	EPASW25-SW032211	Pb-214	Total	-1.4	NA	1.5	0
EPASW25	EPASW25-SW032211	Sb-125	Filtered	6 U	13	4	6.4
EPASW25	EPASW25-SW032211	Sb-125	Suspended	-0.7 U	5.5	1.6	2.7
EPASW25	EPASW25-SW032211	Sb-125	Total	5.3	NA	4.4	0
EPASW25	EPASW25-SW032211	Sn-126	Filtered	0.66 U	1.6	0.47	0.73
EPASW25	EPASW25-SW032211	Sn-126	Suspended	0.29 U	0.65	0.2	0.31
EPASW25	EPASW25-SW032211	Sn-126	Total	0.94	NA	0.51	0
EPASW25	EPASW25-SW032211	Sr-90	Filtered	0.05 U	0.28	0.08	0.17
EPASW25	EPASW25-SW032211	Sr-90	Suspended	0.035 U	0.12	0.036	0.06
EPASW25	EPASW25-SW032211	Sr-90	Total	0.084	NA	0.088	0
EPASW25	EPASW25-SW032211	Te-125m	Filtered	1.38 U	3.1	0.93	1.5
EPASW25	EPASW25-SW032211	Te-125m	Suspended	-0.16 U	1.3	0.38	0.62
EPASW25	EPASW25-SW032211	Te-125m	Total	1.2	NA	1	0
EPASW25	EPASW25-SW032211	Th-231	Filtered	0.0148	0.0067	0.0061	0.0058
EPASW25	EPASW25-SW032211	Th-231	Suspended	0 U	0.0063	0.0023	0.0054
EPASW25	EPASW25-SW032211	Th-231	Total	0.0148	NA	0.0065	0
EPASW25	EPASW25-SW032211	Th-234	Filtered	0.8 U	27	9.3	13
EPASW25	EPASW25-SW032211	Th-234	Suspended	4.6	7.6	2.7	3.7

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW25	EPASW25-SW032211	Th-234	Total	5.4	NA	9.7	0
EPASW25	EPASW25-SW032211	Tl-208	Filtered	0.16 U	1.8	0.59	0.85
EPASW25	EPASW25-SW032211	Tl-208	Suspended	0.65	0.76	0.32	0.37
EPASW25	EPASW25-SW032211	Tl-208	Total	0.81	NA	0.68	0
EPASW25	EPASW25-SW032211	Tm-171	Filtered	160 U	440	130	210
EPASW25	EPASW25-SW032211	Tm-171	Suspended	37 U	110	33	53
EPASW25	EPASW25-SW032211	Tm-171	Total	190	NA	140	0
EPASW25	EPASW25-SW032211	U-233/234	Filtered	0.72	0.01	0.05	0
EPASW25	EPASW25-SW032211	U-233/234	Suspended	0.06	0.01	0.01	0
EPASW25	EPASW25-SW032211	U-233/234	Total	0.78	NA	0.05	0
EPASW25	EPASW25-SW032211	U-235/236	Filtered	0.01	0.01	0.01	0.01
EPASW25	EPASW25-SW032211	U-235/236	Suspended	0 U	0.01	0	0
EPASW25	EPASW25-SW032211	U-235/236	Total	0.01	NA	0.01	0
EPASW25	EPASW25-SW032211	U-238	Filtered	0.61	0.01	0.04	0
EPASW25	EPASW25-SW032211	U-238	Suspended	0.06	0.01	0.01	0
EPASW25	EPASW25-SW032211	U-238	Total	0.67	NA	0.05	0
EPASW26	EPASW26-SW032111	Ac-227	Filtered	-0.4 U	11	3.3	5.5
EPASW26	EPASW26-SW032111	Ac-227	Suspended	0 U	5.4	1.6	2.7
EPASW26	EPASW26-SW032111	Ac-227	Total	-0.4	NA	3.7	0
EPASW26	EPASW26-SW032111	Ac-228	Filtered	1.6 U	3.7	1.1	1.8
EPASW26	EPASW26-SW032111	Ac-228	Suspended	-0.41 U	2.8	0.97	1.3
EPASW26	EPASW26-SW032111	Ac-228	Total	1.2	NA	1.5	0
EPASW26	EPASW26-SW032111	Ag-108	Filtered	0.016 U	0.088	0.026	0.042
EPASW26	EPASW26-SW032111	Ag-108	Suspended	-0.004 U	0.049	0.014	0.023
EPASW26	EPASW26-SW032111	Ag-108	Total	0.012	NA	0.03	0
EPASW26	EPASW26-SW032111	Ag-108m	Filtered	0.17 U	0.95	0.28	0.45
EPASW26	EPASW26-SW032111	Ag-108m	Suspended	-0.05 U	0.53	0.15	0.25
EPASW26	EPASW26-SW032111	Ag-108m	Total	0.12	NA	0.32	0
EPASW26	EPASW26-SW032111	Ba-133	Filtered	0.6 U	11	3.3	5.4
EPASW26	EPASW26-SW032111	Ba-133	Suspended	-1.5 U	6.1	1.8	3

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW26	EPASW26-SW032111	Ba-133	Total	-0.9	NA	3.8	0
EPASW26	EPASW26-SW032111	Ba-137m	Filtered	0.22 U	1.1	0.31	0.5
EPASW26	EPASW26-SW032111	Ba-137m	Suspended	0.13 U	0.7	0.21	0.33
EPASW26	EPASW26-SW032111	Ba-137m	Total	0.35	NA	0.37	0
EPASW26	EPASW26-SW032111	Bi-212	Filtered	-5 U	10	94	5
EPASW26	EPASW26-SW032111	Bi-212	Suspended	3.7	5.2	1.6	2.5
EPASW26	EPASW26-SW032111	Bi-212	Total	-1	NA	94	0
EPASW26	EPASW26-SW032111	Bi-214	Filtered	2.58	2.5	0.76	1.2
EPASW26	EPASW26-SW032111	Bi-214	Suspended	-0.9 U	1.8	1.1	0.9
EPASW26	EPASW26-SW032111	Bi-214	Total	1.7	NA	1.4	0
EPASW26	EPASW26-SW032111	Cd-113m	Filtered	3500 U	13000	3900	6300
EPASW26	EPASW26-SW032111	Cd-113m	Suspended	1100 U	7000	2100	3400
EPASW26	EPASW26-SW032111	Cd-113m	Total	4600	NA	4400	0
EPASW26	EPASW26-SW032111	Cf-249	Filtered	0.02 U	4.6	1.3	2.2
EPASW26	EPASW26-SW032111	Cf-249	Suspended	0.2 U	3.3	0.99	1.6
EPASW26	EPASW26-SW032111	Cf-249	Total	0.2	NA	1.7	0
EPASW26	EPASW26-SW032111	Co-60	Filtered	-0.08 U	1.2	0.33	0.54
EPASW26	EPASW26-SW032111	Co-60	Suspended	-0.06 U	0.63	0.18	0.29
EPASW26	EPASW26-SW032111	Co-60	Total	-0.15	NA	0.38	0
EPASW26	EPASW26-SW032111	Cs-134	Filtered	-0.02 U	1.2	0.36	0.59
EPASW26	EPASW26-SW032111	Cs-134	Suspended	-0.003 U	0.76	0.22	0.37
EPASW26	EPASW26-SW032111	Cs-134	Total	-0.02	NA	0.42	0
EPASW26	EPASW26-SW032111	Cs-137	Filtered	0.24 U	1.1	0.33	0.53
EPASW26	EPASW26-SW032111	Cs-137	Suspended	0.14 U	0.74	0.22	0.35
EPASW26	EPASW26-SW032111	Cs-137	Total	0.37	NA	0.4	0
EPASW26	EPASW26-SW032111	Eu-152	Filtered	-0.3 U	3.5	1	1.7
EPASW26	EPASW26-SW032111	Eu-152	Suspended	-0.36 U	1.8	0.55	0.89
EPASW26	EPASW26-SW032111	Eu-152	Total	-0.6	NA	1.2	0
EPASW26	EPASW26-SW032111	Eu-154	Filtered	0 U	11	3.2	5.3
EPASW26	EPASW26-SW032111	Eu-154	Suspended	-1.3 U	5.3	1.6	2.5

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW26	EPASW26-SW032111	Eu-154	Total	-1.3	NA	3.6	0
EPASW26	EPASW26-SW032111	Eu-155	Filtered	0.38 U	2.9	0.87	1.4
EPASW26	EPASW26-SW032111	Eu-155	Suspended	0.28 U	1.3	0.39	0.63
EPASW26	EPASW26-SW032111	Eu-155	Total	0.66	NA	0.95	0
EPASW26	EPASW26-SW032111	gross_alpha	Filtered	0.66	0.53	0.2	0.29
EPASW26	EPASW26-SW032111	gross_alpha	Suspended	0.43 J	0.42	0.15	0.22
EPASW26	EPASW26-SW032111	gross_alpha	Total	1.08	NA	0.25	0
EPASW26	EPASW26-SW032111	gross_beta	Filtered	1.25	0.93	0.33	0.54
EPASW26	EPASW26-SW032111	gross_beta	Suspended	190	0.9	7.4	0.5
EPASW26	EPASW26-SW032111	gross_beta	Total	192	NA	7.4	0
EPASW26	EPASW26-SW032111	H-3	Total	18	52	16	24
EPASW26	EPASW26-SW032111	Ho-166m	Filtered	-0.07 U	1.6	0.47	0.77
EPASW26	EPASW26-SW032111	Ho-166m	Suspended	-0.16 U	1.2	0.36	0.58
EPASW26	EPASW26-SW032111	Ho-166m	Total	-0.24	NA	0.59	0
EPASW26	EPASW26-SW032111	K-40	Filtered	10	16	4.9	7.6
EPASW26	EPASW26-SW032111	K-40	Suspended	2.2 U	12	3.6	5.9
EPASW26	EPASW26-SW032111	K-40	Total	12.2	NA	6.1	0
EPASW26	EPASW26-SW032111	Na-22	Filtered	-0.2 U	1.2	0.35	0.57
EPASW26	EPASW26-SW032111	Na-22	Suspended	-0.05 U	0.69	0.2	0.32
EPASW26	EPASW26-SW032111	Na-22	Total	-0.25	NA	0.4	0
EPASW26	EPASW26-SW032111	Nb-94	Filtered	0.07 U	0.98	0.28	0.47
EPASW26	EPASW26-SW032111	Nb-94	Suspended	-0.002 U	0.57	0.17	0.27
EPASW26	EPASW26-SW032111	Nb-94	Total	0.07	NA	0.33	0
EPASW26	EPASW26-SW032111	Np-236	Filtered	0.49 U	2.6	0.79	1.3
EPASW26	EPASW26-SW032111	Np-236	Suspended	0.18 U	1.1	0.33	0.54
EPASW26	EPASW26-SW032111	Np-236	Total	0.68	NA	0.86	0
EPASW26	EPASW26-SW032111	Np-239	Filtered	2.5 U	7.3	2.2	3.5
EPASW26	EPASW26-SW032111	Np-239	Suspended	0.4 U	3.8	1.1	1.9
EPASW26	EPASW26-SW032111	Np-239	Total	2.9	NA	2.5	0
EPASW26	EPASW26-SW032111	Pa-231	Filtered	-1 U	48	14	23

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW26	EPASW26-SW032111	Pa-231	Suspended	12.7	26	7.8	12
EPASW26	EPASW26-SW032111	Pa-231	Total	12	NA	16	0
EPASW26	EPASW26-SW032111	Pb-212	Filtered	0.45 U	2.3	0.66	1.1
EPASW26	EPASW26-SW032111	Pb-212	Suspended	-0.02 U	1.2	0.4	0.57
EPASW26	EPASW26-SW032111	Pb-212	Total	0.43	NA	0.77	0
EPASW26	EPASW26-SW032111	Pb-214	Filtered	-0.05 U	2.4	0.74	1.1
EPASW26	EPASW26-SW032111	Pb-214	Suspended	-0.76 UL	1.5	0.89	0.75
EPASW26	EPASW26-SW032111	Pb-214	Total	-0.8	NA	1.2	0
EPASW26	EPASW26-SW032111	Sb-125	Filtered	-2.1 U	10	3	4.8
EPASW26	EPASW26-SW032111	Sb-125	Suspended	-0.08 U	6.2	1.8	3
EPASW26	EPASW26-SW032111	Sb-125	Total	-2.2	NA	3.5	0
EPASW26	EPASW26-SW032111	Sn-126	Filtered	0.5 U	1.2	0.36	0.57
EPASW26	EPASW26-SW032111	Sn-126	Suspended	-0.1 U	0.75	0.22	0.36
EPASW26	EPASW26-SW032111	Sn-126	Total	0.4	NA	0.42	0
EPASW26	EPASW26-SW032111	Sr-90	Filtered	0.72 R	1.2	0.37	0.72
EPASW26	EPASW26-SW032111	Sr-90	Suspended	0.073	0.12	0.037	0.061
EPASW26	EPASW26-SW032111	Sr-90	Total	0.79	NA	0.37	0
EPASW26	EPASW26-SW032111	Te-125m	Filtered	-0.48 U	2.3	0.69	1.1
EPASW26	EPASW26-SW032111	Te-125m	Suspended	-0.02 U	1.4	0.42	0.7
EPASW26	EPASW26-SW032111	Te-125m	Total	-0.5	NA	0.81	0
EPASW26	EPASW26-SW032111	Th-231	Filtered	0.0026 U	0.0071	0.0026	0.0061
EPASW26	EPASW26-SW032111	Th-231	Suspended	0.0069	0.0062	0.004	0.0054
EPASW26	EPASW26-SW032111	Th-231	Total	0.0095	NA	0.0048	0
EPASW26	EPASW26-SW032111	Th-234	Filtered	-8 U	26	10	13
EPASW26	EPASW26-SW032111	Th-234	Suspended	4.5	8.5	2.7	4.2
EPASW26	EPASW26-SW032111	Th-234	Total	-4	NA	11	0
EPASW26	EPASW26-SW032111	Tl-208	Filtered	1.27	1.5	0.63	0.72
EPASW26	EPASW26-SW032111	Tl-208	Suspended	-0.26 U	0.85	0.36	0.41
EPASW26	EPASW26-SW032111	Tl-208	Total	1	NA	0.73	0
EPASW26	EPASW26-SW032111	Tm-171	Filtered	100 U	340	100	170

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW26	EPASW26-SW032111	Tm-171	Suspended	-36 U	120	36	58
EPASW26	EPASW26-SW032111	Tm-171	Total	60	NA	110	0
EPASW26	EPASW26-SW032111	U-233/234	Filtered	0.07	0.01	0.01	0
EPASW26	EPASW26-SW032111	U-233/234	Suspended	0.02	0.01	0.01	0
EPASW26	EPASW26-SW032111	U-233/234	Total	0.09	NA	0.02	0
EPASW26	EPASW26-SW032111	U-235/236	Filtered	0 U	0.01	0	0.01
EPASW26	EPASW26-SW032111	U-235/236	Suspended	0.01	0.01	0	0
EPASW26	EPASW26-SW032111	U-235/236	Total	0.01	NA	0	0
EPASW26	EPASW26-SW032111	U-238	Filtered	0.04	0.01	0.01	0
EPASW26	EPASW26-SW032111	U-238	Suspended	0.01	0.01	0	0
EPASW26	EPASW26-SW032111	U-238	Total	0.05	NA	0.01	0
EPASW27	EPASW27-SW032111	Ac-227	Filtered	0 U	14	4.3	7.1
EPASW27	EPASW27-SW032111	Ac-227	Suspended	-1.4 U	4.4	1.3	2.2
EPASW27	EPASW27-SW032111	Ac-227	Total	-1.4	NA	4.5	0
EPASW27	EPASW27-SW032111	Ac-228	Filtered	1.7 U	5.2	1.5	2.4
EPASW27	EPASW27-SW032111	Ac-228	Suspended	1.09 U	2.3	0.69	1.1
EPASW27	EPASW27-SW032111	Ac-228	Total	2.8	NA	1.7	0
EPASW27	EPASW27-SW032111	Ag-108	Filtered	0.04 U	0.12	0.035	0.055
EPASW27	EPASW27-SW032111	Ag-108	Suspended	0.008 U	0.035	0.01	0.016
EPASW27	EPASW27-SW032111	Ag-108	Total	0.048	NA	0.036	0
EPASW27	EPASW27-SW032111	Ag-108m	Filtered	0.43 U	1.3	0.37	0.6
EPASW27	EPASW27-SW032111	Ag-108m	Suspended	0.09 U	0.38	0.11	0.18
EPASW27	EPASW27-SW032111	Ag-108m	Total	0.52	NA	0.39	0
EPASW27	EPASW27-SW032111	Ba-133	Filtered	6.3	13	3.9	6.1
EPASW27	EPASW27-SW032111	Ba-133	Suspended	-1 U	6	1.8	2.9
EPASW27	EPASW27-SW032111	Ba-133	Total	5.3	NA	4.3	0
EPASW27	EPASW27-SW032111	Ba-137m	Filtered	0.13 U	1	0.29	0.46
EPASW27	EPASW27-SW032111	Ba-137m	Suspended	0.3	0.61	0.18	0.29
EPASW27	EPASW27-SW032111	Ba-137m	Total	0.42	NA	0.34	0
EPASW27	EPASW27-SW032111	Bi-212	Filtered	7.1	11	3.5	5.3

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW27	EPASW27-SW032111	Bi-212	Suspended	1.1 U	5.5	1.6	2.6
EPASW27	EPASW27-SW032111	Bi-212	Total	8.2	NA	3.8	0
EPASW27	EPASW27-SW032111	Bi-214	Filtered	-0.9 U	3.9	1.5	1.9
EPASW27	EPASW27-SW032111	Bi-214	Suspended	-1.5 UL	1.9	1.5	0.9
EPASW27	EPASW27-SW032111	Bi-214	Total	-2.4	NA	2.2	0
EPASW27	EPASW27-SW032111	Cd-113m	Filtered	-1000 U	18000	5100	8400
EPASW27	EPASW27-SW032111	Cd-113m	Suspended	-1300 U	7100	2100	3400
EPASW27	EPASW27-SW032111	Cd-113m	Total	-2300	NA	5600	0
EPASW27	EPASW27-SW032111	Cf-249	Filtered	-0.01 U	6.2	1.8	3
EPASW27	EPASW27-SW032111	Cf-249	Suspended	0.9 U	2.9	0.88	1.4
EPASW27	EPASW27-SW032111	Cf-249	Total	0.9	NA	2	0
EPASW27	EPASW27-SW032111	Co-60	Filtered	0.24 U	1	0.3	0.45
EPASW27	EPASW27-SW032111	Co-60	Suspended	0.24 U	0.67	0.2	0.31
EPASW27	EPASW27-SW032111	Co-60	Total	0.48	NA	0.36	0
EPASW27	EPASW27-SW032111	Cs-134	Filtered	-0.32 U	1.7	0.49	0.79
EPASW27	EPASW27-SW032111	Cs-134	Suspended	0.01 U	0.75	0.22	0.36
EPASW27	EPASW27-SW032111	Cs-134	Total	-0.3	NA	0.54	0
EPASW27	EPASW27-SW032111	Cs-137	Filtered	0.14 U	1.1	0.3	0.49
EPASW27	EPASW27-SW032111	Cs-137	Suspended	0.31	0.64	0.19	0.3
EPASW27	EPASW27-SW032111	Cs-137	Total	0.45	NA	0.36	0
EPASW27	EPASW27-SW032111	Eu-152	Filtered	-0.2 U	4.5	1.3	2.2
EPASW27	EPASW27-SW032111	Eu-152	Suspended	-0.1 U	1.8	0.54	0.88
EPASW27	EPASW27-SW032111	Eu-152	Total	-0.3	NA	1.4	0
EPASW27	EPASW27-SW032111	Eu-154	Filtered	-2.8 U	13	3.8	6
EPASW27	EPASW27-SW032111	Eu-154	Suspended	-1.4 U	5.8	1.7	2.7
EPASW27	EPASW27-SW032111	Eu-154	Total	-4.1	NA	4.2	0
EPASW27	EPASW27-SW032111	Eu-155	Filtered	-0.6 U	4.1	1.2	2
EPASW27	EPASW27-SW032111	Eu-155	Suspended	-0.03 U	1.2	0.35	0.57
EPASW27	EPASW27-SW032111	Eu-155	Total	-0.6	NA	1.3	0
EPASW27	EPASW27-SW032111	gross_alpha	Filtered	3.56	0.59	0.44	0.3

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW27	EPASW27-SW032111	gross_alpha	Suspended	1.27 J	0.4	0.23	0.2
EPASW27	EPASW27-SW032111	gross_alpha	Total	4.83	NA	0.49	0
EPASW27	EPASW27-SW032111	gross_beta	Filtered	2.7	1.1	0.46	0.63
EPASW27	EPASW27-SW032111	gross_beta	Suspended	1.05	0.86	0.3	0.51
EPASW27	EPASW27-SW032111	gross_beta	Total	3.75	NA	0.55	0
EPASW27	EPASW27-SW032111	H-3	Total	-25	59	16	28
EPASW27	EPASW27-SW032111	Ho-166m	Filtered	0.89 U	2.4	0.73	1.1
EPASW27	EPASW27-SW032111	Ho-166m	Suspended	-0.11 U	1.2	0.34	0.56
EPASW27	EPASW27-SW032111	Ho-166m	Total	0.78	NA	0.8	0
EPASW27	EPASW27-SW032111	K-40	Filtered	7.5 U	21	5.8	9.8
EPASW27	EPASW27-SW032111	K-40	Suspended	-2.5 U	11	3.6	5.2
EPASW27	EPASW27-SW032111	K-40	Total	4.9	NA	6.8	0
EPASW27	EPASW27-SW032111	Na-22	Filtered	-0.49 U	1.9	0.57	0.89
EPASW27	EPASW27-SW032111	Na-22	Suspended	-0.08 U	0.75	0.22	0.35
EPASW27	EPASW27-SW032111	Na-22	Total	-0.57	NA	0.61	0
EPASW27	EPASW27-SW032111	Nb-94	Filtered	-0.31 U	1.5	0.45	0.73
EPASW27	EPASW27-SW032111	Nb-94	Suspended	0.23	0.46	0.14	0.21
EPASW27	EPASW27-SW032111	Nb-94	Total	-0.08	NA	0.48	0
EPASW27	EPASW27-SW032111	Np-236	Filtered	-0.5 U	3.4	1	1.7
EPASW27	EPASW27-SW032111	Np-236	Suspended	-0.16 U	1.2	0.34	0.56
EPASW27	EPASW27-SW032111	Np-236	Total	-0.7	NA	1.1	0
EPASW27	EPASW27-SW032111	Np-239	Filtered	-1.6 U	9.5	2.8	4.6
EPASW27	EPASW27-SW032111	Np-239	Suspended	0.5 U	3.8	1.1	1.8
EPASW27	EPASW27-SW032111	Np-239	Total	-1.1	NA	3	0
EPASW27	EPASW27-SW032111	Pa-231	Filtered	9 U	72	21	35
EPASW27	EPASW27-SW032111	Pa-231	Suspended	-6.5 U	27	7.9	13
EPASW27	EPASW27-SW032111	Pa-231	Total	2	NA	23	0
EPASW27	EPASW27-SW032111	Pb-212	Filtered	1.24 U	2.7	0.86	1.3
EPASW27	EPASW27-SW032111	Pb-212	Suspended	0.3 U	1.2	0.44	0.58
EPASW27	EPASW27-SW032111	Pb-212	Total	1.55	NA	0.97	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW27	EPASW27-SW032111	Pb-214	Filtered	3.1	3.1	1.2	1.5
EPASW27	EPASW27-SW032111	Pb-214	Suspended	-0.32 U	1.5	0.64	0.73
EPASW27	EPASW27-SW032111	Pb-214	Total	2.7	NA	1.4	0
EPASW27	EPASW27-SW032111	Sb-125	Filtered	-2.5 U	17	5	8.1
EPASW27	EPASW27-SW032111	Sb-125	Suspended	1 U	5.5	1.6	2.7
EPASW27	EPASW27-SW032111	Sb-125	Total	-1.5	NA	5.2	0
EPASW27	EPASW27-SW032111	Sn-126	Filtered	0.03 U	1.7	0.48	0.8
EPASW27	EPASW27-SW032111	Sn-126	Suspended	0.28 U	0.78	0.23	0.37
EPASW27	EPASW27-SW032111	Sn-126	Total	0.31	NA	0.54	0
EPASW27	EPASW27-SW032111	Sr-90	Filtered	0.48 R	1.6	0.47	0.94
EPASW27	EPASW27-SW032111	Sr-90	Suspended	0.023 U	0.11	0.031	0.054
EPASW27	EPASW27-SW032111	Sr-90	Total	0.5	NA	0.47	0
EPASW27	EPASW27-SW032111	Te-125m	Filtered	-0.6 U	3.9	1.2	1.9
EPASW27	EPASW27-SW032111	Te-125m	Suspended	0.23 U	1.3	0.38	0.61
EPASW27	EPASW27-SW032111	Te-125m	Total	-0.3	NA	1.2	0
EPASW27	EPASW27-SW032111	Th-231	Filtered	0.068	0.018	0.014	0.006
EPASW27	EPASW27-SW032111	Th-231	Suspended	0.0024 U	0.0064	0.0024	0.0055
EPASW27	EPASW27-SW032111	Th-231	Total	0.071	NA	0.015	0
EPASW27	EPASW27-SW032111	Th-234	Filtered	16	28	10	14
EPASW27	EPASW27-SW032111	Th-234	Suspended	0.3 U	6.7	1.9	3.2
EPASW27	EPASW27-SW032111	Th-234	Total	17	NA	10	0
EPASW27	EPASW27-SW032111	Tl-208	Filtered	0.81 U	1.8	0.69	0.88
EPASW27	EPASW27-SW032111	Tl-208	Suspended	0.16 U	0.73	0.26	0.35
EPASW27	EPASW27-SW032111	Tl-208	Total	0.98	NA	0.74	0
EPASW27	EPASW27-SW032111	Tm-171	Filtered	240	440	130	220
EPASW27	EPASW27-SW032111	Tm-171	Suspended	9 U	110	34	56
EPASW27	EPASW27-SW032111	Tm-171	Total	250	NA	140	0
EPASW27	EPASW27-SW032111	U-233/234	Filtered	1.55	0.02	0.09	0.01
EPASW27	EPASW27-SW032111	U-233/234	Suspended	0.07	0.01	0.01	0
EPASW27	EPASW27-SW032111	U-233/234	Total	1.61	NA	0.09	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW27	EPASW27-SW032111	U-235/236	Filtered	0.07	0.02	0.01	0.01
EPASW27	EPASW27-SW032111	U-235/236	Suspended	0 U	0.01	0	0
EPASW27	EPASW27-SW032111	U-235/236	Total	0.07	NA	0.01	0
EPASW27	EPASW27-SW032111	U-238	Filtered	1.29	0.02	0.08	0.01
EPASW27	EPASW27-SW032111	U-238	Suspended	0.06	0.01	0.01	0
EPASW27	EPASW27-SW032111	U-238	Total	1.35	NA	0.08	0
EPASW28	EPASW28-SW032311	Ac-227	Filtered	0.004 U	8.8	2.6	4.2
EPASW28	EPASW28-SW032311	Ac-227	Suspended	0.4 U	5.8	1.7	2.9
EPASW28	EPASW28-SW032311	Ac-227	Total	0.4	NA	3.1	0
EPASW28	EPASW28-SW032311	Ac-228	Filtered	0.4 U	4.2	1.2	1.9
EPASW28	EPASW28-SW032311	Ac-228	Suspended	-0.22 U	2.7	0.83	1.3
EPASW28	EPASW28-SW032311	Ac-228	Total	0.2	NA	1.4	0
EPASW28	EPASW28-SW032311	Ag-108	Filtered	0.045 U	0.1	0.03	0.048
EPASW28	EPASW28-SW032311	Ag-108	Suspended	0.0006 U	0.052	0.015	0.025
EPASW28	EPASW28-SW032311	Ag-108	Total	0.046	NA	0.034	0
EPASW28	EPASW28-SW032311	Ag-108m	Filtered	0.48 U	1.1	0.33	0.51
EPASW28	EPASW28-SW032311	Ag-108m	Suspended	0.007 U	0.56	0.16	0.27
EPASW28	EPASW28-SW032311	Ag-108m	Total	0.49	NA	0.37	0
EPASW28	EPASW28-SW032311	Ba-133	Filtered	2.2 U	12	3.5	5.7
EPASW28	EPASW28-SW032311	Ba-133	Suspended	-1.3 U	6.2	1.9	3
EPASW28	EPASW28-SW032311	Ba-133	Total	0.9	NA	4	0
EPASW28	EPASW28-SW032311	Ba-137m	Filtered	0.31 U	1.4	0.4	0.63
EPASW28	EPASW28-SW032311	Ba-137m	Suspended	0.05 U	0.69	0.2	0.33
EPASW28	EPASW28-SW032311	Ba-137m	Total	0.36	NA	0.45	0
EPASW28	EPASW28-SW032311	Bi-212	Filtered	0.8 U	10	2.9	4.7
EPASW28	EPASW28-SW032311	Bi-212	Suspended	1 U	5.4	1.6	2.6
EPASW28	EPASW28-SW032311	Bi-212	Total	1.8	NA	3.3	0
EPASW28	EPASW28-SW032311	Bi-214	Filtered	2.58	2.6	0.85	1.2
EPASW28	EPASW28-SW032311	Bi-214	Suspended	0 U	1.8	0.71	0.89
EPASW28	EPASW28-SW032311	Bi-214	Total	2.6	NA	1.1	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW28	EPASW28-SW032311	Cd-113m	Filtered	2200 U	15000	4300	7000
EPASW28	EPASW28-SW032311	Cd-113m	Suspended	2100 U	6000	1800	2900
EPASW28	EPASW28-SW032311	Cd-113m	Total	4300	NA	4700	0
EPASW28	EPASW28-SW032311	Cf-249	Filtered	-0.5 U	6.1	1.8	2.9
EPASW28	EPASW28-SW032311	Cf-249	Suspended	-0.03 U	3.1	0.92	1.5
EPASW28	EPASW28-SW032311	Cf-249	Total	-0.5	NA	2	0
EPASW28	EPASW28-SW032311	Co-60	Filtered	0.46 U	1.4	0.4	0.6
EPASW28	EPASW28-SW032311	Co-60	Suspended	0 U	0.14	0.019	0.043
EPASW28	EPASW28-SW032311	Co-60	Total	0.46	NA	0.4	0
EPASW28	EPASW28-SW032311	Cs-134	Filtered	0.52 U	1.2	0.37	0.57
EPASW28	EPASW28-SW032311	Cs-134	Suspended	0.15 U	0.73	0.22	0.35
EPASW28	EPASW28-SW032311	Cs-134	Total	0.67	NA	0.43	0
EPASW28	EPASW28-SW032311	Cs-137	Filtered	0.33 U	1.4	0.42	0.67
EPASW28	EPASW28-SW032311	Cs-137	Suspended	0.06 U	0.73	0.21	0.35
EPASW28	EPASW28-SW032311	Cs-137	Total	0.38	NA	0.47	0
EPASW28	EPASW28-SW032311	Eu-152	Filtered	0.54 U	3.2	0.95	1.5
EPASW28	EPASW28-SW032311	Eu-152	Suspended	-0.08 U	1.6	0.46	0.75
EPASW28	EPASW28-SW032311	Eu-152	Total	0.5	NA	1.1	0
EPASW28	EPASW28-SW032311	Eu-154	Filtered	-0.4 U	11	3.1	5.1
EPASW28	EPASW28-SW032311	Eu-154	Suspended	-1.2 U	5.6	1.6	2.6
EPASW28	EPASW28-SW032311	Eu-154	Total	-1.6	NA	3.5	0
EPASW28	EPASW28-SW032311	Eu-155	Filtered	0.48 U	2.8	0.83	1.4
EPASW28	EPASW28-SW032311	Eu-155	Suspended	0.45 U	1.2	0.36	0.58
EPASW28	EPASW28-SW032311	Eu-155	Total	0.93	NA	0.91	0
EPASW28	EPASW28-SW032311	gross_alpha	Filtered	0.64 J	0.46	0.19	0.24
EPASW28	EPASW28-SW032311	gross_alpha	Suspended	0.29	0.47	0.16	0.23
EPASW28	EPASW28-SW032311	gross_alpha	Total	0.93	NA	0.24	0
EPASW28	EPASW28-SW032311	gross_beta	Filtered	1.29	0.69	0.27	0.41
EPASW28	EPASW28-SW032311	gross_beta	Suspended	0.09 U	0.95	0.27	0.56
EPASW28	EPASW28-SW032311	gross_beta	Total	1.17	NA	0.42	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW28	EPASW28-SW032311	H-3_Total	Total	20	90	26	43
EPASW28	EPASW28-SW032311	Ho-166m	Filtered	0.13 U	1.9	0.54	0.87
EPASW28	EPASW28-SW032311	Ho-166m	Suspended	0.0002 U	1.2	0.34	0.55
EPASW28	EPASW28-SW032311	Ho-166m	Total	0.13	NA	0.63	0
EPASW28	EPASW28-SW032311	K-40	Filtered	-5.4 U	20	9.8	9.3
EPASW28	EPASW28-SW032311	K-40	Suspended	-3.2 U	12	3.5	5.7
EPASW28	EPASW28-SW032311	K-40	Total	-9	NA	10	0
EPASW28	EPASW28-SW032311	Na-22	Filtered	0.18 U	1.5	0.43	0.68
EPASW28	EPASW28-SW032311	Na-22	Suspended	0.15 U	0.79	0.23	0.37
EPASW28	EPASW28-SW032311	Na-22	Total	0.33	NA	0.48	0
EPASW28	EPASW28-SW032311	Nb-94	Filtered	0.34 U	1.3	0.37	0.59
EPASW28	EPASW28-SW032311	Nb-94	Suspended	0.02 U	0.66	0.19	0.32
EPASW28	EPASW28-SW032311	Nb-94	Total	0.36	NA	0.42	0
EPASW28	EPASW28-SW032311	Np-236	Filtered	-0.59 U	2.4	0.72	1.2
EPASW28	EPASW28-SW032311	Np-236	Suspended	0.27 U	1.2	0.37	0.59
EPASW28	EPASW28-SW032311	Np-236	Total	-0.32	NA	0.8	0
EPASW28	EPASW28-SW032311	Np-239	Filtered	2 U	6.7	2	3.2
EPASW28	EPASW28-SW032311	Np-239	Suspended	-0.2 U	3.7	1.1	1.8
EPASW28	EPASW28-SW032311	Np-239	Total	1.8	NA	2.3	0
EPASW28	EPASW28-SW032311	Pa-231	Filtered	4 U	52	15	25
EPASW28	EPASW28-SW032311	Pa-231	Suspended	-0.07 U	25	7.3	12
EPASW28	EPASW28-SW032311	Pa-231	Total	3	NA	17	0
EPASW28	EPASW28-SW032311	Pb-212	Filtered	0.25 U	2.6	0.71	1.2
EPASW28	EPASW28-SW032311	Pb-212	Suspended	0.7	1.2	0.4	0.56
EPASW28	EPASW28-SW032311	Pb-212	Total	0.94	NA	0.81	0
EPASW28	EPASW28-SW032311	Pb-214	Filtered	-0.03 U	2.7	0.77	1.3
EPASW28	EPASW28-SW032311	Pb-214	Suspended	-0.57 U	1.5	0.74	0.72
EPASW28	EPASW28-SW032311	Pb-214	Total	-0.6	NA	1.1	0
EPASW28	EPASW28-SW032311	Sb-125	Filtered	0.8 U	11	3.2	5.2
EPASW28	EPASW28-SW032311	Sb-125	Suspended	-0.7 U	5.8	1.7	2.8

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW28	EPASW28-SW032311	Sb-125	Total	0.02	NA	3.6	0
EPASW28	EPASW28-SW032311	Sn-126	Filtered	0.85	1.4	0.44	0.67
EPASW28	EPASW28-SW032311	Sn-126	Suspended	0.27 U	0.76	0.23	0.36
EPASW28	EPASW28-SW032311	Sn-126	Total	1.12	NA	0.5	0
EPASW28	EPASW28-SW032311	Sr-90	Filtered	0.105	0.13	0.04	0.064
EPASW28	EPASW28-SW032311	Sr-90	Suspended	0.01 U	0.09	0.03	0.05
EPASW28	EPASW28-SW032311	Sr-90	Total	0.12	NA	0.05	0
EPASW28	EPASW28-SW032311	Te-125m	Filtered	0.18 U	2.5	0.74	1.2
EPASW28	EPASW28-SW032311	Te-125m	Suspended	-0.17 U	1.3	0.4	0.65
EPASW28	EPASW28-SW032311	Te-125m	Total	0.005	NA	0.84	0
EPASW28	EPASW28-SW032311	Th-231	Filtered	0.0147	0.008	0.0066	0.0069
EPASW28	EPASW28-SW032311	Th-231	Suspended	0.0005 U	0.017	0.0034	0.0052
EPASW28	EPASW28-SW032311	Th-231	Total	0.0152	NA	0.0074	0
EPASW28	EPASW28-SW032311	Th-234	Filtered	7.1 U	22	7.6	11
EPASW28	EPASW28-SW032311	Th-234	Suspended	-0.1 U	9	3	4.4
EPASW28	EPASW28-SW032311	Th-234	Total	6.9	NA	8.2	0
EPASW28	EPASW28-SW032311	Tl-208	Filtered	-0.4 U	1.7	1.1	0.8
EPASW28	EPASW28-SW032311	Tl-208	Suspended	-0.4 U	0.86	0.49	0.42
EPASW28	EPASW28-SW032311	Tl-208	Total	-0.8	NA	1.2	0
EPASW28	EPASW28-SW032311	Tm-171	Filtered	-28 U	280	81	130
EPASW28	EPASW28-SW032311	Tm-171	Suspended	0.6 U	110	33	55
EPASW28	EPASW28-SW032311	Tm-171	Total	-27	NA	88	0
EPASW28	EPASW28-SW032311	U-233/234	Filtered	0.3	0.02	0.03	0.01
EPASW28	EPASW28-SW032311	U-233/234	Suspended	0.01	0.02	0.01	0.01
EPASW28	EPASW28-SW032311	U-233/234	Total	0.31	NA	0.03	0
EPASW28	EPASW28-SW032311	U-235/236	Filtered	0.01	0.01	0.01	0.01
EPASW28	EPASW28-SW032311	U-235/236	Suspended	0.01 U	0.02	0.01	0.01
EPASW28	EPASW28-SW032311	U-235/236	Total	0.02	NA	0.01	0
EPASW28	EPASW28-SW032311	U-238	Filtered	0.26	0.01	0.03	0.01
EPASW28	EPASW28-SW032311	U-238	Suspended	0.02	0.02	0.01	0.01

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW28	EPASW28-SW032311	U-238	Total	0.28	NA	0.03	0
EPASW29	EPASW29-SW032911	Ac-227	Filtered	-3.8 U	9.8	3	4.8
EPASW29	EPASW29-SW032911	Ac-227	Suspended	-2.4 UL	4.6	1.4	2.2
EPASW29	EPASW29-SW032911	Ac-227	Total	-6.2	NA	3.3	0
EPASW29	EPASW29-SW032911	Ac-228	Filtered	-0.5 U	3.8	1.1	1.8
EPASW29	EPASW29-SW032911	Ac-228	Suspended	-1.4 U	3.1	1.9	1.5
EPASW29	EPASW29-SW032911	Ac-228	Total	-1.9	NA	2.2	0
EPASW29	EPASW29-SW032911	Ag-108	Filtered	-0.016 U	0.11	0.032	0.052
EPASW29	EPASW29-SW032911	Ag-108	Suspended	-0.008 U	0.058	0.017	0.028
EPASW29	EPASW29-SW032911	Ag-108	Total	-0.023	NA	0.036	0
EPASW29	EPASW29-SW032911	Ag-108m	Filtered	-0.17 U	1.2	0.35	0.56
EPASW29	EPASW29-SW032911	Ag-108m	Suspended	-0.08 U	0.62	0.18	0.3
EPASW29	EPASW29-SW032911	Ag-108m	Total	-0.25	NA	0.39	0
EPASW29	EPASW29-SW032911	Ba-133	Filtered	0 U	13	3.9	6.4
EPASW29	EPASW29-SW032911	Ba-133	Suspended	0 U	5.9	1.7	2.9
EPASW29	EPASW29-SW032911	Ba-133	Total	0	NA	4.2	0
EPASW29	EPASW29-SW032911	Ba-137m	Filtered	-0.17 U	1.2	0.34	0.56
EPASW29	EPASW29-SW032911	Ba-137m	Suspended	-0.13 U	0.71	0.21	0.34
EPASW29	EPASW29-SW032911	Ba-137m	Total	-0.3	NA	0.4	0
EPASW29	EPASW29-SW032911	Bi-212	Filtered	5.3	10	3.1	4.8
EPASW29	EPASW29-SW032911	Bi-212	Suspended	3.6	5	1.6	2.4
EPASW29	EPASW29-SW032911	Bi-212	Total	8.9	NA	3.5	0
EPASW29	EPASW29-SW032911	Bi-214	Filtered	1.4	2.8	1	1.3
EPASW29	EPASW29-SW032911	Bi-214	Suspended	1.26	1.5	0.5	0.72
EPASW29	EPASW29-SW032911	Bi-214	Total	2.7	NA	1.2	0
EPASW29	EPASW29-SW032911	Cd-113m	Filtered	-3300 U	14000	4300	6900
EPASW29	EPASW29-SW032911	Cd-113m	Suspended	2600 U	6200	1900	3000
EPASW29	EPASW29-SW032911	Cd-113m	Total	-700	NA	4700	0
EPASW29	EPASW29-SW032911	Cf-249	Filtered	0.3 U	5.9	1.7	2.8
EPASW29	EPASW29-SW032911	Cf-249	Suspended	0.11 U	2.9	0.86	1.4

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW29	EPASW29-SW032911	Cf-249	Total	0.5	NA	1.9	0
EPASW29	EPASW29-SW032911	Co-60	Filtered	0.21 U	1.4	0.39	0.63
EPASW29	EPASW29-SW032911	Co-60	Suspended	0.006 U	0.75	0.21	0.35
EPASW29	EPASW29-SW032911	Co-60	Total	0.21	NA	0.45	0
EPASW29	EPASW29-SW032911	Cs-134	Filtered	-0.02 U	1.2	0.36	0.59
EPASW29	EPASW29-SW032911	Cs-134	Suspended	0.002 UJ	0.71	0.21	0.34
EPASW29	EPASW29-SW032911	Cs-134	Total	-0.01	NA	0.42	0
EPASW29	EPASW29-SW032911	Cs-137	Filtered	-0.18 U	1.3	0.36	0.59
EPASW29	EPASW29-SW032911	Cs-137	Suspended	-0.13 U	0.75	0.22	0.36
EPASW29	EPASW29-SW032911	Cs-137	Total	-0.31	NA	0.43	0
EPASW29	EPASW29-SW032911	Eu-152	Filtered	0.211 U	3.4	0.998	1.6
EPASW29	EPASW29-SW032911	Eu-152	Suspended	-0.39 U	1.8	0.55	0.89
EPASW29	EPASW29-SW032911	Eu-152	Total	-0.2	NA	1.1	0
EPASW29	EPASW29-SW032911	Eu-154	Filtered	-0.003 U	10	2.9	4.8
EPASW29	EPASW29-SW032911	Eu-154	Suspended	0.6 U	5.8	1.7	2.8
EPASW29	EPASW29-SW032911	Eu-154	Total	0.5	NA	3.4	0
EPASW29	EPASW29-SW032911	Eu-155	Filtered	-0.9 U	3.5	1	1.7
EPASW29	EPASW29-SW032911	Eu-155	Suspended	0.38 U	1.3	0.39	0.63
EPASW29	EPASW29-SW032911	Eu-155	Total	-0.5	NA	1.1	0
EPASW29	EPASW29-SW032911	gross_alpha	Filtered	0.91	0.62	0.25	0.32
EPASW29	EPASW29-SW032911	gross_alpha	Suspended	0 U	0.8	0.21	0.45
EPASW29	EPASW29-SW032911	gross_alpha	Total	0.91	NA	0.33	0
EPASW29	EPASW29-SW032911	gross_beta	Filtered	2.49	1.2	0.46	0.74
EPASW29	EPASW29-SW032911	gross_beta	Suspended	0.58	0.7	0.23	0.42
EPASW29	EPASW29-SW032911	gross_beta	Total	3.07	NA	0.52	0
EPASW29	EPASW29-SW032911	H-3_Total	Total	0	73	21	34
EPASW29	EPASW29-SW032911	Ho-166m	Filtered	-0.75 U	2.1	0.64	1
EPASW29	EPASW29-SW032911	Ho-166m	Suspended	0.11 U	1.3	0.37	0.61
EPASW29	EPASW29-SW032911	Ho-166m	Total	-0.64	NA	0.74	0
EPASW29	EPASW29-SW032911	K-40	Filtered	6.6 U	17	6.2	8.1

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW29	EPASW29-SW032911	K-40	Suspended	-4.9 U	13	5	6
EPASW29	EPASW29-SW032911	K-40	Total	1.7	NA	8	0
EPASW29	EPASW29-SW032911	Na-22	Filtered	0 U	1.8	0.5	0.83
EPASW29	EPASW29-SW032911	Na-22	Suspended	-0.01 U	0.71	0.2	0.33
EPASW29	EPASW29-SW032911	Na-22	Total	-0.01	NA	0.54	0
EPASW29	EPASW29-SW032911	Nb-94	Filtered	0.38 U	1.2	0.35	0.55
EPASW29	EPASW29-SW032911	Nb-94	Suspended	-0.12 U	0.54	0.16	0.25
EPASW29	EPASW29-SW032911	Nb-94	Total	0.26	NA	0.38	0
EPASW29	EPASW29-SW032911	Np-236	Filtered	-1.27 U	3	0.9	1.4
EPASW29	EPASW29-SW032911	Np-236	Suspended	-0.33 U	1.3	0.39	0.63
EPASW29	EPASW29-SW032911	Np-236	Total	-1.6	NA	0.98	0
EPASW29	EPASW29-SW032911	Np-239	Filtered	-3 U	8.1	2.4	3.9
EPASW29	EPASW29-SW032911	Np-239	Suspended	-0.2 U	3.8	1.1	1.8
EPASW29	EPASW29-SW032911	Np-239	Total	-3.2	NA	2.7	0
EPASW29	EPASW29-SW032911	Pa-231	Filtered	-0.3 U	55	16	27
EPASW29	EPASW29-SW032911	Pa-231	Suspended	0.01 U	25	7.5	12
EPASW29	EPASW29-SW032911	Pa-231	Total	-0.3	NA	18	0
EPASW29	EPASW29-SW032911	Pb-212	Filtered	0.28 U	2.6	0.91	1.3
EPASW29	EPASW29-SW032911	Pb-212	Suspended	0.83	1.1	0.42	0.55
EPASW29	EPASW29-SW032911	Pb-212	Total	1.1	NA	1	0
EPASW29	EPASW29-SW032911	Pb-214	Filtered	-1 U	2.9	1.8	1.4
EPASW29	EPASW29-SW032911	Pb-214	Suspended	0.22 U	1.5	0.43	0.74
EPASW29	EPASW29-SW032911	Pb-214	Total	-0.7	NA	1.8	0
EPASW29	EPASW29-SW032911	Sb-125	Filtered	0.1 U	13	4	6.6
EPASW29	EPASW29-SW032911	Sb-125	Suspended	0.5 U	5.7	1.7	2.8
EPASW29	EPASW29-SW032911	Sb-125	Total	0.6	NA	4.3	0
EPASW29	EPASW29-SW032911	Sn-126	Filtered	0.17 U	1.4	0.41	0.67
EPASW29	EPASW29-SW032911	Sn-126	Suspended	0.18 U	0.84	0.25	0.41
EPASW29	EPASW29-SW032911	Sn-126	Total	0.35	NA	0.48	0
EPASW29	EPASW29-SW032911	Sr-90	Filtered	0.013 U	0.13	0.037	0.073

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW29	EPASW29-SW032911	Sr-90	Suspended	0.107	0.11	0.034	0.059
EPASW29	EPASW29-SW032911	Sr-90	Total	0.12	NA	0.051	0
EPASW29	EPASW29-SW032911	Te-125m	Filtered	0.03 U	3.1	0.92	1.5
EPASW29	EPASW29-SW032911	Te-125m	Suspended	0.11 U	1.3	0.39	0.64
EPASW29	EPASW29-SW032911	Te-125m	Total	0.14	NA	0.998	0
EPASW29	EPASW29-SW032911	Th-231	Filtered	0.0025 U	0.0069	0.0026	0.0059
EPASW29	EPASW29-SW032911	Th-231	Suspended	0.0024 U	0.0065	0.0024	0.0056
EPASW29	EPASW29-SW032911	Th-231	Total	0.0049	NA	0.0035	0
EPASW29	EPASW29-SW032911	Th-234	Filtered	-5.2 U	21	9.3	10
EPASW29	EPASW29-SW032911	Th-234	Suspended	0.4 U	9.6	3.3	4.7
EPASW29	EPASW29-SW032911	Th-234	Total	-4.8	NA	9.9	0
EPASW29	EPASW29-SW032911	Tl-208	Filtered	0.39 U	1.4	0.45	0.65
EPASW29	EPASW29-SW032911	Tl-208	Suspended	0.21 U	0.8	0.29	0.38
EPASW29	EPASW29-SW032911	Tl-208	Total	0.59	NA	0.54	0
EPASW29	EPASW29-SW032911	Tm-171	Filtered	110 U	360	110	180
EPASW29	EPASW29-SW032911	Tm-171	Suspended	-0.09 U	110	33	55
EPASW29	EPASW29-SW032911	Tm-171	Total	110	NA	110	0
EPASW29	EPASW29-SW032911	U-233/234	Filtered	0.11	0.01	0.02	0
EPASW29	EPASW29-SW032911	U-233/234	Suspended	0.04	0.01	0.01	0
EPASW29	EPASW29-SW032911	U-233/234	Total	0.15	NA	0.02	0
EPASW29	EPASW29-SW032911	U-235/236	Filtered	0 U	0.01	0	0.01
EPASW29	EPASW29-SW032911	U-235/236	Suspended	0 U	0.01	0	0.01
EPASW29	EPASW29-SW032911	U-235/236	Total	0	NA	0	0
EPASW29	EPASW29-SW032911	U-238	Filtered	0.08	0.02	0.01	0.01
EPASW29	EPASW29-SW032911	U-238	Suspended	0.05	0.01	0.01	0
EPASW29	EPASW29-SW032911	U-238	Total	0.13	NA	0.02	0
EPASW30	EPASW30-SW032111	Ac-227	Filtered	-4.4 U	9.6	2.9	4.6
EPASW30	EPASW30-SW032111	Ac-227	Suspended	-2.4 UL	4.7	1.4	2.3
EPASW30	EPASW30-SW032111	Ac-227	Total	-6.8	NA	3.2	0
EPASW30	EPASW30-SW032111	Ac-228	Filtered	2.5	5.2	1.6	2.4

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW30	EPASW30-SW032111	Ac-228	Suspended	-1.4 U	2.9	2	1.4
EPASW30	EPASW30-SW032111	Ac-228	Total	1	NA	2.5	0
EPASW30	EPASW30-SW032111	Ag-108	Filtered	-0.019 U	0.11	0.033	0.054
EPASW30	EPASW30-SW032111	Ag-108	Suspended	0.003 U	0.056	0.016	0.027
EPASW30	EPASW30-SW032111	Ag-108	Total	-0.016	NA	0.037	0
EPASW30	EPASW30-SW032111	Ag-108m	Filtered	-0.2 U	1.2	0.36	0.58
EPASW30	EPASW30-SW032111	Ag-108m	Suspended	0.03 U	0.6	0.18	0.29
EPASW30	EPASW30-SW032111	Ag-108m	Total	-0.18	NA	0.4	0
EPASW30	EPASW30-SW032111	Ba-133	Filtered	2.9 U	12	3.5	5.7
EPASW30	EPASW30-SW032111	Ba-133	Suspended	-1.5 U	6.4	1.9	3.1
EPASW30	EPASW30-SW032111	Ba-133	Total	1.4	NA	4	0
EPASW30	EPASW30-SW032111	Ba-137m	Filtered	0.07 U	1.4	0.41	0.68
EPASW30	EPASW30-SW032111	Ba-137m	Suspended	0.26 U	0.62	0.19	0.29
EPASW30	EPASW30-SW032111	Ba-137m	Total	0.33	NA	0.45	0
EPASW30	EPASW30-SW032111	Bi-212	Filtered	0.9 U	12	3.4	5.6
EPASW30	EPASW30-SW032111	Bi-212	Suspended	-2 U	7	46	3
EPASW30	EPASW30-SW032111	Bi-212	Total	-1	NA	46	0
EPASW30	EPASW30-SW032111	Bi-214	Filtered	2.1	3	0.94	1.4
EPASW30	EPASW30-SW032111	Bi-214	Suspended	0.07 U	1.7	0.55	0.8
EPASW30	EPASW30-SW032111	Bi-214	Total	2.2	NA	1.1	0
EPASW30	EPASW30-SW032111	Cd-113m	Filtered	-4100 U	15000	4400	7000
EPASW30	EPASW30-SW032111	Cd-113m	Suspended	-40 U	7300	2200	3600
EPASW30	EPASW30-SW032111	Cd-113m	Total	-4200	NA	4900	0
EPASW30	EPASW30-SW032111	Cf-249	Filtered	2.1 U	5.9	1.8	2.8
EPASW30	EPASW30-SW032111	Cf-249	Suspended	0.8 U	3.2	0.95	1.5
EPASW30	EPASW30-SW032111	Cf-249	Total	2.9	NA	2	0
EPASW30	EPASW30-SW032111	Co-60	Filtered	0.71	1.5	0.46	0.68
EPASW30	EPASW30-SW032111	Co-60	Suspended	0.29 U	0.71	0.21	0.33
EPASW30	EPASW30-SW032111	Co-60	Total	0.99	NA	0.5	0
EPASW30	EPASW30-SW032111	Cs-134	Filtered	-0.3 U	1.5	0.45	0.72

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW30	EPASW30-SW032111	Cs-134	Suspended	0.17 U	0.79	0.24	0.38
EPASW30	EPASW30-SW032111	Cs-134	Total	-0.13	NA	0.5	0
EPASW30	EPASW30-SW032111	Cs-137	Filtered	0.08 U	1.5	0.44	0.71
EPASW30	EPASW30-SW032111	Cs-137	Suspended	0.27 U	0.65	0.2	0.31
EPASW30	EPASW30-SW032111	Cs-137	Total	0.35	NA	0.48	0
EPASW30	EPASW30-SW032111	Eu-152	Filtered	-0.7 U	3.8	1.1	1.8
EPASW30	EPASW30-SW032111	Eu-152	Suspended	0.11 U	1.9	0.56	0.92
EPASW30	EPASW30-SW032111	Eu-152	Total	-0.6	NA	1.2	0
EPASW30	EPASW30-SW032111	Eu-154	Filtered	-0.07 U	13	3.6	5.9
EPASW30	EPASW30-SW032111	Eu-154	Suspended	1.6 U	5.3	1.6	2.5
EPASW30	EPASW30-SW032111	Eu-154	Total	1.6	NA	3.9	0
EPASW30	EPASW30-SW032111	Eu-155	Filtered	0.06 U	2.7	0.79	1.3
EPASW30	EPASW30-SW032111	Eu-155	Suspended	0.12 U	1.2	0.36	0.59
EPASW30	EPASW30-SW032111	Eu-155	Total	0.18	NA	0.87	0
EPASW30	EPASW30-SW032111	gross_alpha	Filtered	0.44	0.48	0.17	0.26
EPASW30	EPASW30-SW032111	gross_alpha	Suspended	0.57 J	0.34	0.15	0.17
EPASW30	EPASW30-SW032111	gross_alpha	Total	1.01	NA	0.23	0
EPASW30	EPASW30-SW032111	gross_beta	Filtered	1.91	1.1	0.4	0.64
EPASW30	EPASW30-SW032111	gross_beta	Suspended	0.73	0.81	0.27	0.48
EPASW30	EPASW30-SW032111	gross_beta	Total	2.64	NA	0.48	0
EPASW30	EPASW30-SW032111	H-3	Total	-25	61	16	28
EPASW30	EPASW30-SW032111	Ho-166m	Filtered	-0.36 U	2.6	0.76	1.2
EPASW30	EPASW30-SW032111	Ho-166m	Suspended	0 U	1.2	0.34	0.56
EPASW30	EPASW30-SW032111	Ho-166m	Total	-0.36	NA	0.83	0
EPASW30	EPASW30-SW032111	K-40	Filtered	5.9 U	18	5.2	8
EPASW30	EPASW30-SW032111	K-40	Suspended	-5 U	11	4.9	5.4
EPASW30	EPASW30-SW032111	K-40	Total	0.9	NA	7.2	0
EPASW30	EPASW30-SW032111	Na-22	Filtered	0.24 U	1.4	0.41	0.64
EPASW30	EPASW30-SW032111	Na-22	Suspended	0.22 U	0.75	0.22	0.35
EPASW30	EPASW30-SW032111	Na-22	Total	0.46	NA	0.46	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW30	EPASW30-SW032111	Nb-94	Filtered	0.49 U	1.2	0.36	0.56
EPASW30	EPASW30-SW032111	Nb-94	Suspended	0.003 U	0.58	0.17	0.28
EPASW30	EPASW30-SW032111	Nb-94	Total	0.49	NA	0.4	0
EPASW30	EPASW30-SW032111	Np-236	Filtered	0.17 U	2.4	0.7	1.1
EPASW30	EPASW30-SW032111	Np-236	Suspended	0.28 U	1.1	0.32	0.52
EPASW30	EPASW30-SW032111	Np-236	Total	0.45	NA	0.77	0
EPASW30	EPASW30-SW032111	Np-239	Filtered	-3.1 U	8.8	2.7	4.3
EPASW30	EPASW30-SW032111	Np-239	Suspended	-0.008 U	3.6	1	1.7
EPASW30	EPASW30-SW032111	Np-239	Total	-3.1	NA	2.9	0
EPASW30	EPASW30-SW032111	Pa-231	Filtered	2 U	56	16	27
EPASW30	EPASW30-SW032111	Pa-231	Suspended	-10 U	28	8.5	14
EPASW30	EPASW30-SW032111	Pa-231	Total	-8	NA	19	0
EPASW30	EPASW30-SW032111	Pb-212	Filtered	1.42	2.2	0.81	1.1
EPASW30	EPASW30-SW032111	Pb-212	Suspended	0.34 U	1.3	0.47	0.61
EPASW30	EPASW30-SW032111	Pb-212	Total	1.76	NA	0.94	0
EPASW30	EPASW30-SW032111	Pb-214	Filtered	0.64 U	2.8	0.8	1.4
EPASW30	EPASW30-SW032111	Pb-214	Suspended	0.33 U	1.6	0.63	0.79
EPASW30	EPASW30-SW032111	Pb-214	Total	1	NA	1	0
EPASW30	EPASW30-SW032111	Sb-125	Filtered	-2.4 U	13	3.8	6.2
EPASW30	EPASW30-SW032111	Sb-125	Suspended	0.9 U	5.8	1.7	2.8
EPASW30	EPASW30-SW032111	Sb-125	Total	-1.4	NA	4.2	0
EPASW30	EPASW30-SW032111	Sn-126	Filtered	0.38 U	1.6	0.46	0.73
EPASW30	EPASW30-SW032111	Sn-126	Suspended	0.44	0.87	0.26	0.42
EPASW30	EPASW30-SW032111	Sn-126	Total	0.81	NA	0.53	0
EPASW30	EPASW30-SW032111	Sr-90	Filtered	-0.061 U	0.2	0.055	0.12
EPASW30	EPASW30-SW032111	Sr-90	Suspended	0.03 U	0.11	0.034	0.058
EPASW30	EPASW30-SW032111	Sr-90	Total	-0.031	NA	0.064	0
EPASW30	EPASW30-SW032111	Te-125m	Filtered	-0.54 U	3	0.89	1.4
EPASW30	EPASW30-SW032111	Te-125m	Suspended	0.22 U	1.3	0.4	0.65
EPASW30	EPASW30-SW032111	Te-125m	Total	-0.33	NA	0.97	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW30	EPASW30-SW032111	Th-231	Filtered	0.0027 U	0.0073	0.0027	0.0063
EPASW30	EPASW30-SW032111	Th-231	Suspended	0.0005 U	0.015	0.0031	0.0048
EPASW30	EPASW30-SW032111	Th-231	Total	0.0032	NA	0.0041	0
EPASW30	EPASW30-SW032111	Th-234	Filtered	12.5	24	8.3	12
EPASW30	EPASW30-SW032111	Th-234	Suspended	1.6 U	6.8	2	3.3
EPASW30	EPASW30-SW032111	Th-234	Total	14.1	NA	8.5	0
EPASW30	EPASW30-SW032111	Tl-208	Filtered	0.3 U	1.5	0.42	0.73
EPASW30	EPASW30-SW032111	Tl-208	Suspended	0.36 U	0.87	0.37	0.42
EPASW30	EPASW30-SW032111	Tl-208	Total	0.66	NA	0.56	0
EPASW30	EPASW30-SW032111	Tm-171	Filtered	2 U	330	97	160
EPASW30	EPASW30-SW032111	Tm-171	Suspended	-19 U	120	36	58
EPASW30	EPASW30-SW032111	Tm-171	Total	-20	NA	100	0
EPASW30	EPASW30-SW032111	U-233/234	Filtered	0.04	0.01	0.01	0.01
EPASW30	EPASW30-SW032111	U-233/234	Suspended	0.05	0.02	0.01	0.01
EPASW30	EPASW30-SW032111	U-233/234	Total	0.09	NA	0.02	0
EPASW30	EPASW30-SW032111	U-235/236	Filtered	0 U	0.01	0	0.01
EPASW30	EPASW30-SW032111	U-235/236	Suspended	0 U	0.02	0	0
EPASW30	EPASW30-SW032111	U-235/236	Total	0	NA	0	0
EPASW30	EPASW30-SW032111	U-238	Filtered	0.02	0.01	0.01	0
EPASW30	EPASW30-SW032111	U-238	Suspended	0.04	0.01	0.01	0
EPASW30	EPASW30-SW032111	U-238	Total	0.07	NA	0.01	0
EPASW31	EPASW-31T-SW052311	Ac-227	Filtered	-5 UL	8.9	2.7	4.4
EPASW31	EPASW-31B-SW052311	Ac-227	Filtered	-0.2 U	13	3.9	6.4
EPASW31	EPASW-31B-SW052311	Ac-227	Suspended	0.7 U	6.3	1.9	3.1
EPASW31	EPASW-31T-SW052311	Ac-227	Suspended	-1.2 U	6.4	1.9	3.1
EPASW31	EPASW-31B-SW052311	Ac-227	Total	0.5	NA	4.3	0
EPASW31	EPASW-31T-SW052311	Ac-227	Total	-6.2	NA	3.3	0
EPASW31	EPASW-31T-SW052311	Ac-228	Filtered	1.39 U	3.3	0.99	1.5
EPASW31	EPASW-31B-SW052311	Ac-228	Filtered	0.67 U	6.1	0.53	2.8
EPASW31	EPASW-31T-SW052311	Ac-228	Suspended	1.65 UJ	4	0.51	1.9

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW31	EPASW-31B-SW052311	Ac-228	Suspended	-0.4 UJ	5	1.1	2.4
EPASW31	EPASW-31B-SW052311	Ac-228	Total	0.2	NA	1.2	0
EPASW31	EPASW-31T-SW052311	Ac-228	Total	3	NA	1.1	0
EPASW31	EPASW-31T-SW052311	Ag-108	Filtered	0 U	0.084	0.024	0.04
EPASW31	EPASW-31B-SW052311	Ag-108	Filtered	0.031 U	0.091	0.027	0.043
EPASW31	EPASW-31T-SW052311	Ag-108	Suspended	-0.014 U	0.066	0.02	0.032
EPASW31	EPASW-31B-SW052311	Ag-108	Suspended	-0.0007 U	0.068	0.02	0.033
EPASW31	EPASW-31B-SW052311	Ag-108	Total	0.03	NA	0.034	0
EPASW31	EPASW-31T-SW052311	Ag-108	Total	-0.014	NA	0.031	0
EPASW31	EPASW-31T-SW052311	Ag-108m	Filtered	0.0003 U	0.91	0.26	0.43
EPASW31	EPASW-31B-SW052311	Ag-108m	Filtered	0.33 U	0.98	0.29	0.46
EPASW31	EPASW-31T-SW052311	Ag-108m	Suspended	-0.15 U	0.71	0.21	0.34
EPASW31	EPASW-31B-SW052311	Ag-108m	Suspended	-0.007 U	0.74	0.21	0.35
EPASW31	EPASW-31B-SW052311	Ag-108m	Total	0.33	NA	0.36	0
EPASW31	EPASW-31T-SW052311	Ag-108m	Total	-0.15	NA	0.34	0
EPASW31	EPASW-31B-SW052311	Ba-133	Filtered	0.33 U	1.4	0.45	0.69
EPASW31	EPASW-31T-SW052311	Ba-133	Filtered	3.2 U	10	3.1	5
EPASW31	EPASW-31T-SW052311	Ba-133	Suspended	0.1 U	0.77	0.23	0.37
EPASW31	EPASW-31B-SW052311	Ba-133	Suspended	-0.07 U	0.81	0.13	0.39
EPASW31	EPASW-31B-SW052311	Ba-133	Total	0.25	NA	0.46	0
EPASW31	EPASW-31T-SW052311	Ba-133	Total	3.3	NA	3.1	0
EPASW31	EPASW-31B-SW052311	Ba-137m	Filtered	0.18 U	0.93	0.27	0.44
EPASW31	EPASW-31T-SW052311	Ba-137m	Filtered	-0.2 U	1.1	0.34	0.54
EPASW31	EPASW-31T-SW052311	Ba-137m	Suspended	-0.06 U	0.63	0.18	0.3
EPASW31	EPASW-31B-SW052311	Ba-137m	Suspended	0.22 U	0.64	0.19	0.3
EPASW31	EPASW-31B-SW052311	Ba-137m	Total	0.4	NA	0.33	0
EPASW31	EPASW-31T-SW052311	Ba-137m	Total	-0.26	NA	0.38	0
EPASW31	EPASW-31T-SW052311	Bi-212	Filtered	3.7 U	8.7	2.6	4.1
EPASW31	EPASW-31B-SW052311	Bi-212	Filtered	1.2 U	9.5	1.5	4.5
EPASW31	EPASW-31T-SW052311	Bi-212	Suspended	3	4.7	1.5	2.2

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW31	EPASW-31B-SW052311	Bi-212	Suspended	3.3	5.6	2.1	2.7
EPASW31	EPASW-31B-SW052311	Bi-212	Total	4.5	NA	2.6	0
EPASW31	EPASW-31T-SW052311	Bi-212	Total	6.7	NA	3	0
EPASW31	EPASW-31B-SW052311	Bi-214	Filtered	1.9	2.3	1.1	1.1
EPASW31	EPASW-31T-SW052311	Bi-214	Filtered	1.45	2.4	1	1.2
EPASW31	EPASW-31B-SW052311	Bi-214	Suspended	0.96	1.6	0.55	0.8
EPASW31	EPASW-31T-SW052311	Bi-214	Suspended	0.67 U	1.8	0.66	0.85
EPASW31	EPASW-31B-SW052311	Bi-214	Total	2.9	NA	1.3	0
EPASW31	EPASW-31T-SW052311	Bi-214	Total	2.1	NA	1.2	0
EPASW31	EPASW-31B-SW052311	Cd-113m	Filtered	40 U	3100	910	1500
EPASW31	EPASW-31T-SW052311	Cd-113m	Filtered	-400 U	14000	4200	6900
EPASW31	EPASW-31B-SW052311	Cd-113m	Suspended	600 U	1400	430	690
EPASW31	EPASW-31T-SW052311	Cd-113m	Suspended	630 U	1800	540	870
EPASW31	EPASW-31B-SW052311	Cd-113m	Total	600	NA	1000	0
EPASW31	EPASW-31T-SW052311	Cd-113m	Total	200	NA	4200	0
EPASW31	EPASW-31T-SW052311	Cf-249	Filtered	0.03 U	5.3	1.6	2.6
EPASW31	EPASW-31B-SW052311	Cf-249	Filtered	-1 U	5.4	1.6	2.6
EPASW31	EPASW-31B-SW052311	Cf-249	Suspended	0.36 U	2.4	0.72	1.2
EPASW31	EPASW-31T-SW052311	Cf-249	Suspended	0.12 U	2.5	0.19	1.2
EPASW31	EPASW-31B-SW052311	Cf-249	Total	-0.7	NA	1.8	0
EPASW31	EPASW-31T-SW052311	Cf-249	Total	0.2	NA	1.6	0
EPASW31	EPASW-31B-SW052311	Co-60	Filtered	0.04 U	1.1	0.12	0.53
EPASW31	EPASW-31T-SW052311	Co-60	Filtered	0.01 U	1.1	0.3	0.5
EPASW31	EPASW-31T-SW052311	Co-60	Suspended	0.04 U	0.49	0.14	0.22
EPASW31	EPASW-31B-SW052311	Co-60	Suspended	0.179 U	0.75	0.092	0.35
EPASW31	EPASW-31B-SW052311	Co-60	Total	0.22	NA	0.15	0
EPASW31	EPASW-31T-SW052311	Co-60	Total	0.05	NA	0.33	0
EPASW31	EPASW-31B-SW052311	Cs-134	Filtered	0.09 U	0.97	0.26	0.46
EPASW31	EPASW-31T-SW052311	Cs-134	Filtered	0.28 U	1	0.3	0.47
EPASW31	EPASW-31T-SW052311	Cs-134	Suspended	0.25 U	0.66	0.19	0.32

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW31	EPASW-31B-SW052311	Cs-134	Suspended	0.19 U	0.69	0.23	0.33
EPASW31	EPASW-31B-SW052311	Cs-134	Total	0.28	NA	0.35	0
EPASW31	EPASW-31T-SW052311	Cs-134	Total	0.53	NA	0.35	0
EPASW31	EPASW-31B-SW052311	Cs-137	Filtered	0.19 U	0.98	0.29	0.46
EPASW31	EPASW-31T-SW052311	Cs-137	Filtered	-0.21 U	1.2	0.35	0.57
EPASW31	EPASW-31T-SW052311	Cs-137	Suspended	-0.06 U	0.67	0.19	0.32
EPASW31	EPASW-31B-SW052311	Cs-137	Suspended	0.24 U	0.68	0.2	0.32
EPASW31	EPASW-31B-SW052311	Cs-137	Total	0.43	NA	0.35	0
EPASW31	EPASW-31T-SW052311	Cs-137	Total	-0.27	NA	0.4	0
EPASW31	EPASW-31B-SW052311	Eu-152	Filtered	-0.04 U	3.1	0.92	1.5
EPASW31	EPASW-31T-SW052311	Eu-152	Filtered	-0.09 U	3.2	0.93	1.5
EPASW31	EPASW-31B-SW052311	Eu-152	Suspended	0.41 U	1.5	0.46	0.73
EPASW31	EPASW-31T-SW052311	Eu-152	Suspended	0.55 U	1.8	0.64	0.86
EPASW31	EPASW-31B-SW052311	Eu-152	Total	0.4	NA	1	0
EPASW31	EPASW-31T-SW052311	Eu-152	Total	0.5	NA	1.1	0
EPASW31	EPASW-31B-SW052311	Eu-154	Filtered	0.56 U	6.7	0.53	3.2
EPASW31	EPASW-31T-SW052311	Eu-154	Filtered	0.4 U	7	2	3.2
EPASW31	EPASW-31T-SW052311	Eu-154	Suspended	-0.4 U	3.7	1.1	1.7
EPASW31	EPASW-31B-SW052311	Eu-154	Suspended	-1.4 U	4.3	1.3	2.1
EPASW31	EPASW-31B-SW052311	Eu-154	Total	-0.9	NA	1.4	0
EPASW31	EPASW-31T-SW052311	Eu-154	Total	0.03	NA	2.2	0
EPASW31	EPASW-31T-SW052311	Eu-155	Filtered	1.04 U	3.1	0.94	1.5
EPASW31	EPASW-31B-SW052311	Eu-155	Filtered	-0.86 U	3.2	0.96	1.6
EPASW31	EPASW-31T-SW052311	Eu-155	Suspended	0.37 U	1.2	0.37	0.59
EPASW31	EPASW-31B-SW052311	Eu-155	Suspended	-0.12 U	1.3	0.4	0.65
EPASW31	EPASW-31B-SW052311	Eu-155	Total	-1	NA	1	0
EPASW31	EPASW-31T-SW052311	Eu-155	Total	1.4	NA	1	0
EPASW31	EPASW-31T-SW052311	gross_alpha	Filtered	0.51	0.61	0.21	0.32
EPASW31	EPASW-31B-SW052311	gross_alpha	Filtered	0.46	0.62	0.21	0.33
EPASW31	EPASW-31B-SW052311	gross_alpha	Suspended	0.12 U	0.65	0.18	0.35

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW31	EPASW-31T-SW052311	gross_alpha	Suspended	0.59	0.83	0.27	0.45
EPASW31	EPASW-31B-SW052311	gross_alpha	Total	0.57	NA	0.27	0
EPASW31	EPASW-31T-SW052311	gross_alpha	Total	1.1	NA	0.34	0
EPASW31	EPASW-31B-SW052311	gross_beta	Filtered	2.17	1.1	0.42	0.64
EPASW31	EPASW-31T-SW052311	gross_beta	Filtered	-0.12 U	2.1	0.58	1.2
EPASW31	EPASW-31B-SW052311	gross_beta	Suspended	1.14	0.72	0.26	0.42
EPASW31	EPASW-31T-SW052311	gross_beta	Suspended	0.07 U	0.78	0.22	0.46
EPASW31	EPASW-31B-SW052311	gross_beta	Total	3.31	NA	0.49	0
EPASW31	EPASW-31T-SW052311	gross_beta	Total	-0.06	NA	0.62	0
EPASW31	EPASW-31B-SW052311	H-3_Total	Total	1	88	26	42
EPASW31	EPASW-31T-SW052311	H-3_Total	Total	14	91	27	44
EPASW31	EPASW-31T-SW052311	Ho-166m	Filtered	-0.006 U	1.7	0.48	0.8
EPASW31	EPASW-31B-SW052311	Ho-166m	Filtered	-0.15 U	2	0.14	0.93
EPASW31	EPASW-31B-SW052311	Ho-166m	Suspended	0.26 U	1.1	0.34	0.53
EPASW31	EPASW-31T-SW052311	Ho-166m	Suspended	0.0094 U	1.2	0.0069	0.59
EPASW31	EPASW-31B-SW052311	Ho-166m	Total	0.11	NA	0.37	0
EPASW31	EPASW-31T-SW052311	Ho-166m	Total	0.003	NA	0.48	0
EPASW31	EPASW-31T-SW052311	K-40	Filtered	10.4	17	5.8	7.8
EPASW31	EPASW-31B-SW052311	K-40	Filtered	-10 UL	18	10	8
EPASW31	EPASW-31T-SW052311	K-40	Suspended	-4.7 U	11	4.6	5.2
EPASW31	EPASW-31B-SW052311	K-40	Suspended	-5.9 U	13	4	6.1
EPASW31	EPASW-31B-SW052311	K-40	Total	-16	NA	11	0
EPASW31	EPASW-31T-SW052311	K-40	Total	5.7	NA	7.4	0
EPASW31	EPASW-31B-SW052311	Na-22	Filtered	0.02 U	1.2	0.33	0.54
EPASW31	EPASW-31T-SW052311	Na-22	Filtered	0.19 U	1.2	0.36	0.57
EPASW31	EPASW-31T-SW052311	Na-22	Suspended	-0.07 U	0.68	0.19	0.31
EPASW31	EPASW-31B-SW052311	Na-22	Suspended	-0.08 U	0.82	0.24	0.39
EPASW31	EPASW-31B-SW052311	Na-22	Total	-0.05	NA	0.41	0
EPASW31	EPASW-31T-SW052311	Na-22	Total	0.12	NA	0.41	0
EPASW31	EPASW-31B-SW052311	Nb-94	Filtered	0.18 U	1	0.29	0.47

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW31	EPASW-31T-SW052311	Nb-94	Filtered	-0.28 U	1.1	0.33	0.53
EPASW31	EPASW-31B-SW052311	Nb-94	Suspended	0.065 U	0.68	0.086	0.32
EPASW31	EPASW-31T-SW052311	Nb-94	Suspended	0.008 U	0.73	0.21	0.35
EPASW31	EPASW-31B-SW052311	Nb-94	Total	0.24	NA	0.31	0
EPASW31	EPASW-31T-SW052311	Nb-94	Total	-0.28	NA	0.39	0
EPASW31	EPASW-31B-SW052311	Np-236	Filtered	-0.37 U	2.2	0.66	1.1
EPASW31	EPASW-31T-SW052311	Np-236	Filtered	-0.31 U	2.7	0.8	1.3
EPASW31	EPASW-31B-SW052311	Np-236	Suspended	0.21 U	1.2	0.36	0.59
EPASW31	EPASW-31T-SW052311	Np-236	Suspended	0.0004 U	1.2	0.35	0.57
EPASW31	EPASW-31B-SW052311	Np-236	Total	-0.16	NA	0.75	0
EPASW31	EPASW-31T-SW052311	Np-236	Total	-0.3	NA	0.88	0
EPASW31	EPASW-31T-SW052311	Np-239	Filtered	1.6 U	6.3	1.9	3
EPASW31	EPASW-31B-SW052311	Np-239	Filtered	2 U	7	2.1	3.4
EPASW31	EPASW-31B-SW052311	Np-239	Suspended	1.2 U	3	0.89	1.4
EPASW31	EPASW-31T-SW052311	Np-239	Suspended	-0.4 U	3.8	1.1	1.8
EPASW31	EPASW-31B-SW052311	Np-239	Total	3.2	NA	2.3	0
EPASW31	EPASW-31T-SW052311	Np-239	Total	1.2	NA	2.2	0
EPASW31	EPASW-31B-SW052311	Pa-231	Filtered	-5 U	51	15	25
EPASW31	EPASW-31T-SW052311	Pa-231	Filtered	-12 U	52	16	25
EPASW31	EPASW-31B-SW052311	Pa-231	Suspended	3.1 U	26	4.4	13
EPASW31	EPASW-31T-SW052311	Pa-231	Suspended	-7.3 U	29	8.6	14
EPASW31	EPASW-31B-SW052311	Pa-231	Total	-2	NA	16	0
EPASW31	EPASW-31T-SW052311	Pa-231	Total	-19	NA	18	0
EPASW31	EPASW-31T-SW052311	Pb-212	Filtered	0.49 U	2.4	0.84	1.2
EPASW31	EPASW-31B-SW052311	Pb-212	Filtered	0.08 U	2.5	0.89	1.2
EPASW31	EPASW-31B-SW052311	Pb-212	Suspended	0.73	1.1	0.39	0.53
EPASW31	EPASW-31T-SW052311	Pb-212	Suspended	0.17 U	1.1	0.34	0.51
EPASW31	EPASW-31B-SW052311	Pb-212	Total	0.8	NA	0.98	0
EPASW31	EPASW-31T-SW052311	Pb-212	Total	0.66	NA	0.9	0
EPASW31	EPASW-31T-SW052311	Pb-214	Filtered	0.08 U	2.3	0.72	1.1

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW31	EPASW-31B-SW052311	Pb-214	Filtered	0.9 U	2.4	0.96	1.2
EPASW31	EPASW-31B-SW052311	Pb-214	Suspended	0.42 U	1.5	0.36	0.71
EPASW31	EPASW-31T-SW052311	Pb-214	Suspended	1.4	1.5	0.47	0.71
EPASW31	EPASW-31B-SW052311	Pb-214	Total	1.3	NA	1	0
EPASW31	EPASW-31T-SW052311	Pb-214	Total	1.48	NA	0.86	0
EPASW31	EPASW-31B-SW052311	Sb-125	Filtered	0.64 U	2.8	0.73	1.3
EPASW31	EPASW-31T-SW052311	Sb-125	Filtered	-1.5 U	12	3.7	6.1
EPASW31	EPASW-31B-SW052311	Sb-125	Suspended	0.51 U	1.7	0.56	0.83
EPASW31	EPASW-31T-SW052311	Sb-125	Suspended	0.59 U	1.7	0.49	0.81
EPASW31	EPASW-31B-SW052311	Sb-125	Total	1.15	NA	0.91	0
EPASW31	EPASW-31T-SW052311	Sb-125	Total	-0.9	NA	3.8	0
EPASW31	EPASW-31B-SW052311	Sn-126	Filtered	0.15 U	1	0.3	0.49
EPASW31	EPASW-31T-SW052311	Sn-126	Filtered	0.52 U	1.2	0.35	0.55
EPASW31	EPASW-31B-SW052311	Sn-126	Suspended	0.4	0.7	0.22	0.34
EPASW31	EPASW-31T-SW052311	Sn-126	Suspended	0.2 U	0.8	0.24	0.38
EPASW31	EPASW-31B-SW052311	Sn-126	Total	0.55	NA	0.37	0
EPASW31	EPASW-31T-SW052311	Sn-126	Total	0.72	NA	0.42	0
EPASW31	EPASW-31B-SW052311	Sr-90	Filtered	0.008 U	0.12	0.035	0.068
EPASW31	EPASW-31T-SW052311	Sr-90	Filtered	0.074	0.13	0.039	0.072
EPASW31	EPASW-31T-SW052311	Sr-90	Suspended	0.01 U	0.074	0.022	0.042
EPASW31	EPASW-31B-SW052311	Sr-90	Suspended	0.026 U	0.08	0.024	0.046
EPASW31	EPASW-31B-SW052311	Sr-90	Total	0.034	NA	0.042	0
EPASW31	EPASW-31T-SW052311	Sr-90	Total	0.084	NA	0.045	0
EPASW31	EPASW-31B-SW052311	Te-125m	Filtered	0.15 U	0.64	0.17	0.3
EPASW31	EPASW-31T-SW052311	Te-125m	Filtered	-0.35 U	2.9	0.86	1.4
EPASW31	EPASW-31T-SW052311	Te-125m	Suspended	0.14 U	0.39	0.11	0.19
EPASW31	EPASW-31B-SW052311	Te-125m	Suspended	0.12 U	0.4	0.13	0.19
EPASW31	EPASW-31B-SW052311	Te-125m	Total	0.27	NA	0.21	0
EPASW31	EPASW-31T-SW052311	Te-125m	Total	-0.21	NA	0.87	0
EPASW31	EPASW-31B-SW052311	Th-231	Filtered	0.0188	0.0073	0.0072	0.0063

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW31	EPASW-31T-SW052311	Th-231	Filtered	0.0194	0.018	0.008	0.0056
EPASW31	EPASW-31B-SW052311	Th-231	Suspended	0.0084	0.0057	0.0042	0.0049
EPASW31	EPASW-31T-SW052311	Th-231	Suspended	-0.0019 U	0.016	0.0021	0.005
EPASW31	EPASW-31B-SW052311	Th-231	Total	0.0272	NA	0.0083	0
EPASW31	EPASW-31T-SW052311	Th-231	Total	0.0175	NA	0.0083	0
EPASW31	EPASW-31B-SW052311	Th-234	Filtered	10.4	16	4.5	7.8
EPASW31	EPASW-31T-SW052311	Th-234	Filtered	7 U	21	6.7	10
EPASW31	EPASW-31T-SW052311	Th-234	Suspended	-0.1 U	5.8	1.8	2.8
EPASW31	EPASW-31B-SW052311	Th-234	Suspended	1.2 U	7.2	1.1	3.5
EPASW31	EPASW-31B-SW052311	Th-234	Total	11.6	NA	4.6	0
EPASW31	EPASW-31T-SW052311	Th-234	Total	6.9	NA	6.9	0
EPASW31	EPASW-31T-SW052311	Tl-208	Filtered	0.09 U	1.2	0.35	0.55
EPASW31	EPASW-31B-SW052311	Tl-208	Filtered	-0.08 U	1.3	0.42	0.62
EPASW31	EPASW-31T-SW052311	Tl-208	Suspended	0.67	0.69	0.28	0.33
EPASW31	EPASW-31B-SW052311	Tl-208	Suspended	0.54	0.77	0.3	0.37
EPASW31	EPASW-31B-SW052311	Tl-208	Total	0.47	NA	0.52	0
EPASW31	EPASW-31T-SW052311	Tl-208	Total	0.75	NA	0.45	0
EPASW31	EPASW-31T-SW052311	Tm-171	Filtered	72 U	330	98	160
EPASW31	EPASW-31B-SW052311	Tm-171	Filtered	90 U	340	100	170
EPASW31	EPASW-31T-SW052311	Tm-171	Suspended	-27 U	100	31	50
EPASW31	EPASW-31B-SW052311	Tm-171	Suspended	45 U	110	33	54
EPASW31	EPASW-31B-SW052311	Tm-171	Total	140	NA	110	0
EPASW31	EPASW-31T-SW052311	Tm-171	Total	40	NA	100	0
EPASW31	EPASW-31-B-SW052311	U-233/234	Filtered	0.26	0.01	0.03	0
EPASW31	EPASW-31-T-SW052311	U-233/234	Filtered	0.27	0.01	0.03	0.01
EPASW31	EPASW-31-B-SW052311	U-233/234	Suspended	0.07	0.01	0.01	0
EPASW31	EPASW-31-T-SW052311	U-233/234	Suspended	0 U	0.02	0.01	0.01
EPASW31	EPASW-31-B-SW052311	U-233/234	Total	0.33	NA	0.03	0
EPASW31	EPASW-31-T-SW052311	U-233/234	Total	0.28	NA	0.03	0
EPASW31	EPASW-31-B-SW052311	U-235/236	Filtered	0.02	0.01	0.01	0.01

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW31	EPASW-31-T-SW052311	U-235/236	Filtered	0.02	0.02	0.01	0.01
EPASW31	EPASW-31-B-SW052311	U-235/236	Suspended	0.01	0.01	0	0
EPASW31	EPASW-31-T-SW052311	U-235/236	Suspended	0 U	0.02	0	0
EPASW31	EPASW-31-B-SW052311	U-235/236	Total	0.03	NA	0.01	0
EPASW31	EPASW-31-T-SW052311	U-235/236	Total	0.02	NA	0.01	0
EPASW31	EPASW-31-B-SW052311	U-238	Filtered	0.3	0.01	0.03	0
EPASW31	EPASW-31-T-SW052311	U-238	Filtered	0.2	0.01	0.02	0
EPASW31	EPASW-31-B-SW052311	U-238	Suspended	0.04	0	0.01	0
EPASW31	EPASW-31-T-SW052311	U-238	Suspended	0 U	0.01	0	0
EPASW31	EPASW-31-B-SW052311	U-238	Total	0.34	NA	0.03	0
EPASW31	EPASW-31-T-SW052311	U-238	Total	0.21	NA	0.02	0
EPASW32	EPASW32-SW032111	Ac-227	Filtered	0 U	9	2.6	4.4
EPASW32	EPASW32-SW032111	Ac-227	Suspended	-2.8 UL	4.7	1.5	2.3
EPASW32	EPASW32-SW032111	Ac-227	Total	-2.8	NA	3	0
EPASW32	EPASW32-SW032111	Ac-228	Filtered	0.3 U	4.1	1.1	1.9
EPASW32	EPASW32-SW032111	Ac-228	Suspended	0.23 U	2.8	0.75	1.3
EPASW32	EPASW32-SW032111	Ac-228	Total	0.5	NA	1.4	0
EPASW32	EPASW32-SW032111	Ag-108	Filtered	0.0009 U	0.081	0.023	0.038
EPASW32	EPASW32-SW032111	Ag-108	Suspended	-0.003 U	0.05	0.015	0.024
EPASW32	EPASW32-SW032111	Ag-108	Total	-0.002	NA	0.027	0
EPASW32	EPASW32-SW032111	Ag-108m	Filtered	0.01 U	0.87	0.25	0.41
EPASW32	EPASW32-SW032111	Ag-108m	Suspended	-0.04 U	0.54	0.16	0.26
EPASW32	EPASW32-SW032111	Ag-108m	Total	-0.03	NA	0.29	0
EPASW32	EPASW32-SW032111	Ba-133	Filtered	3.1 U	12	3.5	5.6
EPASW32	EPASW32-SW032111	Ba-133	Suspended	1.4 U	5.8	1.7	2.8
EPASW32	EPASW32-SW032111	Ba-133	Total	4.4	NA	3.9	0
EPASW32	EPASW32-SW032111	Ba-137m	Filtered	-0.24 U	1.1	0.33	0.53
EPASW32	EPASW32-SW032111	Ba-137m	Suspended	0.16 U	0.61	0.18	0.29
EPASW32	EPASW32-SW032111	Ba-137m	Total	-0.08	NA	0.38	0
EPASW32	EPASW32-SW032111	Bi-212	Filtered	2.2 U	11	3.1	5

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW32	EPASW32-SW032111	Bi-212	Suspended	2.1 U	5.2	1.6	2.5
EPASW32	EPASW32-SW032111	Bi-212	Total	4.3	NA	3.5	0
EPASW32	EPASW32-SW032111	Bi-214	Filtered	1.72	2.5	0.78	1.2
EPASW32	EPASW32-SW032111	Bi-214	Suspended	-0.29 U	1.6	0.62	0.79
EPASW32	EPASW32-SW032111	Bi-214	Total	1.43	NA	0.99	0
EPASW32	EPASW32-SW032111	Cd-113m	Filtered	5100 U	14000	4300	6900
EPASW32	EPASW32-SW032111	Cd-113m	Suspended	800 U	7200	2100	3500
EPASW32	EPASW32-SW032111	Cd-113m	Total	5900	NA	4800	0
EPASW32	EPASW32-SW032111	Cf-249	Filtered	-1.8 U	6.5	1.9	3.1
EPASW32	EPASW32-SW032111	Cf-249	Suspended	-0.06 U	3.3	0.98	1.6
EPASW32	EPASW32-SW032111	Cf-249	Total	-1.8	NA	2.2	0
EPASW32	EPASW32-SW032111	Co-60	Filtered	0.02 U	1.5	0.42	0.69
EPASW32	EPASW32-SW032111	Co-60	Suspended	0.07 U	0.75	0.22	0.35
EPASW32	EPASW32-SW032111	Co-60	Total	0.09	NA	0.47	0
EPASW32	EPASW32-SW032111	Cs-134	Filtered	-0.38 U	1.4	0.41	0.65
EPASW32	EPASW32-SW032111	Cs-134	Suspended	-0.21 U	0.72	0.22	0.35
EPASW32	EPASW32-SW032111	Cs-134	Total	-0.59	NA	0.46	0
EPASW32	EPASW32-SW032111	Cs-137	Filtered	-0.26 U	1.2	0.35	0.56
EPASW32	EPASW32-SW032111	Cs-137	Suspended	0.17 U	0.65	0.19	0.31
EPASW32	EPASW32-SW032111	Cs-137	Total	-0.09	NA	0.4	0
EPASW32	EPASW32-SW032111	Eu-152	Filtered	-0.8 U	3.7	1.1	1.8
EPASW32	EPASW32-SW032111	Eu-152	Suspended	0.04 U	1.7	0.5	0.82
EPASW32	EPASW32-SW032111	Eu-152	Total	-0.8	NA	1.2	0
EPASW32	EPASW32-SW032111	Eu-154	Filtered	-1.8 U	12	3.4	5.5
EPASW32	EPASW32-SW032111	Eu-154	Suspended	0 U	7.7	2.3	3.7
EPASW32	EPASW32-SW032111	Eu-154	Total	-1.8	NA	4.1	0
EPASW32	EPASW32-SW032111	Eu-155	Filtered	-0.53 U	2.8	0.84	1.4
EPASW32	EPASW32-SW032111	Eu-155	Suspended	0.34 U	1.2	0.37	0.6
EPASW32	EPASW32-SW032111	Eu-155	Total	-0.19	NA	0.92	0
EPASW32	EPASW32-SW032111	gross_alpha	Filtered	0.45	0.53	0.18	0.28

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW32	EPASW32-SW032111	gross_alpha	Suspended	0.3 J	0.43	0.14	0.23
EPASW32	EPASW32-SW032111	gross_alpha	Total	0.74	NA	0.23	0
EPASW32	EPASW32-SW032111	gross_beta	Filtered	2.06	1	0.39	0.59
EPASW32	EPASW32-SW032111	gross_beta	Suspended	0.63	0.95	0.3	0.57
EPASW32	EPASW32-SW032111	gross_beta	Total	2.69	NA	0.49	0
EPASW32	EPASW32-SW032111	H-3	Total	-3	61	17	29
EPASW32	EPASW32-SW032111	Ho-166m	Filtered	0.05 U	2.2	0.62	1
EPASW32	EPASW32-SW032111	Ho-166m	Suspended	-0.26 U	1.2	0.36	0.58
EPASW32	EPASW32-SW032111	Ho-166m	Total	-0.21	NA	0.71	0
EPASW32	EPASW32-SW032111	K-40	Filtered	-9 U	21	19	10
EPASW32	EPASW32-SW032111	K-40	Suspended	7.8	12	4	5.9
EPASW32	EPASW32-SW032111	K-40	Total	-1	NA	19	0
EPASW32	EPASW32-SW032111	Na-22	Filtered	-0.2 U	1.6	0.44	0.71
EPASW32	EPASW32-SW032111	Na-22	Suspended	-0.11 U	0.77	0.22	0.36
EPASW32	EPASW32-SW032111	Na-22	Total	-0.31	NA	0.49	0
EPASW32	EPASW32-SW032111	Nb-94	Filtered	0.06 U	1.5	0.44	0.72
EPASW32	EPASW32-SW032111	Nb-94	Suspended	0.02 U	0.79	0.23	0.38
EPASW32	EPASW32-SW032111	Nb-94	Total	0.08	NA	0.5	0
EPASW32	EPASW32-SW032111	Np-236	Filtered	0.05 U	3	0.87	1.4
EPASW32	EPASW32-SW032111	Np-236	Suspended	-0.11 U	1.2	0.37	0.61
EPASW32	EPASW32-SW032111	Np-236	Total	-0.07	NA	0.95	0
EPASW32	EPASW32-SW032111	Np-239	Filtered	0.4 U	7.4	2.2	3.6
EPASW32	EPASW32-SW032111	Np-239	Suspended	-0.578 U	3.4	0.997	1.6
EPASW32	EPASW32-SW032111	Np-239	Total	-0.2	NA	2.4	0
EPASW32	EPASW32-SW032111	Pa-231	Filtered	20 U	56	17	27
EPASW32	EPASW32-SW032111	Pa-231	Suspended	5.1 U	27	7.9	13
EPASW32	EPASW32-SW032111	Pa-231	Total	25	NA	19	0
EPASW32	EPASW32-SW032111	Pb-212	Filtered	0.6 U	2.1	0.77	1
EPASW32	EPASW32-SW032111	Pb-212	Suspended	0.17 U	1.1	0.38	0.55
EPASW32	EPASW32-SW032111	Pb-212	Total	0.77	NA	0.85	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW32	EPASW32-SW032111	Pb-214	Filtered	-0.6 U	2.5	1.8	1.2
EPASW32	EPASW32-SW032111	Pb-214	Suspended	0.64 U	1.5	0.55	0.72
EPASW32	EPASW32-SW032111	Pb-214	Total	0.05	NA	1.9	0
EPASW32	EPASW32-SW032111	Sb-125	Filtered	-2.3 U	12	3.6	5.9
EPASW32	EPASW32-SW032111	Sb-125	Suspended	-1.1 U	5.8	1.7	2.8
EPASW32	EPASW32-SW032111	Sb-125	Total	-3.4	NA	4	0
EPASW32	EPASW32-SW032111	Sn-126	Filtered	0.06 U	1.4	0.39	0.64
EPASW32	EPASW32-SW032111	Sn-126	Suspended	0.03 U	0.73	0.21	0.35
EPASW32	EPASW32-SW032111	Sn-126	Total	0.08	NA	0.45	0
EPASW32	EPASW32-SW032111	Sr-90	Filtered	-0.14 U	0.41	0.11	0.25
EPASW32	EPASW32-SW032111	Sr-90	Suspended	0.072	0.11	0.034	0.056
EPASW32	EPASW32-SW032111	Sr-90	Total	-0.07	NA	0.11	0
EPASW32	EPASW32-SW032111	Te-125m	Filtered	-0.53 U	2.8	0.83	1.4
EPASW32	EPASW32-SW032111	Te-125m	Suspended	-0.25 U	1.3	0.4	0.65
EPASW32	EPASW32-SW032111	Te-125m	Total	-0.78	NA	0.92	0
EPASW32	EPASW32-SW032111	Th-231	Filtered	0.0107	0.0073	0.0054	0.0063
EPASW32	EPASW32-SW032111	Th-231	Suspended	0.0071	0.0064	0.0041	0.0055
EPASW32	EPASW32-SW032111	Th-231	Total	0.0179	NA	0.0068	0
EPASW32	EPASW32-SW032111	Th-234	Filtered	1.6 U	22	7.3	11
EPASW32	EPASW32-SW032111	Th-234	Suspended	1.6 U	8.8	2.9	4.3
EPASW32	EPASW32-SW032111	Th-234	Total	3.2	NA	7.9	0
EPASW32	EPASW32-SW032111	Tl-208	Filtered	0.18 U	1.4	0.39	0.68
EPASW32	EPASW32-SW032111	Tl-208	Suspended	0.43	0.73	0.26	0.35
EPASW32	EPASW32-SW032111	Tl-208	Total	0.61	NA	0.47	0
EPASW32	EPASW32-SW032111	Tm-171	Filtered	-2 U	310	90	150
EPASW32	EPASW32-SW032111	Tm-171	Suspended	-5 U	100	31	50
EPASW32	EPASW32-SW032111	Tm-171	Total	-6	NA	96	0
EPASW32	EPASW32-SW032111	U-233/234	Filtered	0.16	0.02	0.02	0.01
EPASW32	EPASW32-SW032111	U-233/234	Suspended	0.02	0.01	0.01	0
EPASW32	EPASW32-SW032111	U-233/234	Total	0.18	NA	0.02	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW32	EPASW32-SW032111	U-235/236	Filtered	0.01	0.01	0.01	0.01
EPASW32	EPASW32-SW032111	U-235/236	Suspended	0.01	0.01	0	0
EPASW32	EPASW32-SW032111	U-235/236	Total	0.02	NA	0.01	0
EPASW32	EPASW32-SW032111	U-238	Filtered	0.11	0.02	0.02	0.01
EPASW32	EPASW32-SW032111	U-238	Suspended	0.04	0.01	0.01	0
EPASW32	EPASW32-SW032111	U-238	Total	0.15	NA	0.02	0
EPASW34	EPASW34-SW032111	Ac-227	Filtered	-1.6 U	9	2.7	4.4
EPASW34	EPASW34-SW032111	Ac-227	Suspended	-2.9 UL	4.6	1.4	2.2
EPASW34	EPASW34-SW032111	Ac-227	Total	-4.4	NA	3	0
EPASW34	EPASW34-SW032111	Ac-228	Filtered	1.1 U	4.2	1.2	1.9
EPASW34	EPASW34-SW032111	Ac-228	Suspended	2.11	2.1	0.68	0.99
EPASW34	EPASW34-SW032111	Ac-228	Total	3.2	NA	1.4	0
EPASW34	EPASW34-SW032111	Ag-108	Filtered	-0.0007 U	0.095	0.027	0.045
EPASW34	EPASW34-SW032111	Ag-108	Suspended	0 U	0.05	0.014	0.024
EPASW34	EPASW34-SW032111	Ag-108	Total	-0.0007	NA	0.031	0
EPASW34	EPASW34-SW032111	Ag-108m	Filtered	-0.007 U	1	0.29	0.48
EPASW34	EPASW34-SW032111	Ag-108m	Suspended	0 U	0.53	0.16	0.26
EPASW34	EPASW34-SW032111	Ag-108m	Total	-0.007	NA	0.33	0
EPASW34	EPASW34-SW032111	Ba-133	Filtered	2.7 U	12	3.5	5.6
EPASW34	EPASW34-SW032111	Ba-133	Suspended	-0.6 U	6.2	1.8	3
EPASW34	EPASW34-SW032111	Ba-133	Total	2.1	NA	3.9	0
EPASW34	EPASW34-SW032111	Ba-137m	Filtered	0.1 U	1.4	0.39	0.63
EPASW34	EPASW34-SW032111	Ba-137m	Suspended	0.2 U	0.57	0.17	0.27
EPASW34	EPASW34-SW032111	Ba-137m	Total	0.3	NA	0.42	0
EPASW34	EPASW34-SW032111	Bi-212	Filtered	-1.3 U	11	3.1	5
EPASW34	EPASW34-SW032111	Bi-212	Suspended	-0.7 U	5.7	3	2.7
EPASW34	EPASW34-SW032111	Bi-212	Total	-2	NA	4.3	0
EPASW34	EPASW34-SW032111	Bi-214	Filtered	2.09	2.7	0.84	1.3
EPASW34	EPASW34-SW032111	Bi-214	Suspended	1.78	1.8	0.54	0.85
EPASW34	EPASW34-SW032111	Bi-214	Total	3.87	NA	0.99	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW34	EPASW34-SW032111	Cd-113m	Filtered	200 U	14000	4100	6700
EPASW34	EPASW34-SW032111	Cd-113m	Suspended	-1300 U	5800	1700	2800
EPASW34	EPASW34-SW032111	Cd-113m	Total	-1100	NA	4400	0
EPASW34	EPASW34-SW032111	Cf-249	Filtered	-1.3 U	6.4	1.9	3.1
EPASW34	EPASW34-SW032111	Cf-249	Suspended	0.005 U	2.9	0.84	1.4
EPASW34	EPASW34-SW032111	Cf-249	Total	-1.3	NA	2.1	0
EPASW34	EPASW34-SW032111	Co-60	Filtered	-0.25 U	1.7	0.48	0.76
EPASW34	EPASW34-SW032111	Co-60	Suspended	-0.006 U	0.73	0.21	0.34
EPASW34	EPASW34-SW032111	Co-60	Total	-0.26	NA	0.52	0
EPASW34	EPASW34-SW032111	Cs-134	Filtered	-0.7 U	1.5	0.45	0.7
EPASW34	EPASW34-SW032111	Cs-134	Suspended	-0.18 U	0.79	0.24	0.38
EPASW34	EPASW34-SW032111	Cs-134	Total	-0.88	NA	0.51	0
EPASW34	EPASW34-SW032111	Cs-137	Filtered	0.11 U	1.4	0.41	0.67
EPASW34	EPASW34-SW032111	Cs-137	Suspended	0.21 U	0.61	0.18	0.29
EPASW34	EPASW34-SW032111	Cs-137	Total	0.31	NA	0.45	0
EPASW34	EPASW34-SW032111	Eu-152	Filtered	0.36 U	3.4	0.99	1.6
EPASW34	EPASW34-SW032111	Eu-152	Suspended	0.84	1.4	0.43	0.68
EPASW34	EPASW34-SW032111	Eu-152	Total	1.2	NA	1.1	0
EPASW34	EPASW34-SW032111	Eu-154	Filtered	0 U	14	4	6.6
EPASW34	EPASW34-SW032111	Eu-154	Suspended	0 U	6.4	1.8	3
EPASW34	EPASW34-SW032111	Eu-154	Total	0	NA	4.4	0
EPASW34	EPASW34-SW032111	Eu-155	Filtered	-0.64 U	2.7	0.81	1.3
EPASW34	EPASW34-SW032111	Eu-155	Suspended	0.22 U	1.1	0.34	0.55
EPASW34	EPASW34-SW032111	Eu-155	Total	-0.42	NA	0.88	0
EPASW34	EPASW34-SW032111	gross_alpha	Filtered	1.98	0.38	0.27	0.2
EPASW34	EPASW34-SW032111	gross_alpha	Suspended	0.62 J	0.4	0.17	0.21
EPASW34	EPASW34-SW032111	gross_alpha	Total	2.6	NA	0.31	0
EPASW34	EPASW34-SW032111	gross_beta	Filtered	1.05	1.1	0.38	0.66
EPASW34	EPASW34-SW032111	gross_beta	Suspended	1.01	0.87	0.29	0.52
EPASW34	EPASW34-SW032111	gross_beta	Total	2.06	NA	0.48	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW34	EPASW34-SW032111	H-3	Total	-13	60	16	28
EPASW34	EPASW34-SW032111	Ho-166m	Filtered	-0.2 U	2.2	0.65	1
EPASW34	EPASW34-SW032111	Ho-166m	Suspended	0.23 U	1.1	0.33	0.54
EPASW34	EPASW34-SW032111	Ho-166m	Total	0.04	NA	0.73	0
EPASW34	EPASW34-SW032111	K-40	Filtered	-8 U	22	19	10
EPASW34	EPASW34-SW032111	K-40	Suspended	-6.5 UL	11	6.2	5.3
EPASW34	EPASW34-SW032111	K-40	Total	-15	NA	20	0
EPASW34	EPASW34-SW032111	Na-22	Filtered	-0.0005 U	1.5	0.41	0.67
EPASW34	EPASW34-SW032111	Na-22	Suspended	-0.01 U	0.81	0.23	0.38
EPASW34	EPASW34-SW032111	Na-22	Total	-0.01	NA	0.47	0
EPASW34	EPASW34-SW032111	Nb-94	Filtered	0 U	1.5	0.43	0.71
EPASW34	EPASW34-SW032111	Nb-94	Suspended	0.21 U	0.6	0.18	0.28
EPASW34	EPASW34-SW032111	Nb-94	Total	0.21	NA	0.47	0
EPASW34	EPASW34-SW032111	Np-236	Filtered	-0.56 U	2.5	0.74	1.2
EPASW34	EPASW34-SW032111	Np-236	Suspended	-0.23 U	1.2	0.35	0.58
EPASW34	EPASW34-SW032111	Np-236	Total	-0.8	NA	0.82	0
EPASW34	EPASW34-SW032111	Np-239	Filtered	0 U	7.6	2.2	3.7
EPASW34	EPASW34-SW032111	Np-239	Suspended	-0.4 U	3.9	1.2	1.9
EPASW34	EPASW34-SW032111	Np-239	Total	-0.4	NA	2.5	0
EPASW34	EPASW34-SW032111	Pa-231	Filtered	19 U	55	17	26
EPASW34	EPASW34-SW032111	Pa-231	Suspended	0.5 U	28	8.3	14
EPASW34	EPASW34-SW032111	Pa-231	Total	20	NA	19	0
EPASW34	EPASW34-SW032111	Pb-212	Filtered	0.76 U	2	0.68	0.98
EPASW34	EPASW34-SW032111	Pb-212	Suspended	0.88	1.1	0.42	0.55
EPASW34	EPASW34-SW032111	Pb-212	Total	1.64	NA	0.8	0
EPASW34	EPASW34-SW032111	Pb-214	Filtered	0.12 U	2.9	0.82	1.4
EPASW34	EPASW34-SW032111	Pb-214	Suspended	-0.94 UL	1.4	0.86	0.66
EPASW34	EPASW34-SW032111	Pb-214	Total	-0.8	NA	1.2	0
EPASW34	EPASW34-SW032111	Sb-125	Filtered	-0.7 U	12	3.6	5.9
EPASW34	EPASW34-SW032111	Sb-125	Suspended	0 U	5.9	1.7	2.8

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW34	EPASW34-SW032111	Sb-125	Total	-0.7	NA	4	0
EPASW34	EPASW34-SW032111	Sn-126	Filtered	0.9	1.3	0.41	0.62
EPASW34	EPASW34-SW032111	Sn-126	Suspended	0.31 U	0.76	0.23	0.36
EPASW34	EPASW34-SW032111	Sn-126	Total	1.21	NA	0.47	0
EPASW34	EPASW34-SW032111	Sr-90	Filtered	0.15 U	0.38	0.11	0.23
EPASW34	EPASW34-SW032111	Sr-90	Suspended	0.03 U	0.092	0.028	0.047
EPASW34	EPASW34-SW032111	Sr-90	Total	0.18	NA	0.12	0
EPASW34	EPASW34-SW032111	Te-125m	Filtered	-0.15 U	2.8	0.84	1.4
EPASW34	EPASW34-SW032111	Te-125m	Suspended	0 U	1.4	0.4	0.66
EPASW34	EPASW34-SW032111	Te-125m	Total	-0.15	NA	0.93	0
EPASW34	EPASW34-SW032111	Th-231	Filtered	0.0158	0.0071	0.0065	0.0061
EPASW34	EPASW34-SW032111	Th-231	Suspended	0.0023 U	0.0062	0.0023	0.0054
EPASW34	EPASW34-SW032111	Th-231	Total	0.0181	NA	0.0069	0
EPASW34	EPASW34-SW032111	Th-234	Filtered	4.4 U	21	6.5	10
EPASW34	EPASW34-SW032111	Th-234	Suspended	4.2	7.7	2.9	3.8
EPASW34	EPASW34-SW032111	Th-234	Total	8.6	NA	7.1	0
EPASW34	EPASW34-SW032111	Tl-208	Filtered	-0.004 U	1.5	0.39	0.69
EPASW34	EPASW34-SW032111	Tl-208	Suspended	-0.2 U	0.84	0.35	0.4
EPASW34	EPASW34-SW032111	Tl-208	Total	-0.21	NA	0.52	0
EPASW34	EPASW34-SW032111	Tm-171	Filtered	-9 U	360	110	170
EPASW34	EPASW34-SW032111	Tm-171	Suspended	18 U	110	33	53
EPASW34	EPASW34-SW032111	Tm-171	Total	9	NA	110	0
EPASW34	EPASW34-SW032111	U-233/234	Filtered	0.13	0.02	0.02	0.01
EPASW34	EPASW34-SW032111	U-233/234	Suspended	0 U	0.01	0	0
EPASW34	EPASW34-SW032111	U-233/234	Total	0.12	NA	0.02	0
EPASW34	EPASW34-SW032111	U-235/236	Filtered	0.02	0.01	0.01	0.01
EPASW34	EPASW34-SW032111	U-235/236	Suspended	0 U	0.01	0	0
EPASW34	EPASW34-SW032111	U-235/236	Total	0.02	NA	0.01	0
EPASW34	EPASW34-SW032111	U-238	Filtered	0.14	0.01	0.02	0
EPASW34	EPASW34-SW032111	U-238	Suspended	0.01	0.01	0.01	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW34	EPASW34-SW032111	U-238	Total	0.15	NA	0.02	0
EPASW35	EPASW35-SW032211	Ac-227	Filtered	-0.9 U	9.6	2.8	4.6
EPASW35	EPASW35-SW032211	Ac-227	Suspended	0 U	5.3	1.6	2.6
EPASW35	EPASW35-SW032211	Ac-227	Total	-0.9	NA	3.2	0
EPASW35	EPASW35-SW032211	Ac-228	Filtered	2 U	5.3	1.6	2.5
EPASW35	EPASW35-SW032211	Ac-228	Suspended	0.59 U	2.9	0.8	1.4
EPASW35	EPASW35-SW032211	Ac-228	Total	2.5	NA	1.8	0
EPASW35	EPASW35-SW032211	Ag-108	Filtered	0.018 U	0.1	0.029	0.047
EPASW35	EPASW35-SW032211	Ag-108	Suspended	0.006 U	0.053	0.016	0.026
EPASW35	EPASW35-SW032211	Ag-108	Total	0.024	NA	0.033	0
EPASW35	EPASW35-SW032211	Ag-108m	Filtered	0.19 U	1.1	0.32	0.51
EPASW35	EPASW35-SW032211	Ag-108m	Suspended	0.07 U	0.57	0.17	0.28
EPASW35	EPASW35-SW032211	Ag-108m	Total	0.26	NA	0.36	0
EPASW35	EPASW35-SW032211	Ba-133	Filtered	3.8 U	11	3.4	5.4
EPASW35	EPASW35-SW032211	Ba-133	Suspended	0.7 U	6	1.8	2.9
EPASW35	EPASW35-SW032211	Ba-133	Total	4.5	NA	3.8	0
EPASW35	EPASW35-SW032211	Ba-137m	Filtered	0.16 U	1.3	0.39	0.63
EPASW35	EPASW35-SW032211	Ba-137m	Suspended	0 U	0.6	0.17	0.28
EPASW35	EPASW35-SW032211	Ba-137m	Total	0.16	NA	0.43	0
EPASW35	EPASW35-SW032211	Bi-212	Filtered	0.4 U	10	2.9	4.8
EPASW35	EPASW35-SW032211	Bi-212	Suspended	0.6 U	4.8	1.4	2.3
EPASW35	EPASW35-SW032211	Bi-212	Total	1	NA	3.2	0
EPASW35	EPASW35-SW032211	Bi-214	Filtered	1.81	2.5	0.79	1.2
EPASW35	EPASW35-SW032211	Bi-214	Suspended	0.34 U	1.6	0.56	0.8
EPASW35	EPASW35-SW032211	Bi-214	Total	2.14	NA	0.97	0
EPASW35	EPASW35-SW032211	Cd-113m	Filtered	900 U	15000	4400	7100
EPASW35	EPASW35-SW032211	Cd-113m	Suspended	0 U	7300	2200	3600
EPASW35	EPASW35-SW032211	Cd-113m	Total	900	NA	4900	0
EPASW35	EPASW35-SW032211	Cf-249	Filtered	-1.3 U	6.5	1.9	3.1
EPASW35	EPASW35-SW032211	Cf-249	Suspended	0.24 U	3.1	0.91	1.5

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW35	EPASW35-SW032211	Cf-249	Total	-1	NA	2.1	0
EPASW35	EPASW35-SW032211	Co-60	Filtered	-0.1 U	1.7	0.48	0.77
EPASW35	EPASW35-SW032211	Co-60	Suspended	-0.04 U	0.65	0.18	0.3
EPASW35	EPASW35-SW032211	Co-60	Total	-0.15	NA	0.51	0
EPASW35	EPASW35-SW032211	Cs-134	Filtered	0.004 U	1.3	0.36	0.6
EPASW35	EPASW35-SW032211	Cs-134	Suspended	0.21 U	0.75	0.22	0.36
EPASW35	EPASW35-SW032211	Cs-134	Total	0.21	NA	0.43	0
EPASW35	EPASW35-SW032211	Cs-137	Filtered	0.17 U	1.4	0.41	0.67
EPASW35	EPASW35-SW032211	Cs-137	Suspended	-0.0001 U	0.63	0.18	0.3
EPASW35	EPASW35-SW032211	Cs-137	Total	0.17	NA	0.45	0
EPASW35	EPASW35-SW032211	Eu-152	Filtered	1.53	3.2	0.96	1.5
EPASW35	EPASW35-SW032211	Eu-152	Suspended	-0.16 U	1.8	0.54	0.88
EPASW35	EPASW35-SW032211	Eu-152	Total	1.4	NA	1.1	0
EPASW35	EPASW35-SW032211	Eu-154	Filtered	-1.2 U	12	3.4	5.5
EPASW35	EPASW35-SW032211	Eu-154	Suspended	2.6 U	5.7	1.7	2.7
EPASW35	EPASW35-SW032211	Eu-154	Total	1.4	NA	3.8	0
EPASW35	EPASW35-SW032211	Eu-155	Filtered	-0.82 U	2.9	0.88	1.4
EPASW35	EPASW35-SW032211	Eu-155	Suspended	0.23 U	1.3	0.38	0.61
EPASW35	EPASW35-SW032211	Eu-155	Total	-0.59	NA	0.96	0
EPASW35	EPASW35-SW032211	gross_alpha	Filtered	0.57	0.31	0.15	0.15
EPASW35	EPASW35-SW032211	gross_alpha	Suspended	0.41 J	0.38	0.14	0.19
EPASW35	EPASW35-SW032211	gross_alpha	Total	0.98	NA	0.21	0
EPASW35	EPASW35-SW032211	gross_beta	Filtered	2.81	1.1	0.44	0.63
EPASW35	EPASW35-SW032211	gross_beta	Suspended	0.2 U	0.73	0.22	0.43
EPASW35	EPASW35-SW032211	gross_beta	Total	3.01	NA	0.49	0
EPASW35	EPASW35-SW032211	H-3	Total	2	63	18	30
EPASW35	EPASW35-SW032211	Ho-166m	Filtered	-0.003 U	2.3	0.65	1.1
EPASW35	EPASW35-SW032211	Ho-166m	Suspended	0.36 U	1	0.31	0.5
EPASW35	EPASW35-SW032211	Ho-166m	Total	0.35	NA	0.72	0
EPASW35	EPASW35-SW032211	K-40	Filtered	-2.9 U	22	7.8	10

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW35	EPASW35-SW032211	K-40	Suspended	-0.4 U	12	3	5.7
EPASW35	EPASW35-SW032211	K-40	Total	-3.4	NA	8.4	0
EPASW35	EPASW35-SW032211	Na-22	Filtered	-0.12 U	1.5	0.43	0.7
EPASW35	EPASW35-SW032211	Na-22	Suspended	-0.07 U	0.74	0.21	0.35
EPASW35	EPASW35-SW032211	Na-22	Total	-0.19	NA	0.48	0
EPASW35	EPASW35-SW032211	Nb-94	Filtered	0 U	1.3	0.36	0.59
EPASW35	EPASW35-SW032211	Nb-94	Suspended	0.13 U	0.76	0.22	0.36
EPASW35	EPASW35-SW032211	Nb-94	Total	0.13	NA	0.42	0
EPASW35	EPASW35-SW032211	Np-236	Filtered	-0.05 U	2.6	0.78	1.3
EPASW35	EPASW35-SW032211	Np-236	Suspended	0.03 U	1.2	0.37	0.61
EPASW35	EPASW35-SW032211	Np-236	Total	-0.01	NA	0.86	0
EPASW35	EPASW35-SW032211	Np-239	Filtered	1.6 U	7.4	2.2	3.6
EPASW35	EPASW35-SW032211	Np-239	Suspended	0.06 U	4	1.2	1.9
EPASW35	EPASW35-SW032211	Np-239	Total	1.7	NA	2.5	0
EPASW35	EPASW35-SW032211	Pa-231	Filtered	17 U	55	16	26
EPASW35	EPASW35-SW032211	Pa-231	Suspended	-9.1 U	28	8.5	14
EPASW35	EPASW35-SW032211	Pa-231	Total	8	NA	18	0
EPASW35	EPASW35-SW032211	Pb-212	Filtered	0.3 U	2.1	0.69	1
EPASW35	EPASW35-SW032211	Pb-212	Suspended	0.23 U	1.2	0.43	0.59
EPASW35	EPASW35-SW032211	Pb-212	Total	0.53	NA	0.82	0
EPASW35	EPASW35-SW032211	Pb-214	Filtered	0.15 U	3	0.84	1.4
EPASW35	EPASW35-SW032211	Pb-214	Suspended	0.39 U	1.5	0.57	0.75
EPASW35	EPASW35-SW032211	Pb-214	Total	0.5	NA	1	0
EPASW35	EPASW35-SW032211	Sb-125	Filtered	-3.5 U	13	3.9	6.2
EPASW35	EPASW35-SW032211	Sb-125	Suspended	-0.2 U	5.1	1.5	2.5
EPASW35	EPASW35-SW032211	Sb-125	Total	-3.7	NA	4.1	0
EPASW35	EPASW35-SW032211	Sn-126	Filtered	0.74	1.5	0.45	0.69
EPASW35	EPASW35-SW032211	Sn-126	Suspended	0 U	0.87	0.25	0.42
EPASW35	EPASW35-SW032211	Sn-126	Total	0.74	NA	0.52	0
EPASW35	EPASW35-SW032211	Sr-90	Filtered	0.129	0.17	0.055	0.1

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW35	EPASW35-SW032211	Sr-90	Suspended	-0.013 U	0.11	0.033	0.058
EPASW35	EPASW35-SW032211	Sr-90	Total	0.117	NA	0.064	0
EPASW35	EPASW35-SW032211	Te-125m	Filtered	-0.81 U	3	0.89	1.4
EPASW35	EPASW35-SW032211	Te-125m	Suspended	-0.05 U	1.2	0.35	0.57
EPASW35	EPASW35-SW032211	Te-125m	Total	-0.86	NA	0.96	0
EPASW35	EPASW35-SW032211	Th-231	Filtered	0.0081	0.017	0.0055	0.0052
EPASW35	EPASW35-SW032211	Th-231	Suspended	-0.0018 U	0.015	0.002	0.0047
EPASW35	EPASW35-SW032211	Th-231	Total	0.0063	NA	0.0059	0
EPASW35	EPASW35-SW032211	Th-234	Filtered	4.4 U	23	7.9	11
EPASW35	EPASW35-SW032211	Th-234	Suspended	1.8 U	8.6	2.7	4.2
EPASW35	EPASW35-SW032211	Th-234	Total	6.2	NA	8.3	0
EPASW35	EPASW35-SW032211	Tl-208	Filtered	0.24 U	1.4	0.38	0.67
EPASW35	EPASW35-SW032211	Tl-208	Suspended	0.59	0.82	0.33	0.39
EPASW35	EPASW35-SW032211	Tl-208	Total	0.83	NA	0.5	0
EPASW35	EPASW35-SW032211	Tm-171	Filtered	-16 U	330	96	160
EPASW35	EPASW35-SW032211	Tm-171	Suspended	36 U	110	34	54
EPASW35	EPASW35-SW032211	Tm-171	Total	20	NA	100	0
EPASW35	EPASW35-SW032211	U-233/234	Filtered	0.18	0.01	0.02	0
EPASW35	EPASW35-SW032211	U-233/234	Suspended	0.01	0.02	0.01	0.01
EPASW35	EPASW35-SW032211	U-233/234	Total	0.19	NA	0.02	0
EPASW35	EPASW35-SW032211	U-235/236	Filtered	0.01	0.02	0.01	0.01
EPASW35	EPASW35-SW032211	U-235/236	Suspended	0 U	0.02	0	0
EPASW35	EPASW35-SW032211	U-235/236	Total	0.01	NA	0.01	0
EPASW35	EPASW35-SW032211	U-238	Filtered	0.06	0.01	0.01	0
EPASW35	EPASW35-SW032211	U-238	Suspended	0.01	0.02	0.01	0.01
EPASW35	EPASW35-SW032211	U-238	Total	0.07	NA	0.01	0
EPASW38	EPASW38-SW032511	Ac-227	Filtered	-0.06 U	7.6	2.3	3.7
EPASW38	EPASW38-SW032511	Ac-227	Suspended	0.06 U	3.1	0.93	1.5
EPASW38	EPASW38-SW032511	Ac-227	Total	-0.002	NA	2.4	0
EPASW38	EPASW38-SW032511	Ac-228	Filtered	1.1 U	3.5	1	1.7

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW38	EPASW38-SW032511	Ac-228	Suspended	1.37	2.2	0.28	1.1
EPASW38	EPASW38-SW032511	Ac-228	Total	2.4	NA	1.1	0
EPASW38	EPASW38-SW032511	Ag-108	Filtered	-0.009 U	0.094	0.028	0.045
EPASW38	EPASW38-SW032511	Ag-108	Suspended	0.009 U	0.042	0.012	0.02
EPASW38	EPASW38-SW032511	Ag-108	Total	0	NA	0.03	0
EPASW38	EPASW38-SW032511	Ag-108m	Filtered	-0.1 U	1	0.3	0.48
EPASW38	EPASW38-SW032511	Ag-108m	Suspended	0.1 U	0.45	0.13	0.22
EPASW38	EPASW38-SW032511	Ag-108m	Total	0	NA	0.32	0
EPASW38	EPASW38-SW032511	Ba-133	Filtered	0 U	11	3.3	5.5
EPASW38	EPASW38-SW032511	Ba-133	Suspended	0 U	5	1.5	2.4
EPASW38	EPASW38-SW032511	Ba-133	Total	0	NA	3.6	0
EPASW38	EPASW38-SW032511	Ba-137m	Filtered	0 U	1.2	0.34	0.56
EPASW38	EPASW38-SW032511	Ba-137m	Suspended	0.17 U	0.54	0.16	0.25
EPASW38	EPASW38-SW032511	Ba-137m	Total	0.17	NA	0.38	0
EPASW38	EPASW38-SW032511	Bi-212	Filtered	2.9 U	9.3	2.8	4.4
EPASW38	EPASW38-SW032511	Bi-212	Suspended	0.2 U	4.5	1.3	2.1
EPASW38	EPASW38-SW032511	Bi-212	Total	3.1	NA	3.1	0
EPASW38	EPASW38-SW032511	Bi-214	Filtered	0.9 U	3	1.2	1.4
EPASW38	EPASW38-SW032511	Bi-214	Suspended	1.5	1.3	0.56	0.63
EPASW38	EPASW38-SW032511	Bi-214	Total	2.4	NA	1.3	0
EPASW38	EPASW38-SW032511	Cd-113m	Filtered	2100 U	12000	3700	6000
EPASW38	EPASW38-SW032511	Cd-113m	Suspended	-1700 U	6000	1800	2900
EPASW38	EPASW38-SW032511	Cd-113m	Total	500	NA	4100	0
EPASW38	EPASW38-SW032511	Cf-249	Filtered	1.1 U	5.5	1.6	2.7
EPASW38	EPASW38-SW032511	Cf-249	Suspended	-0.41 U	2.5	0.73	1.2
EPASW38	EPASW38-SW032511	Cf-249	Total	0.6	NA	1.8	0
EPASW38	EPASW38-SW032511	Co-60	Filtered	0.13 U	1.1	0.31	0.5
EPASW38	EPASW38-SW032511	Co-60	Suspended	-0.08 U	0.62	0.18	0.29
EPASW38	EPASW38-SW032511	Co-60	Total	0.05	NA	0.36	0
EPASW38	EPASW38-SW032511	Cs-134	Filtered	-0.43 U	1.3	0.39	0.62

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW38	EPASW38-SW032511	Cs-134	Suspended	-0.42 UJ	0.72	0.22	0.35
EPASW38	EPASW38-SW032511	Cs-134	Total	-0.85	NA	0.45	0
EPASW38	EPASW38-SW032511	Cs-137	Filtered	0 U	1.2	0.36	0.59
EPASW38	EPASW38-SW032511	Cs-137	Suspended	0.18 U	0.57	0.17	0.27
EPASW38	EPASW38-SW032511	Cs-137	Total	0.18	NA	0.4	0
EPASW38	EPASW38-SW032511	Eu-152	Filtered	-0.79 U	3.3	0.97	1.6
EPASW38	EPASW38-SW032511	Eu-152	Suspended	-0.19 U	1.4	0.41	0.67
EPASW38	EPASW38-SW032511	Eu-152	Total	-1	NA	1.1	0
EPASW38	EPASW38-SW032511	Eu-154	Filtered	2.7 U	8.9	2.6	4.2
EPASW38	EPASW38-SW032511	Eu-154	Suspended	0.4 U	4.5	1.3	2.1
EPASW38	EPASW38-SW032511	Eu-154	Total	3.1	NA	2.9	0
EPASW38	EPASW38-SW032511	Eu-155	Filtered	-0.76 U	3	0.89	1.4
EPASW38	EPASW38-SW032511	Eu-155	Suspended	0.02 U	1	0.3	0.49
EPASW38	EPASW38-SW032511	Eu-155	Total	-0.75	NA	0.93	0
EPASW38	EPASW38-SW032511	gross_alpha	Filtered	0.98	0.66	0.27	0.36
EPASW38	EPASW38-SW032511	gross_alpha	Suspended	0.64	0.76	0.26	0.42
EPASW38	EPASW38-SW032511	gross_alpha	Total	1.63	NA	0.37	0
EPASW38	EPASW38-SW032511	gross_beta	Filtered	1.33	1	0.37	0.62
EPASW38	EPASW38-SW032511	gross_beta	Suspended	0.7	0.64	0.22	0.38
EPASW38	EPASW38-SW032511	gross_beta	Total	2.03	NA	0.43	0
EPASW38	EPASW38-SW032511	H-3_Total	Total	6	73	21	34
EPASW38	EPASW38-SW032511	Ho-166m	Filtered	0.34 U	2	0.6	0.98
EPASW38	EPASW38-SW032511	Ho-166m	Suspended	0 U	0.97	0.28	0.46
EPASW38	EPASW38-SW032511	Ho-166m	Total	0.34	NA	0.67	0
EPASW38	EPASW38-SW032511	K-40	Filtered	24.2	18	5.7	8.3
EPASW38	EPASW38-SW032511	K-40	Suspended	-2.1 U	7.6	2.4	3.6
EPASW38	EPASW38-SW032511	K-40	Total	22.2	NA	6.2	0
EPASW38	EPASW38-SW032511	Na-22	Filtered	0.28 U	1	0.29	0.46
EPASW38	EPASW38-SW032511	Na-22	Suspended	-0.04 U	0.61	0.17	0.28
EPASW38	EPASW38-SW032511	Na-22	Total	0.24	NA	0.34	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW38	EPASW38-SW032511	Nb-94	Filtered	-0.08 U	1.1	0.31	0.51
EPASW38	EPASW38-SW032511	Nb-94	Suspended	0.11 U	0.4	0.12	0.19
EPASW38	EPASW38-SW032511	Nb-94	Total	0.03	NA	0.33	0
EPASW38	EPASW38-SW032511	Np-236	Filtered	0.02 U	2.4	0.72	1.2
EPASW38	EPASW38-SW032511	Np-236	Suspended	0.04 U	0.9	0.27	0.44
EPASW38	EPASW38-SW032511	Np-236	Total	0.06	NA	0.77	0
EPASW38	EPASW38-SW032511	Np-239	Filtered	2.7 U	7.2	2.2	3.5
EPASW38	EPASW38-SW032511	Np-239	Suspended	0.83 U	2.9	0.86	1.4
EPASW38	EPASW38-SW032511	Np-239	Total	3.5	NA	2.3	0
EPASW38	EPASW38-SW032511	Pa-231	Filtered	-14 U	51	15	25
EPASW38	EPASW38-SW032511	Pa-231	Suspended	-6.2 U	21	6.3	10
EPASW38	EPASW38-SW032511	Pa-231	Total	-20	NA	17	0
EPASW38	EPASW38-SW032511	Pb-212	Filtered	0.67 U	2.2	0.66	1.1
EPASW38	EPASW38-SW032511	Pb-212	Suspended	-0.13 U	0.88	0.38	0.43
EPASW38	EPASW38-SW032511	Pb-212	Total	0.54	NA	0.77	0
EPASW38	EPASW38-SW032511	Pb-214	Filtered	-0.35 U	2.9	0.97	1.4
EPASW38	EPASW38-SW032511	Pb-214	Suspended	0.29 U	1.1	0.29	0.51
EPASW38	EPASW38-SW032511	Pb-214	Total	-0.06	NA	1	0
EPASW38	EPASW38-SW032511	Sb-125	Filtered	1.5 U	12	3.5	5.7
EPASW38	EPASW38-SW032511	Sb-125	Suspended	2.2	4.1	1.2	2
EPASW38	EPASW38-SW032511	Sb-125	Total	3.7	NA	3.7	0
EPASW38	EPASW38-SW032511	Sn-126	Filtered	0.06 U	1.4	0.39	0.65
EPASW38	EPASW38-SW032511	Sn-126	Suspended	0.22 U	0.6	0.18	0.28
EPASW38	EPASW38-SW032511	Sn-126	Total	0.28	NA	0.43	0
EPASW38	EPASW38-SW032511	Sr-90	Filtered	0.039 U	0.12	0.037	0.071
EPASW38	EPASW38-SW032511	Sr-90	Suspended	-0.03 U	0.11	0.032	0.064
EPASW38	EPASW38-SW032511	Sr-90	Total	0.009	NA	0.049	0
EPASW38	EPASW38-SW032511	Te-125m	Filtered	0.34 U	2.7	0.81	1.3
EPASW38	EPASW38-SW032511	Te-125m	Suspended	0.51	0.94	0.29	0.45
EPASW38	EPASW38-SW032511	Te-125m	Total	0.85	NA	0.86	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW38	EPASW38-SW032511	Th-231	Filtered	0.0054 U	0.0073	0.0038	0.0062
EPASW38	EPASW38-SW032511	Th-231	Suspended	0.0046 U	0.0062	0.0033	0.0054
EPASW38	EPASW38-SW032511	Th-231	Total	0.01	NA	0.005	0
EPASW38	EPASW38-SW032511	Th-234	Filtered	11.3	23	8.2	11
EPASW38	EPASW38-SW032511	Th-234	Suspended	1.2 U	4.9	1.5	2.4
EPASW38	EPASW38-SW032511	Th-234	Total	12.5	NA	8.4	0
EPASW38	EPASW38-SW032511	Tl-208	Filtered	1.53	1.4	0.6	0.68
EPASW38	EPASW38-SW032511	Tl-208	Suspended	-0.1 U	0.65	0.28	0.31
EPASW38	EPASW38-SW032511	Tl-208	Total	1.43	NA	0.66	0
EPASW38	EPASW38-SW032511	Tm-171	Filtered	-80 U	350	110	170
EPASW38	EPASW38-SW032511	Tm-171	Suspended	30 U	72	22	35
EPASW38	EPASW38-SW032511	Tm-171	Total	-50	NA	110	0
EPASW38	EPASW38-SW032511	U-233/234	Filtered	0.06	0.01	0.01	0.01
EPASW38	EPASW38-SW032511	U-233/234	Suspended	0.03	0.01	0.01	0
EPASW38	EPASW38-SW032511	U-233/234	Total	0.09	NA	0.02	0
EPASW38	EPASW38-SW032511	U-235/236	Filtered	0 U	0.03	0.01	0.01
EPASW38	EPASW38-SW032511	U-235/236	Suspended	0 U	0.01	0	0
EPASW38	EPASW38-SW032511	U-235/236	Total	0.01	NA	0.01	0
EPASW38	EPASW38-SW032511	U-238	Filtered	0.03	0.02	0.01	0.01
EPASW38	EPASW38-SW032511	U-238	Suspended	0	0.01	0	0
EPASW38	EPASW38-SW032511	U-238	Total	0.03	NA	0.01	0
EPASW39	EPASW39-SW032211	Ac-227	Filtered	-6.9 UL	10	3.1	4.9
EPASW39	EPASW39-SW032211	Ac-227	Suspended	-3 UL	4.9	1.5	2.4
EPASW39	EPASW39-SW032211	Ac-227	Total	-9.9	NA	3.4	0
EPASW39	EPASW39-SW032211	Ac-228	Filtered	3	3.6	1.1	1.7
EPASW39	EPASW39-SW032211	Ac-228	Suspended	0.75 U	2.7	0.71	1.3
EPASW39	EPASW39-SW032211	Ac-228	Total	3.8	NA	1.3	0
EPASW39	EPASW39-SW032211	Ag-108	Filtered	0.024 U	0.077	0.023	0.037
EPASW39	EPASW39-SW032211	Ag-108	Suspended	0.001 U	0.056	0.017	0.027
EPASW39	EPASW39-SW032211	Ag-108	Total	0.025	NA	0.028	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW39	EPASW39-SW032211	Ag-108m	Filtered	0.26 U	0.83	0.25	0.4
EPASW39	EPASW39-SW032211	Ag-108m	Suspended	0.01 U	0.61	0.18	0.29
EPASW39	EPASW39-SW032211	Ag-108m	Total	0.27	NA	0.3	0
EPASW39	EPASW39-SW032211	Ba-133	Filtered	-1.2 U	12	3.6	5.8
EPASW39	EPASW39-SW032211	Ba-133	Suspended	-0.06 U	5.6	1.6	2.7
EPASW39	EPASW39-SW032211	Ba-133	Total	-1.2	NA	3.9	0
EPASW39	EPASW39-SW032211	Ba-137m	Filtered	0.25 U	1.1	0.32	0.52
EPASW39	EPASW39-SW032211	Ba-137m	Suspended	0.1 U	0.69	0.2	0.33
EPASW39	EPASW39-SW032211	Ba-137m	Total	0.35	NA	0.38	0
EPASW39	EPASW39-SW032211	Bi-212	Filtered	2.6 U	9.7	2.7	4.6
EPASW39	EPASW39-SW032211	Bi-212	Suspended	1.7 U	4.6	1.4	2.2
EPASW39	EPASW39-SW032211	Bi-212	Total	4.3	NA	3.1	0
EPASW39	EPASW39-SW032211	Bi-214	Filtered	5.18	2.7	0.88	1.3
EPASW39	EPASW39-SW032211	Bi-214	Suspended	0.19 U	1.7	0.57	0.8
EPASW39	EPASW39-SW032211	Bi-214	Total	5.4	NA	1	0
EPASW39	EPASW39-SW032211	Cd-113m	Filtered	2900 U	14000	4100	6700
EPASW39	EPASW39-SW032211	Cd-113m	Suspended	100 U	7200	2100	3500
EPASW39	EPASW39-SW032211	Cd-113m	Total	3000	NA	4700	0
EPASW39	EPASW39-SW032211	Cf-249	Filtered	0.9 U	5.2	1.5	2.5
EPASW39	EPASW39-SW032211	Cf-249	Suspended	-0.71 U	3.2	0.97	1.6
EPASW39	EPASW39-SW032211	Cf-249	Total	0.2	NA	1.8	0
EPASW39	EPASW39-SW032211	Co-60	Filtered	-0.21 U	1.2	0.34	0.54
EPASW39	EPASW39-SW032211	Co-60	Suspended	-0.09 U	0.77	0.22	0.36
EPASW39	EPASW39-SW032211	Co-60	Total	-0.3	NA	0.4	0
EPASW39	EPASW39-SW032211	Cs-134	Filtered	0.05 U	1.2	0.36	0.59
EPASW39	EPASW39-SW032211	Cs-134	Suspended	0.03 U	0.69	0.2	0.33
EPASW39	EPASW39-SW032211	Cs-134	Total	0.09	NA	0.41	0
EPASW39	EPASW39-SW032211	Cs-137	Filtered	0.26 U	1.2	0.34	0.55
EPASW39	EPASW39-SW032211	Cs-137	Suspended	0.11 U	0.73	0.21	0.35
EPASW39	EPASW39-SW032211	Cs-137	Total	0.37	NA	0.4	0

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Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW39	EPASW39-SW032211	Eu-152	Filtered	-0.27 U	3.1	0.93	1.5
EPASW39	EPASW39-SW032211	Eu-152	Suspended	0 U	1.9	0.55	0.9
EPASW39	EPASW39-SW032211	Eu-152	Total	-0.3	NA	1.1	0
EPASW39	EPASW39-SW032211	Eu-154	Filtered	-0.1 U	8.6	2.4	4
EPASW39	EPASW39-SW032211	Eu-154	Suspended	1.2 U	5.8	1.7	2.7
EPASW39	EPASW39-SW032211	Eu-154	Total	1.1	NA	3	0
EPASW39	EPASW39-SW032211	Eu-155	Filtered	-1.08 U	2.8	0.85	1.4
EPASW39	EPASW39-SW032211	Eu-155	Suspended	-0.003 U	1.1	0.32	0.52
EPASW39	EPASW39-SW032211	Eu-155	Total	-1.08	NA	0.9	0
EPASW39	EPASW39-SW032211	gross_alpha	Filtered	0.41	0.32	0.13	0.16
EPASW39	EPASW39-SW032211	gross_alpha	Suspended	0.36 J	0.4	0.14	0.21
EPASW39	EPASW39-SW032211	gross_alpha	Total	0.76	NA	0.19	0
EPASW39	EPASW39-SW032211	gross_beta	Filtered	3.52	1	0.46	0.57
EPASW39	EPASW39-SW032211	gross_beta	Suspended	2.37	0.79	0.34	0.46
EPASW39	EPASW39-SW032211	gross_beta	Total	5.89	NA	0.57	0
EPASW39	EPASW39-SW032211	H-3	Total	-6	61	17	28
EPASW39	EPASW39-SW032211	Ho-166m	Filtered	0.27 U	1.9	0.55	0.89
EPASW39	EPASW39-SW032211	Ho-166m	Suspended	-0.14 U	1.1	0.32	0.51
EPASW39	EPASW39-SW032211	Ho-166m	Total	0.13	NA	0.63	0
EPASW39	EPASW39-SW032211	K-40	Filtered	7.1	15	4.2	7.1
EPASW39	EPASW39-SW032211	K-40	Suspended	-3.2 U	12	3.4	6
EPASW39	EPASW39-SW032211	K-40	Total	4	NA	5.4	0
EPASW39	EPASW39-SW032211	Na-22	Filtered	0.19 U	1	0.29	0.47
EPASW39	EPASW39-SW032211	Na-22	Suspended	0.02 U	0.7	0.2	0.32
EPASW39	EPASW39-SW032211	Na-22	Total	0.2	NA	0.35	0
EPASW39	EPASW39-SW032211	Nb-94	Filtered	0.1 U	1.1	0.31	0.51
EPASW39	EPASW39-SW032211	Nb-94	Suspended	0.21 U	0.65	0.19	0.31
EPASW39	EPASW39-SW032211	Nb-94	Total	0.31	NA	0.37	0
EPASW39	EPASW39-SW032211	Np-236	Filtered	-0.79 U	2.7	0.81	1.3
EPASW39	EPASW39-SW032211	Np-236	Suspended	0.3 U	1.2	0.35	0.57

Table A.1
Analytical Results Summary
Surface Water

Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW39	EPASW39-SW032211	Np-236	Total	-0.49	NA	0.88	0
EPASW39	EPASW39-SW032211	Np-239	Filtered	1.8 U	7.3	2.2	3.6
EPASW39	EPASW39-SW032211	Np-239	Suspended	-0.7 U	3.8	1.1	1.9
EPASW39	EPASW39-SW032211	Np-239	Total	1.1	NA	2.5	0
EPASW39	EPASW39-SW032211	Pa-231	Filtered	9 U	45	13	22
EPASW39	EPASW39-SW032211	Pa-231	Suspended	0 U	26	7.7	13
EPASW39	EPASW39-SW032211	Pa-231	Total	9	NA	15	0
EPASW39	EPASW39-SW032211	Pb-212	Filtered	0.21 U	2.3	0.67	1.1
EPASW39	EPASW39-SW032211	Pb-212	Suspended	0.71	1.2	0.48	0.61
EPASW39	EPASW39-SW032211	Pb-212	Total	0.92	NA	0.82	0
EPASW39	EPASW39-SW032211	Pb-214	Filtered	1.85	2.3	0.81	1.1
EPASW39	EPASW39-SW032211	Pb-214	Suspended	-0.37 U	1.3	0.45	0.64
EPASW39	EPASW39-SW032211	Pb-214	Total	1.48	NA	0.93	0
EPASW39	EPASW39-SW032211	Sb-125	Filtered	0.4 U	12	3.4	5.6
EPASW39	EPASW39-SW032211	Sb-125	Suspended	0.07 U	4.5	1.3	2.2
EPASW39	EPASW39-SW032211	Sb-125	Total	0.4	NA	3.7	0
EPASW39	EPASW39-SW032211	Sn-126	Filtered	0.51	1	0.32	0.49
EPASW39	EPASW39-SW032211	Sn-126	Suspended	0.13 U	0.79	0.23	0.38
EPASW39	EPASW39-SW032211	Sn-126	Total	0.64	NA	0.39	0
EPASW39	EPASW39-SW032211	Sr-90	Filtered	0.28 K	0.42	0.13	0.25
EPASW39	EPASW39-SW032211	Sr-90	Suspended	0.065	0.12	0.035	0.059
EPASW39	EPASW39-SW032211	Sr-90	Total	0.35	NA	0.14	0
EPASW39	EPASW39-SW032211	Te-125m	Filtered	0.09 U	2.7	0.79	1.3
EPASW39	EPASW39-SW032211	Te-125m	Suspended	0.02 U	1	0.3	0.5
EPASW39	EPASW39-SW032211	Te-125m	Total	0.1	NA	0.85	0
EPASW39	EPASW39-SW032211	Th-231	Filtered	0.006 U	0.0081	0.0042	0.0069
EPASW39	EPASW39-SW032211	Th-231	Suspended	0.007	0.0063	0.004	0.0054
EPASW39	EPASW39-SW032211	Th-231	Total	0.0129	NA	0.0058	0
EPASW39	EPASW39-SW032211	Th-234	Filtered	1.4 U	20	5.4	10
EPASW39	EPASW39-SW032211	Th-234	Suspended	4.4	8.4	2.6	4.1

Table A.1
Analytical Results Summary
Surface Water

Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW39	EPASW39-SW032211	Th-234	Total	5.8	NA	6	0
EPASW39	EPASW39-SW032211	Tl-208	Filtered	0.65	1.3	0.45	0.64
EPASW39	EPASW39-SW032211	Tl-208	Suspended	0.21 U	0.75	0.27	0.36
EPASW39	EPASW39-SW032211	Tl-208	Total	0.86	NA	0.53	0
EPASW39	EPASW39-SW032211	Tm-171	Filtered	4 U	370	110	180
EPASW39	EPASW39-SW032211	Tm-171	Suspended	38 U	110	33	53
EPASW39	EPASW39-SW032211	Tm-171	Total	40	NA	120	0
EPASW39	EPASW39-SW032211	U-233/234	Filtered	0.09	0.01	0.02	0.01
EPASW39	EPASW39-SW032211	U-233/234	Suspended	-0.01 UL	0.02	0	0.01
EPASW39	EPASW39-SW032211	U-233/234	Total	0.08	NA	0.02	0
EPASW39	EPASW39-SW032211	U-235/236	Filtered	0.01 U	0.01	0	0.01
EPASW39	EPASW39-SW032211	U-235/236	Suspended	0.01	0.01	0	0
EPASW39	EPASW39-SW032211	U-235/236	Total	0.01	NA	0.01	0
EPASW39	EPASW39-SW032211	U-238	Filtered	0.09	0.02	0.02	0.01
EPASW39	EPASW39-SW032211	U-238	Suspended	0 U	0.01	0	0
EPASW39	EPASW39-SW032211	U-238	Total	0.1	NA	0.02	0
EPASW40	EPASW40-SW032111	Ac-227	Filtered	-0.2 U	12	3.6	6
EPASW40	EPASW40-SW032111	Ac-227	Suspended	-2.1 U	4.4	1.3	2.2
EPASW40	EPASW40-SW032111	Ac-227	Total	-2.4	NA	3.9	0
EPASW40	EPASW40-SW032111	Ac-228	Filtered	3.6	3.9	1.2	1.8
EPASW40	EPASW40-SW032111	Ac-228	Suspended	2.51	2.3	0.75	1.1
EPASW40	EPASW40-SW032111	Ac-228	Total	6.1	NA	1.4	0
EPASW40	EPASW40-SW032111	Ag-108	Filtered	0.032 U	0.077	0.023	0.036
EPASW40	EPASW40-SW032111	Ag-108	Suspended	-0.013 U	0.053	0.016	0.025
EPASW40	EPASW40-SW032111	Ag-108	Total	0.019	NA	0.028	0
EPASW40	EPASW40-SW032111	Ag-108m	Filtered	0.34 U	0.82	0.25	0.39
EPASW40	EPASW40-SW032111	Ag-108m	Suspended	-0.14 U	0.57	0.17	0.27
EPASW40	EPASW40-SW032111	Ag-108m	Total	0.2	NA	0.3	0
EPASW40	EPASW40-SW032111	Ba-133	Filtered	2.8 U	12	3.5	5.7
EPASW40	EPASW40-SW032111	Ba-133	Suspended	-1.7 U	6.1	1.8	2.9

Table A.1
Analytical Results Summary
Surface Water

Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW40	EPASW40-SW032111	Ba-133	Total	1.1	NA	4	0
EPASW40	EPASW40-SW032111	Ba-137m	Filtered	-0.31 U	1.2	0.34	0.55
EPASW40	EPASW40-SW032111	Ba-137m	Suspended	0.33	0.62	0.19	0.29
EPASW40	EPASW40-SW032111	Ba-137m	Total	0.03	NA	0.39	0
EPASW40	EPASW40-SW032111	Bi-212	Filtered	-2.4 U	9.8	8.1	4.7
EPASW40	EPASW40-SW032111	Bi-212	Suspended	-0.3 U	6.3	2.2	3
EPASW40	EPASW40-SW032111	Bi-212	Total	-2.6	NA	8.4	0
EPASW40	EPASW40-SW032111	Bi-214	Filtered	1.4	2.6	0.83	1.3
EPASW40	EPASW40-SW032111	Bi-214	Suspended	-0.71 U	1.5	0.68	0.72
EPASW40	EPASW40-SW032111	Bi-214	Total	0.7	NA	1.1	0
EPASW40	EPASW40-SW032111	Cd-113m	Filtered	4400 U	12000	3700	5900
EPASW40	EPASW40-SW032111	Cd-113m	Suspended	-30 U	7400	2200	3600
EPASW40	EPASW40-SW032111	Cd-113m	Total	4400	NA	4300	0
EPASW40	EPASW40-SW032111	Cf-249	Filtered	-0.3 U	5.8	1.7	2.8
EPASW40	EPASW40-SW032111	Cf-249	Suspended	0.07 U	3.1	0.92	1.5
EPASW40	EPASW40-SW032111	Cf-249	Total	-0.2	NA	1.9	0
EPASW40	EPASW40-SW032111	Co-60	Filtered	0.18 U	1.1	0.32	0.52
EPASW40	EPASW40-SW032111	Co-60	Suspended	0.56	0.76	0.24	0.35
EPASW40	EPASW40-SW032111	Co-60	Total	0.74	NA	0.4	0
EPASW40	EPASW40-SW032111	Cs-134	Filtered	0 U	1.6	0.47	0.78
EPASW40	EPASW40-SW032111	Cs-134	Suspended	-0.24 U	0.79	0.24	0.38
EPASW40	EPASW40-SW032111	Cs-134	Total	-0.24	NA	0.53	0
EPASW40	EPASW40-SW032111	Cs-137	Filtered	-0.32 U	1.2	0.36	0.58
EPASW40	EPASW40-SW032111	Cs-137	Suspended	0.35	0.65	0.2	0.31
EPASW40	EPASW40-SW032111	Cs-137	Total	0.03	NA	0.41	0
EPASW40	EPASW40-SW032111	Eu-152	Filtered	-0.12 U	3.1	0.9	1.5
EPASW40	EPASW40-SW032111	Eu-152	Suspended	-0.46 U	1.8	0.53	0.86
EPASW40	EPASW40-SW032111	Eu-152	Total	-0.6	NA	1	0
EPASW40	EPASW40-SW032111	Eu-154	Filtered	-0.9 U	10	2.9	4.8
EPASW40	EPASW40-SW032111	Eu-154	Suspended	0.1 U	6.1	1.8	2.9

Table A.1
Analytical Results Summary
Surface Water

Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW40	EPASW40-SW032111	Eu-154	Total	-0.7	NA	3.4	0
EPASW40	EPASW40-SW032111	Eu-155	Filtered	0.75 U	3	0.9	1.5
EPASW40	EPASW40-SW032111	Eu-155	Suspended	0.04 U	1.2	0.34	0.57
EPASW40	EPASW40-SW032111	Eu-155	Total	0.79	NA	0.96	0
EPASW40	EPASW40-SW032111	gross_alpha	Filtered	3.65	1.1	0.58	0.59
EPASW40	EPASW40-SW032111	gross_alpha	Suspended	1.91 J	0.41	0.29	0.21
EPASW40	EPASW40-SW032111	gross_alpha	Total	5.55	NA	0.65	0
EPASW40	EPASW40-SW032111	gross_beta	Filtered	11.2	1	0.79	0.6
EPASW40	EPASW40-SW032111	gross_beta	Suspended	4.89	0.94	0.48	0.55
EPASW40	EPASW40-SW032111	gross_beta	Total	16.1	NA	0.92	0
EPASW40	EPASW40-SW032111	H-3	Total	-9	61	17	29
EPASW40	EPASW40-SW032111	Ho-166m	Filtered	-0.78 U	2.1	0.62	0.98
EPASW40	EPASW40-SW032111	Ho-166m	Suspended	0.002 U	1.2	0.34	0.56
EPASW40	EPASW40-SW032111	Ho-166m	Total	-0.77	NA	0.7	0
EPASW40	EPASW40-SW032111	K-40	Filtered	11.2	17	6.3	8.1
EPASW40	EPASW40-SW032111	K-40	Suspended	8.8	10	3.8	4.8
EPASW40	EPASW40-SW032111	K-40	Total	20	NA	7.3	0
EPASW40	EPASW40-SW032111	Na-22	Filtered	-0.19 U	1.2	0.34	0.55
EPASW40	EPASW40-SW032111	Na-22	Suspended	0.12 U	0.7	0.2	0.32
EPASW40	EPASW40-SW032111	Na-22	Total	-0.07	NA	0.4	0
EPASW40	EPASW40-SW032111	Nb-94	Filtered	0.28 U	0.98	0.29	0.47
EPASW40	EPASW40-SW032111	Nb-94	Suspended	0.05 U	0.69	0.2	0.33
EPASW40	EPASW40-SW032111	Nb-94	Total	0.33	NA	0.35	0
EPASW40	EPASW40-SW032111	Np-236	Filtered	0.47 U	2.5	0.74	1.2
EPASW40	EPASW40-SW032111	Np-236	Suspended	-0.16 U	1.2	0.35	0.57
EPASW40	EPASW40-SW032111	Np-236	Total	0.31	NA	0.82	0
EPASW40	EPASW40-SW032111	Np-239	Filtered	-2.2 U	7.6	2.3	3.7
EPASW40	EPASW40-SW032111	Np-239	Suspended	0.5 U	3.8	1.1	1.8
EPASW40	EPASW40-SW032111	Np-239	Total	-1.7	NA	2.5	0
EPASW40	EPASW40-SW032111	Pa-231	Filtered	0.8 U	52	15	25

Table A.1
Analytical Results Summary
Surface Water

Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW40	EPASW40-SW032111	Pa-231	Suspended	-6.7 U	27	8	13
EPASW40	EPASW40-SW032111	Pa-231	Total	-6	NA	17	0
EPASW40	EPASW40-SW032111	Pb-212	Filtered	1.3 U	2.8	1.1	1.4
EPASW40	EPASW40-SW032111	Pb-212	Suspended	0.95	1.1	0.4	0.55
EPASW40	EPASW40-SW032111	Pb-212	Total	2.2	NA	1.2	0
EPASW40	EPASW40-SW032111	Pb-214	Filtered	-0.7 U	2.5	1.2	1.2
EPASW40	EPASW40-SW032111	Pb-214	Suspended	-0.17 U	1.5	0.56	0.72
EPASW40	EPASW40-SW032111	Pb-214	Total	-0.9	NA	1.4	0
EPASW40	EPASW40-SW032111	Sb-125	Filtered	0.4 U	12	3.7	6.1
EPASW40	EPASW40-SW032111	Sb-125	Suspended	1.4 U	5.8	1.7	2.8
EPASW40	EPASW40-SW032111	Sb-125	Total	1.8	NA	4.1	0
EPASW40	EPASW40-SW032111	Sn-126	Filtered	0.39 U	1.3	0.39	0.63
EPASW40	EPASW40-SW032111	Sn-126	Suspended	0.22 U	0.79	0.24	0.38
EPASW40	EPASW40-SW032111	Sn-126	Total	0.61	NA	0.46	0
EPASW40	EPASW40-SW032111	Sr-90	Filtered	0.031 U	0.22	0.063	0.13
EPASW40	EPASW40-SW032111	Sr-90	Suspended	0.088	0.13	0.041	0.068
EPASW40	EPASW40-SW032111	Sr-90	Total	0.119	NA	0.075	0
EPASW40	EPASW40-SW032111	Te-125m	Filtered	0.1 U	2.9	0.85	1.4
EPASW40	EPASW40-SW032111	Te-125m	Suspended	0.32 U	1.3	0.4	0.65
EPASW40	EPASW40-SW032111	Te-125m	Total	0.42	NA	0.94	0
EPASW40	EPASW40-SW032111	Th-231	Filtered	0.0066 U	0.0089	0.0046	0.0076
EPASW40	EPASW40-SW032111	Th-231	Suspended	0.0274	0.0067	0.0083	0.0058
EPASW40	EPASW40-SW032111	Th-231	Total	0.034	NA	0.0095	0
EPASW40	EPASW40-SW032111	Th-234	Filtered	4 U	22	7.1	11
EPASW40	EPASW40-SW032111	Th-234	Suspended	-2 U	7.6	3.4	3.7
EPASW40	EPASW40-SW032111	Th-234	Total	2	NA	7.8	0
EPASW40	EPASW40-SW032111	Tl-208	Filtered	0.57 U	1.3	0.45	0.64
EPASW40	EPASW40-SW032111	Tl-208	Suspended	0.39 U	0.84	0.35	0.4
EPASW40	EPASW40-SW032111	Tl-208	Total	0.96	NA	0.57	0
EPASW40	EPASW40-SW032111	Tm-171	Filtered	100 U	340	100	170

Table A.1
Analytical Results Summary
Surface Water

Location Identification	Sample Identification	Analyte Name	Analysis Basis	Activity	MDC	TPU	Critical Value
EPASW40	EPASW40-SW032111	Tm-171	Suspended	18 U	110	33	54
EPASW40	EPASW40-SW032111	Tm-171	Total	120	NA	110	0
EPASW40	EPASW40-SW032111	U-233/234	Filtered	0.14	0.01	0.02	0.01
EPASW40	EPASW40-SW032111	U-233/234	Suspended	0.52	0.01	0.04	0
EPASW40	EPASW40-SW032111	U-233/234	Total	0.66	NA	0.04	0
EPASW40	EPASW40-SW032111	U-235/236	Filtered	0.01 U	0.01	0	0.01
EPASW40	EPASW40-SW032111	U-235/236	Suspended	0.03	0.01	0.01	0.01
EPASW40	EPASW40-SW032111	U-235/236	Total	0.03	NA	0.01	0
EPASW40	EPASW40-SW032111	U-238	Filtered	0.1	0.01	0.02	0.01
EPASW40	EPASW40-SW032111	U-238	Suspended	0.48	0.01	0.04	0
EPASW40	EPASW40-SW032111	U-238	Total	0.58	NA	0.04	0

Notes:

Refer to Table 3.1 of the Final Phase I Field Sampling Plan for Groundwater, Surface Water, and Sediment (HGL, 2012a) for a definition of radionuclide symbols.

Reporting units in picocuries per liter.

MDC - minimum detectable concentration

NA - not applicable - This total concentration is a summation of the filtered and suspended fraction of the sample; therefore there is no MDC.

TPU - total propagated uncertainty

B - Analyte present, but not detected substantially above the level reported in laboratory or field blanks.

J - The analyte was detected at the reported concentration; the quantitation is an estimate.

K - Analyte present. Reported value may be biased high. Actual value is expected to be lower.

R - The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.

U - Not considered detected. The associated number is the reported concentration.

UJ - Not considered detected. The associated number is the reported concentration, which may be inaccurate.

UL - Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.

Table A.2
Parent and Field Duplicate Results Summary
Surface Water

Sample Location	Parent Sample						Field Duplicate Sample					
	Sample Identification	Analyte Name	Reporting Basis	Activity	MDC	TPU	Sample Identification	Analyte Name	Reporting Basis	Activity	MDC	TPU
EPASW29	EPASW29-SW032911	Ac-227	Filtered	-3.8 U	9.8	3	EPASW-DUP-03-032911Q	Ac-227	Filtered	-10.2 UL	12	3.8
EPASW29	EPASW29-SW032911	Ac-227	Suspended	-2.4 UL	4.6	1.4	EPASW-DUP-03-032911Q	Ac-227	Suspended	-1.7 U	4.1	1.3
EPASW29	EPASW29-SW032911	Ac-228	Filtered	-0.5 U	3.8	1.1	EPASW-DUP-03-032911Q	Ac-228	Filtered	4.8	4.4	1.5
EPASW29	EPASW29-SW032911	Ac-228	Suspended	-1.4 U	3.1	1.9	EPASW-DUP-03-032911Q	Ac-228	Suspended	-0.7 U	2.9	1.4
EPASW29	EPASW29-SW032911	Bi-212	Filtered	5.3	10	3.1	EPASW-DUP-03-032911Q	Bi-212	Filtered	4.8 U	12	3.6
EPASW29	EPASW29-SW032911	Bi-212	Suspended	3.6	5	1.6	EPASW-DUP-03-032911Q	Bi-212	Suspended	2.3	4.6	1.4
EPASW29	EPASW29-SW032911	Bi-214	Filtered	1.4	2.8	1	EPASW-DUP-03-032911Q	Bi-214	Filtered	4.7	3.5	1.4
EPASW29	EPASW29-SW032911	Bi-214	Suspended	1.26	1.5	0.5	EPASW-DUP-03-032911Q	Bi-214	Suspended	1.16	1.6	0.56
EPASW29	EPASW29-SW032911	Cd-113m	Filtered	-3300 U	14000	4300	EPASW-DUP-03-032911Q	Cd-113m	Filtered	-6300 U	17000	5200
EPASW29	EPASW29-SW032911	Cd-113m	Suspended	2600 U	6200	1900	EPASW-DUP-03-032911Q	Cd-113m	Suspended	-500 U	6900	2000
EPASW29	EPASW29-SW032911	Co-60	Filtered	0.21 U	1.4	0.39	EPASW-DUP-03-032911Q	Co-60	Filtered	0.41 U	1.6	0.47
EPASW29	EPASW29-SW032911	Co-60	Suspended	0.006 U	0.75	0.21	EPASW-DUP-03-032911Q	Co-60	Suspended	0.008 U	0.72	0.2
EPASW29	EPASW29-SW032911	Cs-134	Filtered	-0.02 U	1.2	0.36	EPASW-DUP-03-032911Q	Cs-134	Filtered	-0.89 UL	1.8	0.55
EPASW29	EPASW29-SW032911	Cs-134	Suspended	0.002 UJ	0.71	0.21	EPASW-DUP-03-032911Q	Cs-134	Suspended	0.72 J	0.7	0.21
EPASW29	EPASW29-SW032911	Cs-137	Filtered	-0.18 U	1.3	0.36	EPASW-DUP-03-032911Q	Cs-137	Filtered	0.28 U	1.5	0.44
EPASW29	EPASW29-SW032911	Cs-137	Suspended	-0.13 U	0.75	0.22	EPASW-DUP-03-032911Q	Cs-137	Suspended	0.03 U	0.71	0.21
EPASW29	EPASW29-SW032911	Eu-152	Filtered	0.211 U	3.4	0.998	EPASW-DUP-03-032911Q	Eu-152	Filtered	-0.7 U	3.8	1.1
EPASW29	EPASW29-SW032911	Eu-152	Suspended	-0.39 U	1.8	0.55	EPASW-DUP-03-032911Q	Eu-152	Suspended	-0.04 U	1.9	0.56
EPASW29	EPASW29-SW032911	Eu-154	Filtered	-0.003 U	10	2.9	EPASW-DUP-03-032911Q	Eu-154	Filtered	0.9 U	12	3.5
EPASW29	EPASW29-SW032911	Eu-154	Suspended	0.6 U	5.8	1.7	EPASW-DUP-03-032911Q	Eu-154	Suspended	1.9 U	5.8	1.7
EPASW29	EPASW29-SW032911	Eu-155	Filtered	-0.9 U	3.5	1	EPASW-DUP-03-032911Q	Eu-155	Filtered	-0.4 U	4.2	1.3

Table A.2
Parent and Field Duplicate Results Summary
Surface Water

Sample Location	Parent Sample						Field Duplicate Sample					
	Sample Identification	Analyte Name	Reporting Basis	Activity	MDC	TPU	Sample Identification	Analyte Name	Reporting Basis	Activity	MDC	TPU
EPASW29	EPASW29-SW032911	Eu-155	Suspended	0.38 U	1.3	0.39	EPASW-DUP-03-032911Q	Eu-155	Suspended	-0.14 U	1.3	0.38
EPASW29	EPASW29-SW032911	gross_alpha	Filtered	0.91	0.62	0.25	EPASW-DUP-03-032911Q	gross_alpha	Filtered	0.67	0.78	0.26
EPASW29	EPASW29-SW032911	gross_alpha	Suspended	0 U	0.8	0.21	EPASW-DUP-03-032911Q	gross_alpha	Suspended	0.59	1	0.33
EPASW29	EPASW29-SW032911	gross_beta	Filtered	2.49	1.2	0.46	EPASW-DUP-03-032911Q	gross_beta	Filtered	1.85	1.3	0.46
EPASW29	EPASW29-SW032911	gross_beta	Suspended	0.58	0.7	0.23	EPASW-DUP-03-032911Q	gross_beta	Suspended	0.23 U	0.73	0.22
EPASW29	EPASW29-SW032911	Ho-166m	Filtered	-0.75 U	2.1	0.64	EPASW-DUP-03-032911Q	Ho-166m	Filtered	-0.56 U	2.7	0.78
EPASW29	EPASW29-SW032911	Ho-166m	Suspended	0.11 U	1.3	0.37	EPASW-DUP-03-032911Q	Ho-166m	Suspended	-0.006 U	0.95	0.27
EPASW29	EPASW29-SW032911	K-40	Filtered	6.6 U	17	6.2	EPASW-DUP-03-032911Q	K-40	Filtered	15.1	21	6.6
EPASW29	EPASW29-SW032911	K-40	Suspended	-4.9 U	13	5	EPASW-DUP-03-032911Q	K-40	Suspended	10.3	9.6	3.2
EPASW29	EPASW29-SW032911	Na-22	Filtered	0 U	1.8	0.5	EPASW-DUP-03-032911Q	Na-22	Filtered	-0.002 U	1.6	0.43
EPASW29	EPASW29-SW032911	Na-22	Suspended	-0.01 U	0.71	0.2	EPASW-DUP-03-032911Q	Na-22	Suspended	-0.02 U	0.72	0.2
EPASW29	EPASW29-SW032911	Nb-94	Filtered	0.38 U	1.2	0.35	EPASW-DUP-03-032911Q	Nb-94	Filtered	-0.24 U	1.6	0.46
EPASW29	EPASW29-SW032911	Nb-94	Suspended	-0.12 U	0.54	0.16	EPASW-DUP-03-032911Q	Nb-94	Suspended	0.19 U	0.67	0.2
EPASW29	EPASW29-SW032911	Np-236	Filtered	-1.27 U	3	0.9	EPASW-DUP-03-032911Q	Np-236	Filtered	-0.7 U	3.6	1.1
EPASW29	EPASW29-SW032911	Np-236	Suspended	-0.33 U	1.3	0.39	EPASW-DUP-03-032911Q	Np-236	Suspended	-0.35 U	1.2	0.36
EPASW29	EPASW29-SW032911	Np-239	Filtered	-3 U	8.1	2.4	EPASW-DUP-03-032911Q	Np-239	Filtered	-2 U	10	3
EPASW29	EPASW29-SW032911	Np-239	Suspended	-0.2 U	3.8	1.1	EPASW-DUP-03-032911Q	Np-239	Suspended	-0.3 U	3.6	1.1
EPASW29	EPASW29-SW032911	Pa-231	Filtered	-0.3 U	55	16	EPASW-DUP-03-032911Q	Pa-231	Filtered	-23 U	73	22
EPASW29	EPASW29-SW032911	Pa-231	Suspended	0.01 U	25	7.5	EPASW-DUP-03-032911Q	Pa-231	Suspended	6.5 U	27	8.2
EPASW29	EPASW29-SW032911	Pb-212	Filtered	0.28 U	2.6	0.91	EPASW-DUP-03-032911Q	Pb-212	Filtered	0.65 U	2.7	0.86
EPASW29	EPASW29-SW032911	Pb-212	Suspended	0.83	1.1	0.42	EPASW-DUP-03-032911Q	Pb-212	Suspended	0.16 U	1.1	0.33

Table A.2
Parent and Field Duplicate Results Summary
Surface Water

Sample Location	Parent Sample						Field Duplicate Sample					
	Sample Identification	Analyte Name	Reporting Basis	Activity	MDC	TPU	Sample Identification	Analyte Name	Reporting Basis	Activity	MDC	TPU
EPASW29	EPASW29-SW032911	Pb-214	Filtered	-1 U	2.9	1.8	EPASW-DUP-03-032911Q	Pb-214	Filtered	-1.3 U	3.5	1.8
EPASW29	EPASW29-SW032911	Pb-214	Suspended	0.22 U	1.5	0.43	EPASW-DUP-03-032911Q	Pb-214	Suspended	0.03 U	1.6	0.43
EPASW29	EPASW29-SW032911	Sb-125	Filtered	0.1 U	13	4	EPASW-DUP-03-032911Q	Sb-125	Filtered	-0.2 U	16	4.7
EPASW29	EPASW29-SW032911	Sb-125	Suspended	0.5 U	5.7	1.7	EPASW-DUP-03-032911Q	Sb-125	Suspended	-0.3 U	5.5	1.6
EPASW29	EPASW29-SW032911	Sn-126	Filtered	0.17 U	1.4	0.41	EPASW-DUP-03-032911Q	Sn-126	Filtered	0.32 U	1.7	0.49
EPASW29	EPASW29-SW032911	Sn-126	Suspended	0.18 U	0.84	0.25	EPASW-DUP-03-032911Q	Sn-126	Suspended	0.08 U	0.88	0.26
EPASW29	EPASW29-SW032911	Sr-90	Filtered	0.013 U	0.13	0.037	EPASW-DUP-03-032911Q	Sr-90	Filtered	0.076	0.13	0.041
EPASW29	EPASW29-SW032911	Sr-90	Suspended	0.107	0.11	0.034	EPASW-DUP-03-032911Q	Sr-90	Suspended	-0.034 U	0.11	0.031
EPASW29	EPASW29-SW032911	Tl-208	Filtered	0.39 U	1.4	0.45	EPASW-DUP-03-032911Q	Tl-208	Filtered	-0.1 U	1.8	0.5
EPASW29	EPASW29-SW032911	Tl-208	Suspended	0.21 U	0.8	0.29	EPASW-DUP-03-032911Q	Tl-208	Suspended	0.68	0.73	0.3
EPASW29	EPASW29-SW032911	Tm-171	Filtered	110 U	360	110	EPASW-DUP-03-032911Q	Tm-171	Filtered	-190 U	400	120
EPASW29	EPASW29-SW032911	Tm-171	Suspended	-0.09 U	110	33	EPASW-DUP-03-032911Q	Tm-171	Suspended	25 U	120	35
EPASW29	EPASW29-SW032911	U-233/234	Filtered	0.119	0.006	0.016	EPASW-DUP-03-032911Q	U-233/234	Filtered	0.114	0.006	0.017
EPASW29	EPASW29-SW032911	U-233/234	Suspended	0.05	0.005	0.01	EPASW-DUP-03-032911Q	U-233/234	Suspended	0.0301	0.012	0.0079
EPASW29	EPASW29-SW032911	U-235/236	Filtered	0.0025 U	0.0069	0.0026	EPASW-DUP-03-032911Q	U-235/236	Filtered	0.011	0.0074	0.0055
EPASW29	EPASW29-SW032911	U-235/236	Suspended	0.0024 U	0.0065	0.0024	EPASW-DUP-03-032911Q	U-235/236	Suspended	0 U	0.0063	0.0023
EPASW29	EPASW29-SW032911	U-238	Filtered	0.089	0.017	0.014	EPASW-DUP-03-032911Q	U-238	Filtered	0.108	0.006	0.016
EPASW29	EPASW29-SW032911	U-238	Suspended	0.054	0.013	0.011	EPASW-DUP-03-032911Q	U-238	Suspended	0.0208	0.0067	0.012
EPASW16	EPASW16-SW032411	Ac-227	Filtered	-2.7 U	9.4	2.8	EPASW-DUP-02-SW032411	Ac-227	Filtered	-6.9 UL	9.6	2.9
EPASW16	EPASW16-SW032411	Ac-227	Suspended	-3.4 UL	5.2	1.6	EPASW-DUP-02-SW032411	Ac-227	Suspended	0.06 U	5.1	1.5
EPASW16	EPASW16-SW032411	Ac-228	Filtered	0.9 U	4.6	1.3	EPASW-DUP-02-SW032411	Ac-228	Filtered	4	3.2	1.1

Table A.2
Parent and Field Duplicate Results Summary
Surface Water

Sample Location	Parent Sample						Field Duplicate Sample					
	Sample Identification	Analyte Name	Reporting Basis	Activity	MDC	TPU	Sample Identification	Analyte Name	Reporting Basis	Activity	MDC	TPU
EPASW16	EPASW16-SW032411	Ac-228	Suspended	1.34	2.4	0.73	EPASW-DUP-02-SW032411	Ac-228	Suspended	-1.1 U	3	1.5
EPASW16	EPASW16-SW032411	Bi-212	Filtered	4.1 U	11	3.2	EPASW-DUP-02-SW032411	Bi-212	Filtered	-6 UL	11	24
EPASW16	EPASW16-SW032411	Bi-212	Suspended	1 U	6.3	1.8	EPASW-DUP-02-SW032411	Bi-212	Suspended	3.3	5.2	1.6
EPASW16	EPASW16-SW032411	Bi-214	Filtered	2.7	3.8	1.6	EPASW-DUP-02-SW032411	Bi-214	Filtered	1.4	2.9	1.2
EPASW16	EPASW16-SW032411	Bi-214	Suspended	1.29	1.7	0.62	EPASW-DUP-02-SW032411	Bi-214	Suspended	1.13	1.6	0.61
EPASW16	EPASW16-SW032411	Cd-113m	Filtered	-2200 U	18000	5400	EPASW-DUP-02-SW032411	Cd-113m	Filtered	-700 U	14000	4000
EPASW16	EPASW16-SW032411	Cd-113m	Suspended	1100 U	7100	2100	EPASW-DUP-02-SW032411	Cd-113m	Suspended	-500 U	7000	2100
EPASW16	EPASW16-SW032411	Co-60	Filtered	-0.06 U	1.6	0.46	EPASW-DUP-02-SW032411	Co-60	Filtered	0.009 U	1.1	0.31
EPASW16	EPASW16-SW032411	Co-60	Suspended	0.07 U	0.78	0.22	EPASW-DUP-02-SW032411	Co-60	Suspended	0.1 U	0.68	0.2
EPASW16	EPASW16-SW032411	Cs-134	Filtered	-0.46 U	1.7	0.5	EPASW-DUP-02-SW032411	Cs-134	Filtered	0.02 U	1.2	0.35
EPASW16	EPASW16-SW032411	Cs-134	Suspended	-0.26 U	0.78	0.23	EPASW-DUP-02-SW032411	Cs-134	Suspended	0.02 U	0.87	0.26
EPASW16	EPASW16-SW032411	Cs-137	Filtered	0.04 U	1.4	0.39	EPASW-DUP-02-SW032411	Cs-137	Filtered	0.52	1	0.32
EPASW16	EPASW16-SW032411	Cs-137	Suspended	0.31	0.58	0.18	EPASW-DUP-02-SW032411	Cs-137	Suspended	0.23 U	0.69	0.21
EPASW16	EPASW16-SW032411	Eu-152	Filtered	-0.9 U	4.4	1.3	EPASW-DUP-02-SW032411	Eu-152	Filtered	0.14 U	2.8	0.81
EPASW16	EPASW16-SW032411	Eu-152	Suspended	0.04 U	1.9	0.55	EPASW-DUP-02-SW032411	Eu-152	Suspended	0.009 U	1.7	0.51
EPASW16	EPASW16-SW032411	Eu-154	Filtered	0.9 U	13	3.8	EPASW-DUP-02-SW032411	Eu-154	Filtered	0.2 U	7.6	2.2
EPASW16	EPASW16-SW032411	Eu-154	Suspended	-0.3 U	5.8	1.7	EPASW-DUP-02-SW032411	Eu-154	Suspended	-1.2 U	5.9	1.8
EPASW16	EPASW16-SW032411	Eu-155	Filtered	-0.7 U	4	1.2	EPASW-DUP-02-SW032411	Eu-155	Filtered	0.2 U	2.7	0.81
EPASW16	EPASW16-SW032411	Eu-155	Suspended	-0.05 U	1.3	0.37	EPASW-DUP-02-SW032411	Eu-155	Suspended	0.33 U	1.3	0.4
EPASW16	EPASW16-SW032411	gross_alpha	Filtered	1.09 J	0.53	0.24	EPASW-DUP-02-SW032411	gross_alpha	Filtered	0.46 J	0.52	0.18
EPASW16	EPASW16-SW032411	gross_alpha	Suspended	2.54	0.68	0.42	EPASW-DUP-02-SW032411	gross_alpha	Suspended	8.5	0.66	0.82

Table A.2
Parent and Field Duplicate Results Summary
Surface Water

Sample Location	Parent Sample						Field Duplicate Sample					
	Sample Identification	Analyte Name	Reporting Basis	Activity	MDC	TPU	Sample Identification	Analyte Name	Reporting Basis	Activity	MDC	TPU
EPASW16	EPASW16-SW032411	gross_beta	Filtered	2.3	0.75	0.33	EPASW-DUP-02-SW032411	gross_beta	Filtered	1.08	0.77	0.27
EPASW16	EPASW16-SW032411	gross_beta	Suspended	2.41	1.1	0.44	EPASW-DUP-02-SW032411	gross_beta	Suspended	1.06	1	0.35
EPASW16	EPASW16-SW032411	Ho-166m	Filtered	0.99	2.1	0.62	EPASW-DUP-02-SW032411	Ho-166m	Filtered	-0.42 U	1.8	0.52
EPASW16	EPASW16-SW032411	Ho-166m	Suspended	-0.02 U	1.3	0.37	EPASW-DUP-02-SW032411	Ho-166m	Suspended	0.16 U	1.1	0.33
EPASW16	EPASW16-SW032411	K-40	Filtered	-8.9 U	23	9.7	EPASW-DUP-02-SW032411	K-40	Filtered	-12.6 UL	19	9.3
EPASW16	EPASW16-SW032411	K-40	Suspended	0.7 U	12	2.8	EPASW-DUP-02-SW032411	K-40	Suspended	7.6	12	3.8
EPASW16	EPASW16-SW032411	Na-22	Filtered	-0.17 U	1.5	0.42	EPASW-DUP-02-SW032411	Na-22	Filtered	0.02 U	1.2	0.35
EPASW16	EPASW16-SW032411	Na-22	Suspended	-0.01 U	0.71	0.19	EPASW-DUP-02-SW032411	Na-22	Suspended	-0.05 U	0.76	0.22
EPASW16	EPASW16-SW032411	Nb-94	Filtered	-0.008 U	1.4	0.4	EPASW-DUP-02-SW032411	Nb-94	Filtered	-0.53 U	1.1	0.34
EPASW16	EPASW16-SW032411	Nb-94	Suspended	0.15 U	0.63	0.19	EPASW-DUP-02-SW032411	Nb-94	Suspended	0 U	0.75	0.22
EPASW16	EPASW16-SW032411	Np-236	Filtered	0.79 U	2.6	0.79	EPASW-DUP-02-SW032411	Np-236	Filtered	-0.27 U	2.7	0.8
EPASW16	EPASW16-SW032411	Np-236	Suspended	-0.39 U	1.2	0.36	EPASW-DUP-02-SW032411	Np-236	Suspended	0.006 U	1.2	0.35
EPASW16	EPASW16-SW032411	Np-239	Filtered	-1.9 U	9.2	2.8	EPASW-DUP-02-SW032411	Np-239	Filtered	-1.8 U	7.3	2.2
EPASW16	EPASW16-SW032411	Np-239	Suspended	-0.5 U	4	1.2	EPASW-DUP-02-SW032411	Np-239	Suspended	0.5 U	3.9	1.2
EPASW16	EPASW16-SW032411	Pa-231	Filtered	-23 U	69	21	EPASW-DUP-02-SW032411	Pa-231	Filtered	-9 U	51	15
EPASW16	EPASW16-SW032411	Pa-231	Suspended	-4.3 U	31	9.3	EPASW-DUP-02-SW032411	Pa-231	Suspended	-5 U	27	8
EPASW16	EPASW16-SW032411	Pb-212	Filtered	0.46 U	2.7	0.84	EPASW-DUP-02-SW032411	Pb-212	Filtered	1.36	2.3	0.77
EPASW16	EPASW16-SW032411	Pb-212	Suspended	1.06	1.3	0.46	EPASW-DUP-02-SW032411	Pb-212	Suspended	0.01 U	1	0.33
EPASW16	EPASW16-SW032411	Pb-214	Filtered	-0.2 U	3.4	1	EPASW-DUP-02-SW032411	Pb-214	Filtered	0.2 U	2.4	0.77
EPASW16	EPASW16-SW032411	Pb-214	Suspended	-0.17 U	1.6	0.52	EPASW-DUP-02-SW032411	Pb-214	Suspended	0.31 U	1.4	0.39
EPASW16	EPASW16-SW032411	Sb-125	Filtered	-2.9 U	17	5	EPASW-DUP-02-SW032411	Sb-125	Filtered	-0.6 U	9.5	2.8

Table A.2
Parent and Field Duplicate Results Summary
Surface Water

Sample Location	Parent Sample						Field Duplicate Sample					
	Sample Identification	Analyte Name	Reporting Basis	Activity	MDC	TPU	Sample Identification	Analyte Name	Reporting Basis	Activity	MDC	TPU
EPASW16	EPASW16-SW032411	Sb-125	Suspended	-1.4 U	6.2	1.8	EPASW-DUP-02-SW032411	Sb-125	Suspended	-0.04 U	5.7	1.7
EPASW16	EPASW16-SW032411	Sn-126	Filtered	0.03 U	1.6	0.47	EPASW-DUP-02-SW032411	Sn-126	Filtered	-0.21 U	1.2	0.36
EPASW16	EPASW16-SW032411	Sn-126	Suspended	-0.03 U	0.82	0.23	EPASW-DUP-02-SW032411	Sn-126	Suspended	0.12 U	0.6	0.18
EPASW16	EPASW16-SW032411	Sr-90	Filtered	0.08	0.09	0.03	EPASW-DUP-02-SW032411	Sr-90	Filtered	0.096	0.09	0.029
EPASW16	EPASW16-SW032411	Sr-90	Suspended	0.05	0.09	0.03	EPASW-DUP-02-SW032411	Sr-90	Suspended	0.03 U	0.08	0.03
EPASW16	EPASW16-SW032411	Tl-208	Filtered	0.23 U	1.9	0.69	EPASW-DUP-02-SW032411	Tl-208	Filtered	0.3 U	1.3	0.43
EPASW16	EPASW16-SW032411	Tl-208	Suspended	0.07 U	0.89	0.23	EPASW-DUP-02-SW032411	Tl-208	Suspended	0.56	0.76	0.27
EPASW16	EPASW16-SW032411	Tm-171	Filtered	150 U	430	130	EPASW-DUP-02-SW032411	Tm-171	Filtered	-60 U	340	100
EPASW16	EPASW16-SW032411	Tm-171	Suspended	-25 U	140	43	EPASW-DUP-02-SW032411	Tm-171	Suspended	38 U	120	35
EPASW16	EPASW16-SW032411	U-233/234	Filtered	0.03	0.02	0.01	EPASW-DUP-02-SW032411	U-233/234	Filtered	0.04	0.02	0.01
EPASW16	EPASW16-SW032411	U-233/234	Suspended	0.1	0.02	0.02	EPASW-DUP-02-SW032411	U-233/234	Suspended	0.15	0.01	0.02
EPASW16	EPASW16-SW032411	U-238	Filtered	0.04	0.01	0.01	EPASW-DUP-02-SW032411	U-238	Filtered	0.02	0.01	0.01
EPASW16	EPASW16-SW032411	U-238	Suspended	0.11	0.01	0.02	EPASW-DUP-02-SW032411	U-238	Suspended	0.18	0.01	0.02
EPASW06	EPASW06-SW032311	Ac-227	Filtered	-2.1 U	9	2.7	EPASW-DUP-01-SW032311	Ac-227	Filtered	0.2 U	11	3.2
EPASW06	EPASW06-SW032311	Ac-227	Suspended	-0.2 U	3.9	1.1	EPASW-DUP-01-SW032311	Ac-227	Suspended	-2.3 UL	4.2	1.3
EPASW06	EPASW06-SW032311	Ac-228	Filtered	2	3.4	1	EPASW-DUP-01-SW032311	Ac-228	Filtered	0 U	5.2	1.5
EPASW06	EPASW06-SW032311	Ac-228	Suspended	0.07 U	2.7	0.71	EPASW-DUP-01-SW032311	Ac-228	Suspended	0.81 U	2.7	0.73
EPASW06	EPASW06-SW032311	Bi-212	Filtered	0.5 U	9.9	2.7	EPASW-DUP-01-SW032311	Bi-212	Filtered	3.9 U	9.2	2.8
EPASW06	EPASW06-SW032311	Bi-212	Suspended	1 U	5.5	1.6	EPASW-DUP-01-SW032311	Bi-212	Suspended	1.2 U	4.9	1.5
EPASW06	EPASW06-SW032311	Bi-214	Filtered	0.15 U	2.5	0.7	EPASW-DUP-01-SW032311	Bi-214	Filtered	2.13	2.5	0.8
EPASW06	EPASW06-SW032311	Bi-214	Suspended	1.12	1.9	0.83	EPASW-DUP-01-SW032311	Bi-214	Suspended	-0.31 U	1.5	0.52

Table A.2
Parent and Field Duplicate Results Summary
Surface Water

Sample Location	Parent Sample						Field Duplicate Sample					
	Sample Identification	Analyte Name	Reporting Basis	Activity	MDC	TPU	Sample Identification	Analyte Name	Reporting Basis	Activity	MDC	TPU
EPASW06	EPASW06-SW032311	Cd-113m	Filtered	0 U	15000	4400	EPASW-DUP-01-SW032311	Cd-113m	Filtered	3400 U	15000	4500
EPASW06	EPASW06-SW032311	Cd-113m	Suspended	900 U	6900	2100	EPASW-DUP-01-SW032311	Cd-113m	Suspended	1800 U	6300	1900
EPASW06	EPASW06-SW032311	Co-60	Filtered	0.29 U	1.1	0.32	EPASW-DUP-01-SW032311	Co-60	Filtered	0.54 U	1.5	0.45
EPASW06	EPASW06-SW032311	Co-60	Suspended	0.1 U	0.72	0.21	EPASW-DUP-01-SW032311	Co-60	Suspended	0.08 U	0.74	0.21
EPASW06	EPASW06-SW032311	Cs-134	Filtered	-0.3 U	1.3	0.38	EPASW-DUP-01-SW032311	Cs-134	Filtered	0.27 U	1.2	0.35
EPASW06	EPASW06-SW032311	Cs-134	Suspended	-0.11 U	0.73	0.22	EPASW-DUP-01-SW032311	Cs-134	Suspended	-0.01 U	0.61	0.18
EPASW06	EPASW06-SW032311	Cs-137	Filtered	0.18 U	1	0.3	EPASW-DUP-01-SW032311	Cs-137	Filtered	0.1 U	1.4	0.4
EPASW06	EPASW06-SW032311	Cs-137	Suspended	0.33	0.69	0.21	EPASW-DUP-01-SW032311	Cs-137	Suspended	-0.13 U	0.76	0.22
EPASW06	EPASW06-SW032311	Eu-152	Filtered	0.54 U	3.1	0.92	EPASW-DUP-01-SW032311	Eu-152	Filtered	0.3 U	3.4	1
EPASW06	EPASW06-SW032311	Eu-152	Suspended	-0.52 U	1.7	0.52	EPASW-DUP-01-SW032311	Eu-152	Suspended	-0.31 U	1.8	0.54
EPASW06	EPASW06-SW032311	Eu-154	Filtered	-2.1 U	9.1	2.7	EPASW-DUP-01-SW032311	Eu-154	Filtered	-1.7 U	12	3.6
EPASW06	EPASW06-SW032311	Eu-154	Suspended	3	4.4	1.4	EPASW-DUP-01-SW032311	Eu-154	Suspended	1 U	5.7	1.7
EPASW06	EPASW06-SW032311	Eu-155	Filtered	1.04 U	2.9	0.88	EPASW-DUP-01-SW032311	Eu-155	Filtered	0.54 U	2.8	0.84
EPASW06	EPASW06-SW032311	Eu-155	Suspended	-0.01 U	1.2	0.37	EPASW-DUP-01-SW032311	Eu-155	Suspended	0.03 U	1.2	0.36
EPASW06	EPASW06-SW032311	gross_alpha	Filtered	0.3 J	0.43	0.14	EPASW-DUP-01-SW032311	gross_alpha	Filtered	0.33 J	0.51	0.17
EPASW06	EPASW06-SW032311	gross_alpha	Suspended	0.55	0.36	0.16	EPASW-DUP-01-SW032311	gross_alpha	Suspended	0.26	0.32	0.11
EPASW06	EPASW06-SW032311	gross_beta	Filtered	1.09	0.67	0.25	EPASW-DUP-01-SW032311	gross_beta	Filtered	1.89	0.84	0.32
EPASW06	EPASW06-SW032311	gross_beta	Suspended	0.33 U	1	0.31	EPASW-DUP-01-SW032311	gross_beta	Suspended	-0.11 U	1.1	0.31
EPASW06	EPASW06-SW032311	Ho-166m	Filtered	0.54 U	1.6	0.49	EPASW-DUP-01-SW032311	Ho-166m	Filtered	0.07 U	2.1	0.61
EPASW06	EPASW06-SW032311	Ho-166m	Suspended	-0.27 U	1.1	0.33	EPASW-DUP-01-SW032311	Ho-166m	Suspended	0.4 U	0.96	0.29
EPASW06	EPASW06-SW032311	K-40	Filtered	14.5	16	5.9	EPASW-DUP-01-SW032311	K-40	Filtered	0.9 U	18	4.3

Table A.2
Parent and Field Duplicate Results Summary
Surface Water

Sample Location	Parent Sample						Field Duplicate Sample					
	Sample Identification	Analyte Name	Reporting Basis	Activity	MDC	TPU	Sample Identification	Analyte Name	Reporting Basis	Activity	MDC	TPU
EPASW06	EPASW06-SW032311	K-40	Suspended	-5.8 U	13	4.2	EPASW-DUP-01-SW032311	K-40	Suspended	1.8 U	12	3.3
EPASW06	EPASW06-SW032311	Na-22	Filtered	0.03 U	1.1	0.31	EPASW-DUP-01-SW032311	Na-22	Filtered	0 U	1.7	0.46
EPASW06	EPASW06-SW032311	Na-22	Suspended	-0.14 U	0.71	0.21	EPASW-DUP-01-SW032311	Na-22	Suspended	-0.0006 U	0.72	0.2
EPASW06	EPASW06-SW032311	Nb-94	Filtered	-0.22 U	1.1	0.33	EPASW-DUP-01-SW032311	Nb-94	Filtered	-0.21 U	1.4	0.42
EPASW06	EPASW06-SW032311	Nb-94	Suspended	0.003 U	0.72	0.21	EPASW-DUP-01-SW032311	Nb-94	Suspended	-0.02 U	0.68	0.2
EPASW06	EPASW06-SW032311	Np-236	Filtered	1.16	2.3	0.7	EPASW-DUP-01-SW032311	Np-236	Filtered	-0.27 U	2.6	0.76
EPASW06	EPASW06-SW032311	Np-236	Suspended	0.4 U	1.2	0.35	EPASW-DUP-01-SW032311	Np-236	Suspended	0.02 U	1.3	0.39
EPASW06	EPASW06-SW032311	Np-239	Filtered	0.1 U	7.1	2.1	EPASW-DUP-01-SW032311	Np-239	Filtered	0 U	8.2	2.4
EPASW06	EPASW06-SW032311	Np-239	Suspended	1.5 U	3.4	1	EPASW-DUP-01-SW032311	Np-239	Suspended	1.1 U	3.9	1.2
EPASW06	EPASW06-SW032311	Pa-231	Filtered	0.2 U	44	13	EPASW-DUP-01-SW032311	Pa-231	Filtered	11 U	52	15
EPASW06	EPASW06-SW032311	Pa-231	Suspended	-8.2 U	28	8.5	EPASW-DUP-01-SW032311	Pa-231	Suspended	2 U	27	7.8
EPASW06	EPASW06-SW032311	Pb-212	Filtered	0.59 U	2.5	0.84	EPASW-DUP-01-SW032311	Pb-212	Filtered	1.33	2.2	0.78
EPASW06	EPASW06-SW032311	Pb-212	Suspended	0.02 U	1.1	0.36	EPASW-DUP-01-SW032311	Pb-212	Suspended	0.09 U	1.2	0.42
EPASW06	EPASW06-SW032311	Pb-214	Filtered	-0.07 U	2.8	0.81	EPASW-DUP-01-SW032311	Pb-214	Filtered	0.52 U	2.9	0.82
EPASW06	EPASW06-SW032311	Pb-214	Suspended	0.69 U	1.5	0.55	EPASW-DUP-01-SW032311	Pb-214	Suspended	-1.3 UL	1.6	1.1
EPASW06	EPASW06-SW032311	Sb-125	Filtered	4 U	11	3.3	EPASW-DUP-01-SW032311	Sb-125	Filtered	1 U	11	3.2
EPASW06	EPASW06-SW032311	Sb-125	Suspended	0.3 U	5	1.5	EPASW-DUP-01-SW032311	Sb-125	Suspended	-0.7 U	5.7	1.7
EPASW06	EPASW06-SW032311	Sn-126	Filtered	0.57	1.2	0.35	EPASW-DUP-01-SW032311	Sn-126	Filtered	0.48 U	1.4	0.42
EPASW06	EPASW06-SW032311	Sn-126	Suspended	0.19 U	0.77	0.23	EPASW-DUP-01-SW032311	Sn-126	Suspended	0.26 U	0.78	0.23
EPASW06	EPASW06-SW032311	Sr-90	Filtered	0.128	0.13	0.042	EPASW-DUP-01-SW032311	Sr-90	Filtered	0.177	0.12	0.039
EPASW06	EPASW06-SW032311	Sr-90	Suspended	0 U	0.1	0.03	EPASW-DUP-01-SW032311	Sr-90	Suspended	0.97	0.07	0.06

Table A.2
Parent and Field Duplicate Results Summary
Surface Water

Sample Location	Parent Sample						Field Duplicate Sample					
	Sample Identification	Analyte Name	Reporting Basis	Activity	MDC	TPU	Sample Identification	Analyte Name	Reporting Basis	Activity	MDC	TPU
EPASW06	EPASW06-SW032311	TI-208	Filtered	0.7 U	1.5	0.63	EPASW-DUP-01-SW032311	TI-208	Filtered	0.15 U	1.6	0.43
EPASW06	EPASW06-SW032311	TI-208	Suspended	-0.26 U	0.88	0.38	EPASW-DUP-01-SW032311	TI-208	Suspended	-0.4 U	0.83	0.46
EPASW06	EPASW06-SW032311	Tm-171	Filtered	1 U	330	99	EPASW-DUP-01-SW032311	Tm-171	Filtered	16 U	310	91
EPASW06	EPASW06-SW032311	Tm-171	Suspended	-11 U	110	34	EPASW-DUP-01-SW032311	Tm-171	Suspended	4 U	120	35
EPASW06	EPASW06-SW032311	U-233/234	Filtered	0.05	0.02	0.01	EPASW-DUP-01-SW032311	U-233/234	Filtered	0.04	0.01	0.01
EPASW06	EPASW06-SW032311	U-233/234	Suspended	0.02	0.03	0.02	EPASW-DUP-01-SW032311	U-233/234	Suspended	0.02 J	0.02	0.02
EPASW06	EPASW06-SW032311	U-235/236	Filtered	0 U	0.02	0.01	EPASW-DUP-01-SW032311	U-235/236	Filtered	0.01	0.03	0.01
EPASW06	EPASW06-SW032311	U-238	Filtered	0.05	0.01	0.01	EPASW-DUP-01-SW032311	U-238	Filtered	0.03	0.02	0.01
EPASW06	EPASW06-SW032311	U-238	Suspended	0 U	0.04	0.01	EPASW-DUP-01-SW032311	U-238	Suspended	0.06 J	0.04	0.03

Notes:

Refer to Table 3.1 of the Final Phase I Field Sampling Plan for Groundwater, Surface Water, and Sediment (HGL, 2012a) for a definition of radionuclide symbols.

Reporting units in picocuries per liter.

MDC - minimum detectable concentration

TPU - total propagated uncertainty

J - The analyte was detected at the reported concentration; the quantitation is an estimate.

U - Not considered detected. The associated number is the reported concentration.

UJ - Not considered detected. The associated number is the reported concentration, which may be inaccurate.

UL - Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.

ATTACHMENT 2

Field Sampling Data Sheets

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FIELD SAMPLING REPORT

LOCATION: EPA SW05 SITE: SSFL	PROJECT NAME: SSFL Radiological Survey Area IV+V2 PROJECT No.: EPA 038-01.22.04.05 (EPA Region 9)
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SAMPLE INFORMATION	
SAMPLE ID: EPASW05-SW032511	DATE: 3/25/11 TIME: 0930
MATRIX TYPE: WS (surface water)	Enter sample numbers below for QC samples and/or blanks associated with this sample: MATRIX SPIKE (MS): _____ MATRIX SPIKE DUP (SD): _____ FIELD DUP (FD): _____ AMBIENT BLANK (AB): _____ EQUIPMENT BLANK (EB): _____ TRIP BLANK (TB): _____
SAMPLING METHOD: (Circle one below) B / BR / CS / (G) / H / HA HP / SP / SS	
SAMPLE BEG. DEPTH (FT): NA SAMPLE END DEPTH (FT): NA GRAB (X) COMPOSITE ()	

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
1 liter poly	5	None	Isot-U, Sr-90, Special Vol
1 250 ml poly	1	/	Gross Beta
1 500ml poly	1		Gross Alpha
1 250ml can	1		tritium
1-Gal jug	1		gamma spec

NOTABLE OBSERVATIONS		
PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: fairly clear	
2nd: NA	COLOR:	
	OTHER:	

PHYSICAL PARAMETERS			
Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)	
Iron _____ (mg/L)	pH _____	Turbidity _____	Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION		
WEATHER:	SUN/CLEAR _____ OVERCAST/RAIN _____	WIND DIRECTION _____
	AMBIENT TEMPERATURE <u>~62° F</u>	
SHIPMENT VIA:	FEDEX <u>X</u> HAND DELIVER _____	COURIER _____
	OTHER <u>(overnight)</u>	
SHIPPED TO:	<u>Test America</u>	
COMMENTS:	_____	

SAMPLER: <u>S. Lapeyre Montrose</u>	OBSERVER: _____
MATRIX TYPE CODES	SAMPLING METHOD CODES
DC=DRILL CUTTINGS	SL=SLUDGE
WG=GROUNDWATER	SO=SOIL
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE
WS=SURFACE/WATER	GS=SOIL GAS
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT
	B=BAILER
	BR=BRASS RING
	CS=COMPOSITE SAMPLE
	G=GRAB
	H=HOLLOW STEM AUGER
	HA=HAND AUGER
	HP=HYDRO PUNCH
	SP=SUBMERSIBLE PUMP
	SS=SPLIT SPOON

FIELD SAMPLING REPORT

LOCATION: EPASW06	PROJECT NAME: SSFL Radiological Survey Area IV (EPA Region 9)
SITE: SSFL	PROJECT No.: EP9038.01.22.04.05

SAMPLE INFORMATION

SAMPLE ID: EPASW06-SW032311	DATE: 3/23/11	TIME: 1030
MATRIX TYPE: WS (surface water)	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / G / H / HA HP / SP / SS	MATRIX SPIKE (MS):	_____
	MATRIX SPIKE DUP (SD):	_____
SAMPLE BEG. DEPTH (FT): NA	FIELD DUP (FD):	EPASW-DUP-01-SW032311
SAMPLE END DEPTH (FT): NA	AMBIENT BLANK (AB):	_____
GRAB <input checked="" type="checkbox"/> COMPOSITE ()	EQUIPMENT BLANK (EB):	_____
	TRIP BLANK (TB):	_____

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
1 liter poly	5	None	/
1 250ml poly	1		
1 500ml poly	1		
1 250ml amber	1		
1 Cool. jug	1		
			Isa-U, Sr-90, Spore Vol Gross Beta Gross Alpha Potium Gamma spec

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: Fairly clear	
2nd:	COLOR:	
	OTHER:	

PHYSICAL PARAMETERS

Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)
Iron _____ (mg/L)	pH _____	Turbidity _____
		Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER:	SUN/CLEAR _____ OVERCAST/RAIN <input checked="" type="checkbox"/>	WIND DIRECTION _____
	AMBIENT TEMPERATURE <u>~60°F</u>	
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/> HAND DELIVER _____	COURIER _____
	OTHER <u>(overnight)</u>	
SHIPPED TO:	<u>Test America</u>	
COMMENTS:	_____	

SAMPLER: <u>S. Legere Montrose</u>	OBSERVER: _____
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MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: EPASW07	PROJECT NAME: SSFL Radiological Survey Area 10 or 1032
SITE: SSFL	PROJECT No.: EP9038, 01.22.04.05 (EPA Region 9)

SAMPLE INFORMATION	
SAMPLE ID: EPASW07-SW032311	DATE: 3/23/11 TIME: 1245
MATRIX TYPE: WS	Enter sample numbers below for QC samples and/or blanks associated with this sample: MATRIX SPIKE (MS): _____ MATRIX SPIKE DUP (SD): _____ FIELD DUP (FD): _____ AMBIENT BLANK (AB): _____ EQUIPMENT BLANK (EB): _____ TRIP BLANK (TB): _____
SAMPLING METHOD: (Circle one below) B / BR / CS / (G) / H / HA HP / SP / SS	
SAMPLE BEG. DEPTH (FT): SAMPLE END DEPTH (FT): NA GRAB <input checked="" type="checkbox"/> COMPOSITE ()	

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
1 liter poly	5	/	Prom Sr-90, spec vol
250 ml poly	1		Gross Beta
500 ml poly	1		Gross Alpha
250 ml amber	1		tritium
1-gal jug	1		Gamma spec

NOTABLE OBSERVATIONS		
PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: fairly clear	
2nd: NA	COLOR:	
	OTHER:	

PHYSICAL PARAMETERS			
Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)	
Iron _____ (mg/L)	pH _____	Turbidity _____	Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION		
WEATHER:	SUN/CLEAR _____	OVERCAST/RAIN <input checked="" type="checkbox"/>
	WIND DIRECTION: _____	
	AMBIENT TEMPERATURE <u>~60°F</u>	
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/>	HAND DELIVER _____
	COURIER _____	
	OTHER <u>(overnight)</u>	
SHIPPED TO:	<u>Texas America</u>	
COMMENTS:	_____	

SAMPLER: <u>S. Lepeyre Montrose</u>	OBSERVER: _____
MATRIX TYPE CODES	SAMPLING METHOD CODES
DC=DRILL CUTTINGS	SL=SLUDGE
WG=GROUNDWATER	SO=SOIL
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE
WS=SURFACE/WATER	GS=SOIL GAS
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT
	B=BAILER
	BR=BRASS RING
	CS=COMPOSITE SAMPLE
	G=GRAB
	H=HOLLOW STEM AUGER
	HA=HAND AUGER
	HP=HYDRO PUNCH
	SP=SUBMERSIBLE PUMP
	SS=SPLIT SPOON

FIELD SAMPLING REPORT

LOCATION: EPASW08 SITE: SSFL	PROJECT NAME: SSFL Radiological Survey Area 10+038 (EPA Region 9) PROJECT No.: EP9038, 01.22.04.05
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SAMPLE INFORMATION

SAMPLE ID: EPASW08-SW032311	DATE: 3/23/11	TIME: 1730
MATRIX TYPE: WS	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / <u>G</u> / H / HA HP / SP / SS	MATRIX SPIKE (MS):	EPASW08-SW032311 MS
	MATRIX SPIKE DUP (SD):	_____
SAMPLE BEG. DEPTH (FT): NA	FIELD DUP (FD) - Lab Dup	EPASW08-SW032311 Q
SAMPLE END DEPTH (FT): NA	AMBIENT BLANK (AB):	_____
GRAB <input checked="" type="checkbox"/> COMPOSITE ()	EQUIPMENT BLANK (EB):	_____
	TRIP BLANK (TB):	_____

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
1 liter poly	5	/	P30-U, Sr-90, spare vol
250 ml poly	1		Gross Beta
500 ml poly	1		Gross Alpha
250 ml amber	1		TN film
1-Gal jug	1		Gamma Spec

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: fairly clear	
2nd: NA	COLOR: _____	
	OTHER: _____	

PHYSICAL PARAMETERS

Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)
Iron _____ (mg/L)	pH _____	Turbidity _____
		Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER:	SUN/CLEAR _____	OVERCAST/RAIN <input checked="" type="checkbox"/>	WIND DIRECTION _____
	AMBIENT TEMPERATURE <u>~60°F</u>		
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/>	HAND DELIVER _____	COURIER _____
	OTHER <u>(overnight)</u> _____		
SHIPPED TO:	<u>Test America</u>		
COMMENTS:	_____		

SAMPLER: <u>S. Lopez Portose</u>	OBSERVER: _____
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MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: EPASW09	PROJECT NAME: SSFL Radiological Survey Area 10 v (038) (EPA Region 9)
SITE: SSFL	PROJECT No.: EPA 9038.01.22.04.05

SAMPLE INFORMATION

SAMPLE ID: EPASW09-SW032411	DATE: 3/24/11	TIME: 1550
MATRIX TYPE: WS	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / G / H / HA HP / SP / SS	MATRIX SPIKE (MS): _____	/
SAMPLE BEG. DEPTH (FT): NA	MATRIX SPIKE DUP (SD): _____	
SAMPLE END DEPTH (FT): NA	FIELD DUP (FD): _____	
GRAB <input checked="" type="checkbox"/> COMPOSITE ()	AMBIENT BLANK (AB): _____	
	EQUIPMENT BLANK (EB): _____	
	TRIP BLANK (TB): _____	

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
1-in poly	5	/	P80-U Sr 90, spec v1
250-ml poly	1		Crass Beta
500-ml poly	1		Crass Alpha
250-ml amber	1		Tritium
1-Gal jug	1		Gamma Spec

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: faintly clear	
2nd: NA	COLOR: _____	
	OTHER: _____	

PHYSICAL PARAMETERS

Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)
Iron _____ (mg/L)	pH _____	Turbidity _____
		Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____	OVERCAST/RAIN <input checked="" type="checkbox"/>	WIND DIRECTION _____
AMBIENT TEMPERATURE <u>65.5° F</u>		
SHIPMENT VIA: FEDEX <input checked="" type="checkbox"/>	HAND DELIVER _____	COURIER _____
OTHER <u>(overnight)</u>		
SHIPPED TO: <u>Test America</u>		
COMMENTS: _____		

SAMPLER: S. Wayne Martrose OBSERVER: _____

MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: EPASW10	PROJECT NAME: SSFL Radiological Survey Area 1044132
SITE: SSFL	PROJECT No.: EP7038.01.22.04.05 (EPA Region 9)

SAMPLE INFORMATION

SAMPLE ID: EPASW10-SW032411	DATE: 3/24/11	TIME: 12:55
MATRIX TYPE: WS ^{sub} (surface water)	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / <u>G</u> / H / HA HP / SP / SS	MATRIX SPIKE (MS): _____	/
	MATRIX SPIKE DUP (SD): _____	
	FIELD DUP (FD): _____	
SAMPLE BEG. DEPTH (FT):	AMBIENT BLANK (AB): _____	
SAMPLE END DEPTH (FT): NA	EQUIPMENT BLANK (EB): _____	
GRAB <input checked="" type="checkbox"/> COMPOSITE () <input type="checkbox"/>	TRIP BLANK (TB): _____	

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
1 liter poly	5	/	Trs-6, Sr-90, spec vol
250 ml poly	1		Gross Beta
500 ml poly	1		Gross Alpha
250 ml amber	1		Tritium
1-gal jug Gamma Spc	1		Gamma Spc

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: fairly clear	
2nd: NA	COLOR: _____	
	OTHER: _____	

PHYSICAL PARAMETERS

Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)
Iron _____ (mg/L)	pH _____	Turbidity _____
		Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER:	SUN/CLEAR _____	OVERCAST/RAIN <input checked="" type="checkbox"/>	WIND DIRECTION _____
	AMBIENT TEMPERATURE ~ 55°F		
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/>	HAND DELIVER _____	COURIER _____
	OTHER (overnight) _____		
SHIPPED TO:	Test America		
COMMENTS:	_____		

SAMPLER: S. Lopez Montrose	OBSERVER: _____
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MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: EPASW 11	PROJECT NAME: SSFL Radiological Survey Area 100yWB2 (EPA Region 9)
SITE: SSFL	PROJECT No.: EP9038.01.22.04.05

SAMPLE INFORMATION

SAMPLE ID: EPASW11-SW052111	DATE: 3/21/11	TIME: 1305
MATRIX TYPE: WS	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / <u>G</u> / H / HA HP / SP / SS	MATRIX SPIKE (MS): _____	/
SAMPLE BEG. DEPTH (FT): NA	MATRIX SPIKE DUP (SD): _____	
SAMPLE END DEPTH (FT):	FIELD DUP (FD): _____	
GRAB <input checked="" type="checkbox"/> COMPOSITE ()	AMBIENT BLANK (AB): _____	
	EQUIPMENT BLANK (EB): _____	
	TRIP BLANK (TB): _____	

CONTAINER		PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#			
1 liter poly	5	NONE	/	ISO-6, Sr-90, spec vol
250ml poly	1	↓		Gross Beta
500ml poly	1			Gross Alpha
250ml Ambu	1			Tritium
1-Gal jug	1			Gamma Spec

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: fairly clear	
2nd: NA	COLOR:	
	OTHER:	

PHYSICAL PARAMETERS

Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)
Iron _____ (mg/L)	pH _____	Turbidity _____
		Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER:	SUN/CLEAR _____ OVERCAST/RAIN <input checked="" type="checkbox"/>	WIND DIRECTION _____
	AMBIENT TEMPERATURE <u>~55°F</u>	
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/> HAND DELIVER _____	COURIER _____
	OTHER <u>(overnight)</u>	
SHIPPED TO:	<u>Test America</u>	
COMMENTS:	_____	

SAMPLER: <u>S. Lopez Montrose</u>	OBSERVER: _____
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MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: EPASW12 SITE: SSFL	PROJECT NAME: SSFL Radiological Survey Area 10-N (S2) PROJECT No.: EP0938. 01.22.04.05 (EPA Region 9)
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SAMPLE INFORMATION

SAMPLE ID: EPASW12-SW032111 MATRIX TYPE: WS SAMPLING METHOD: (Circle one below) B / BR / CS / G / H / HA HP / SP / SS	DATE: 3/21/11 TIME: 1345 Enter sample numbers below for QC samples and/or blanks associated with this sample: MATRIX SPIKE (MS): _____ MATRIX SPIKE DUP (SD): _____ FIELD DUP (FD): _____ AMBIENT BLANK (AB): _____ EQUIPMENT BLANK (EB): _____ TRIP BLANK (TB): _____
SAMPLE BEG. DEPTH (FT): NA SAMPLE END DEPTH (FT): GRAB (X) COMPOSITE ()	

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
1 liter poly	5	None	Iso-U, Sr-90, gamma
250 ml poly	1	/	Gross Beta
500 ml poly	1		Gross Alpha
250 ml amber	1		Tritium
1 Gal jug	1		Gamma Spec

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: faintly clear	
2nd: NA	COLOR:	
	OTHER:	

PHYSICAL PARAMETERS

Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)
Iron _____ (mg/L)	pH _____	Turbidity _____
		Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER:	SUN/CLEAR _____	OVERCAST/RAIN <input checked="" type="checkbox"/>	WIND DIRECTION _____
	AMBIENT TEMPERATURE <u>45.5</u> °F		
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/>	HAND DELIVER _____	COURIER _____
	OTHER <u>(overnight)</u>		
SHIPPED TO:	<u>Test America</u>		
COMMENTS:	_____		

SAMPLER: <u>S. Lopez Montano</u>	OBSERVER: _____
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MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: EPASW13 SITE: SSFL	PROJECT NAME: SS FL Radiological Survey Area 10 & NBZ PROJECT No.: EP9038 01.22.04.05 EP9038 (EPA Region 9)
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SAMPLE INFORMATION

SAMPLE ID: EPASW13-SW032211	DATE: 3/22/11	TIME: 0905
MATRIX TYPE: WS	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / <u>(G)</u> / H / HA HP / SP / SS	MATRIX SPIKE (MS):	_____
	MATRIX SPIKE DUP (SD):	_____
SAMPLE BEG. DEPTH (FT): NA	FIELD DUP (FD):	_____
	AMBIENT BLANK (AB):	_____
SAMPLE END DEPTH (FT): NA	EQUIPMENT BLANK (EB):	_____
GRAB <input checked="" type="checkbox"/> COMPOSITE ()	TRIP BLANK (TB):	_____

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
1 liter poly	5	None	Pb-210, Sr-90, Spm-11
250 ml poly	1	/	Gross Beta
500 ml poly	1		Gross Alpha
250 ml amber	1		Tritium
1-gal jug	1		Gamma Spec

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: fairly clear	
2nd: NA	COLOR: _____	
	OTHER: _____	

PHYSICAL PARAMETERS

Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)
Iron _____ (mg/L)	pH _____	Turbidity _____
		Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER:	SUN/CLEAR _____	OVERCAST/RAIN <input checked="" type="checkbox"/>	WIND DIRECTION _____
	AMBIENT TEMPERATURE <u>~55°F</u>		
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/>	HAND DELIVER _____	COURIER _____
	OTHER <u>(Overnight)</u>		
SHIPPED TO:	<u>Test America</u>		
COMMENTS:	_____		

SAMPLER: S. Lapeyre Montrose	OBSERVER: _____
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MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: <u>EPASW14</u>	PROJECT NAME: <u>SSFL Radiological Survey Area 14-NR2</u>
SITE: <u>SSFL</u>	PROJECT No.: <u>EP038.01.22.04</u> (<u>ERA Region 9</u>)

SAMPLE INFORMATION	
SAMPLE ID: <u>EPASW14-SW03</u>	DATE: <u>3/22/11</u> TIME: <u>0820</u>
MATRIX TYPE: <u>WS</u>	Enter sample numbers below for QC samples and/or blanks associated with this sample: MATRIX SPIKE (MS): _____ MATRIX SPIKE DUP (SD): _____ FIELD DUP (FD): _____ AMBIENT BLANK (AB): _____ EQUIPMENT BLANK (EB): _____ TRIP BLANK (TB): _____
SAMPLING METHOD: (Circle one below) B / BR / CS / <u>(G)</u> / H / HA HP / SP / SS	
SAMPLE BEG. DEPTH (FT): _____	
SAMPLE END DEPTH (FT): <u>NA</u>	
GRAB <input checked="" type="checkbox"/> COMPOSITE ()	

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
1-liter poly	5	/	Isop-U, Sr-90, Sparrow
250 ml poly	1		Gross Beta
500 ml poly	1		Gross Alpha
250 ml amber	1		Tritium
1-gal jug	1		Gamma Spec

NOTABLE OBSERVATIONS		
PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: <u>NA</u>	COLOR: <u>fairly clear</u>	
2nd: <u>NA</u>	COLOR: _____	
	OTHER: _____	

PHYSICAL PARAMETERS			
Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)	
Iron _____ (mg/L)	pH _____	Turbidity _____	Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION		
WEATHER:	SUN/CLEAR _____	OVERCAST/RAIN <input checked="" type="checkbox"/> _____
	WIND DIRECTION _____	
	AMBIENT TEMPERATURE <u>~55°F</u>	
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/> _____	HAND DELIVER _____
	COURIER _____	
	OTHER <u>(Overnight)</u> _____	
SHIPPED TO:	<u>Fast America</u>	
COMMENTS:	_____	

SAMPLER: <u>S. Lopez Montrose</u>	OBSERVER: _____
MATRIX TYPE CODES	SAMPLING METHOD CODES
DC=DRILL CUTTINGS	SL=SLUDGE
WG=GROUNDWATER	SO=SOIL
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE
WS=SURFACE/WATER	GS=SOIL GAS
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT
	B=BAILER
	BR=BRASS RING
	CS=COMPOSITE SAMPLE
	G=GRAB
	H=HOLLOW STEM AUGER
	HA=HAND AUGER
	HP=HYDRO PUNCH
	SP=SUBMERSIBLE PUMP
	SS=SPLIT SPOON

FIELD SAMPLING REPORT

LOCATION: EPASW15 SITE: SSFL	PROJECT NAME: SSFL Radiological Survey Area IV of N02 PROJECT No.: EPA 38.01.22.04.05 (EPA Region)
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SAMPLE INFORMATION

SAMPLE ID: EPASW15-SW032311	DATE: 3/23/11	TIME: 1200
MATRIX TYPE: WS	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / G / H / HA HP / SP / SS	MATRIX SPIKE (MS):	_____
	MATRIX SPIKE DUP (SD):	_____
SAMPLE BEG. DEPTH (FT): NA SAMPLE END DEPTH (FT): NA	FIELD DUP (FD):	_____
	AMBIENT BLANK (AB):	_____
GRAB (X) COMPOSITE ()	EQUIPMENT BLANK (EB):	_____
	TRIP BLANK (TB):	_____

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
1 liter poly	5	None	/
250ml poly	1		
500ml poly	1		
250ml amber	1		
1-gal jug	1		
			Fe-54, Sr-90, Spent vol Gross Beta Gross Alpha Chromium Gamma spec

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: faintly clear	
2nd:	COLOR:	
	OTHER:	

PHYSICAL PARAMETERS

Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)
Iron _____ (mg/L)	pH _____	Turbidity _____
		Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER:	SUN/CLEAR _____	OVERCAST/RAIN <input checked="" type="checkbox"/>	WIND DIRECTION _____
	AMBIENT TEMPERATURE <u>60°F</u>		
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/>	HAND DELIVER _____	COURIER _____
	OTHER <u>(overnight)</u>		
SHIPPED TO:	<u>Test America</u>		
COMMENTS:	_____		

SAMPLER: S. Lapeyre Montrose **OBSERVER:** _____

MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: EPASW16 SITE: SSFL	PROJECT NAME: SSFL Radiological Survey Area 10-NW2 (BRA Region 9) PROJECT No.: 609038.01.22.04.05
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SAMPLE INFORMATION

SAMPLE ID: EPASW16-SW032411	DATE: 3/24/11	TIME: 1330
MATRIX TYPE: WS	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / G / H / HA HP / SP / SS	MATRIX SPIKE (MS):	_____
	MATRIX SPIKE DUP (SD):	_____
SAMPLE BEG. DEPTH (FT):	FIELD DUP (FD):	EPASW-DUP-02-SW032411
SAMPLE END DEPTH (FT): N/A	AMBIENT BLANK (AB):	_____
GRAB <input checked="" type="checkbox"/> COMPOSITE ()	EQUIPMENT BLANK (EB):	_____
	TRIP BLANK (TB):	_____

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
1 liter poly	5	/	Geo-U, Sr-90, gamma
250 ml poly	1		Gross Beta
500 ml poly	1		Gross Alpha
250 ml amber	1		tritium
1-gal jug	1		Gamma spec

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: N/A	COLOR: fairly clear	
2nd: N/A	COLOR:	
	OTHER:	

PHYSICAL PARAMETERS

Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)
Iron _____ (mg/L)	pH _____	Turbidity _____
		Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER:	SUN/CLEAR _____	OVERCAST/RAIN <input checked="" type="checkbox"/>	WIND DIRECTION _____
	AMBIENT TEMPERATURE <u>~55°F</u>		
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/>	HAND DELIVER _____	COURIER _____
	OTHER <u>(overnight)</u>		
SHIPPED TO:	<u>Test America</u>		
COMMENTS:	_____		

SAMPLER: S. Leanne Markon	OBSERVER: _____
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MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: EPASW17	PROJECT NAME: SSFL Radiological Survey Area 1U+NBZ
SITE: SSFL	PROJECT No.: EP9038, 01.22.04, 05

SAMPLE INFORMATION

SAMPLE ID: EPASW17-SW032111	DATE: 3/21/11	TIME: 0940
MATRIX TYPE: WS	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / G / H / HA HP / SP / SS	MATRIX SPIKE (MS): _____	
	MATRIX SPIKE DUP (SD): _____	
	FIELD DUP (FD): _____	
	AMBIENT BLANK (AB): _____	
SAMPLE BEG. DEPTH (FT): N/A	EQUIPMENT BLANK (EB): _____	
SAMPLE END DEPTH (FT): _____	TRIP BLANK (TB): _____	
GRAB <input checked="" type="checkbox"/> COMPOSITE ()		

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
1-liter poly	5		Flow, Sr-90, Spine vol
250ml poly	1		Gross Beta
500ml poly	1		Gross Alpha
250 ml water	1		Tritium
1-gal jug	1		Gross Spill

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: N/A	COLOR: fairly clear	
2nd:	COLOR:	
	OTHER:	

PHYSICAL PARAMETERS

Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)
Iron _____ (mg/L)	pH _____	Turbidity _____
		Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER:	SUN/CLEAR _____	OVERCAST/RAIN <input checked="" type="checkbox"/>	WIND DIRECTION _____
	AMBIENT TEMPERATURE ~55°F		
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/>	HAND DELIVER _____	COURIER _____
	OTHER (overnight)		
SHIPPED TO:	Test America		
COMMENTS:			

SAMPLER: S. Lopez Montoya	OBSERVER: _____
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MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: EPASW18	PROJECT NAME: SSFL Ecotoxicological Survey Area IV + NBZ
SITE: SSFL	PROJECT No.: EG038.01.22.04.05 (EPA Region 9)

SAMPLE INFORMATION

SAMPLE ID: EPASW18-SW03	DATE: 3/24/11	TIME: 0940
MATRIX TYPE: WS	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / G / H / HA HP / SP / SS	MATRIX SPIKE (MS):	_____
	MATRIX SPIKE DUP (SD):	_____
SAMPLE BEG. DEPTH (FT): SAMPLE END DEPTH (FT): NA	FIELD DUP (FD):	_____
	AMBIENT BLANK (AB):	_____
GRAB <input checked="" type="checkbox"/> COMPOSITE ()	EQUIPMENT BLANK (EB):	_____
	TRIP BLANK (TB):	_____

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE #			
1 liter poly 5	None	/	Iso-6, Sr-90, Special
250 ml poly 1			Gross Beta
500 ml poly 1			Gross Alpha
250 ml amber 1			tritium
1-gal jug 1			Gamma spec

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: faintly clear	
2nd: NA	COLOR:	
	OTHER:	

PHYSICAL PARAMETERS

Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)
Iron _____ (mg/L)	pH _____	Turbidity _____
		Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER:	SUN/CLEAR _____ OVERCAST/RAIN <input checked="" type="checkbox"/>	WIND DIRECTION _____
	AMBIENT TEMPERATURE <u>~55°F</u>	
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/> HAND DELIVER _____	COURIER _____
	OTHER <u>(overnight)</u>	
SHIPPED TO:	<u>Test America</u>	
COMMENTS:	_____	

SAMPLER: <u>S. Lopez Montoya</u>	OBSERVER: _____
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MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: EPASW19 **PROJECT NAME:** SSFL Radiological Survey Area IV of N32
SITE: SSFL **PROJECT No.:** EP9038.01.22.04.05 (EPA Region 9)

SAMPLE INFORMATION

SAMPLE ID: EPASW19-SW032411	DATE: 3/24/11	TIME: 1030
MATRIX TYPE: WS	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / <u>G</u> / H / HA HP / SP / SS	MATRIX SPIKE (MS): _____	/
	MATRIX SPIKE DUP (SD): _____	
	FIELD DUP (FD): _____	
	AMBIENT BLANK (AB): _____	
SAMPLE BEG. DEPTH (FT): NA	EQUIPMENT BLANK (EB): _____	
SAMPLE END DEPTH (FT): NA	TRIP BLANK (TB): _____	
GRAB <input checked="" type="checkbox"/> COMPOSITE ()		

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE #			
1-liter poly 5	None	/	Iso-U, Sr-90, spec vol.
250 ml poly 1			Gross Beta
500 ml poly 1			Gross Alpha
250 ml amber 1			Titanium
1-gal jug 1			Gamma spec

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: fairly clear	
2nd: NA	COLOR: NA	
	OTHER: NA	

PHYSICAL PARAMETERS

Temperature _____ (°C) Dissolved Oxygen _____ (mg/L) Specific Conductivity _____ (UMHOS/CM)
 Iron _____ (mg/L) pH _____ Turbidity _____ Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN ✓ WIND DIRECTION _____
 AMBIENT TEMPERATURE WSS°F

SHIPMENT VIA: FEDEX ✓ HAND DELIVER _____ COURIER _____
 OTHER (overnight)

SHIPPED TO: Test America

COMMENTS: _____

SAMPLER: S. Lopez Martinez **OBSERVER:** _____

MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: EPsw20 **PROJECT NAME:** SSFC Radiological Survey Area W 04082
SITE: SSFL **PROJECT No.:** EP9038.01.22.04.05

SAMPLE INFORMATION

SAMPLE ID: EPsw20-SW032511	DATE: 3/25/11	TIME: 1110
MATRIX TYPE: WS	Enter sample numbers below for QC samples and/or blanks associated with this sample: MATRIX SPIKE (MS): _____ MATRIX SPIKE DUP (SD): _____ FIELD DUP (FD): _____ AMBIENT BLANK (AB): _____ EQUIPMENT BLANK (EB): _____ TRIP BLANK (TB): _____	
SAMPLING METHOD: (Circle one below) B / BR / CS / G / H / HA HP / SP / SS		
SAMPLE BEG. DEPTH (FT): NA SAMPLE END DEPTH (FT): NA GRAB (X) COMPOSITE ()		

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE #			
1-ltr poly 5	None	/	Iron, Sr-90, Spent vol
250 ml poly 1			Gross Beta
500 ml poly 1			Gross Alpha
250 ml amber 1			tritium
1-gal jug 1			Gamma spec

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: faintly clear	
2nd:	COLOR:	
	OTHER:	

PHYSICAL PARAMETERS

Temperature _____ (°C) Dissolved Oxygen _____ (mg/L) Specific Conductivity _____ (UMHOS/CM)
 Iron _____ (mg/L) pH _____ Turbidity _____ Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN **X** WIND DIRECTION _____
 AMBIENT TEMPERATURE 62°F

SHIPMENT VIA: FEDEX **X** HAND DELIVER _____ COURIER _____
 OTHER (overnight)

SHIPPED TO: Test America

COMMENTS: _____

SAMPLER: S. Lepera Amvax **OBSERVER:** _____

MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: EPASW 21 SITE: SSFL	PROJECT NAME: SSFL Radiological Survey Area IV-NB2 PROJECT No.: EPA038. 01.22.04.05 (EPA Region 9)
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SAMPLE INFORMATION

SAMPLE ID: EPASW 21-SW032511	DATE: 3/25/11	TIME: 1020
MATRIX TYPE: WS	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / <u>G</u> / H / HA HP / SP / SS	MATRIX SPIKE (MS):	_____
	MATRIX SPIKE DUP (SD):	_____
SAMPLE BEG. DEPTH (FT): NA SAMPLE END DEPTH (FT): NA	FIELD DUP (FD):	_____
	AMBIENT BLANK (AB):	_____
GRAB <input checked="" type="checkbox"/> COMPOSITE ()	EQUIPMENT BLANK (EB):	_____
	TRIP BLANK (TB):	_____

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE #			
1 liter poly 5	None	/	Pb-210, Sr-90, space vol
250 ml poly 1			Gross Beta
300 ml poly 1			Gross Alpha
250 ml amber 1			toxin
1-gal jug 1			Gamma Spec

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: fairly clear	
2nd: NA	COLOR:	
	OTHER:	

PHYSICAL PARAMETERS

Temperature _____ (°C) Dissolved Oxygen _____ (mg/L) Specific Conductivity _____ (UMHOS/CM)
 Iron _____ (mg/L) pH _____ Turbidity _____ Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN WIND DIRECTION _____
 AMBIENT TEMPERATURE 62°F

SHIPMENT VIA: FEDEX HAND DELIVER _____ COURIER _____
 OTHER (OVERNIGHT)

SHIPPED TO: Test Area

COMMENTS: _____

SAMPLER: Si. Lepeye Montrose **OBSERVER:** _____

MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: <u>EPASW22</u>	PROJECT NAME: <u>SSFL Radiological Survey Area N+NBZ</u>
SITE: <u>SSFL</u>	PROJECT No.: <u>EP9038.01.22.04.05</u> (EP Region 9)

SAMPLE INFORMATION	
SAMPLE ID: <u>EPASW22-SW032211</u>	DATE: <u>3/22/11</u> TIME: <u>1230</u>
MATRIX TYPE: <u>WS</u>	Enter sample numbers below for QC samples and/or blanks associated with this sample: MATRIX SPIKE (MS): _____ MATRIX SPIKE DUP (SD): _____ FIELD DUP (FD): _____ AMBIENT BLANK (AB): _____ EQUIPMENT BLANK (EB): _____ TRIP BLANK (TB): _____
SAMPLING METHOD: (Circle one below) B / BR / CS / <u>(G)</u> / H / HA HP / SP / SS	
SAMPLE BEG. DEPTH (FT): <u>NA</u>	
SAMPLE END DEPTH (FT): <u>NA</u>	
GRAB <input checked="" type="checkbox"/> COMPOSITE ()	

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
<u>1 liter poly</u>	<u>5</u>	<u>none</u>	<u>P30-U, Sr-90, spec. w.l.</u>
<u>250 ml poly</u>	<u>1</u>	/	<u>Gross Beta</u>
<u>500 ml poly</u>	<u>1</u>		<u>Gross Alpha</u>
<u>250 ml amik</u>	<u>1</u>		<u>Tritium</u>
<u>1-Gal. jug</u>	<u>1</u>		<u>Gamma spec</u>

NOTABLE OBSERVATIONS		
PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: <u>NA</u>	COLOR: <u>fairly clear</u>	
2nd:	COLOR:	
	OTHER:	

PHYSICAL PARAMETERS			
Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)	
Iron _____ (mg/L)	pH _____	Turbidity _____	Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION		
WEATHER:	SUN/CLEAR _____	OVERCAST/RAIN <input checked="" type="checkbox"/>
	WIND DIRECTION _____	
	AMBIENT TEMPERATURE <u>~55°F</u>	
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/>	HAND DELIVER _____
	COURIER _____	
	OTHER <u>(Overnight)</u>	
SHIPPED TO:	<u>Test America</u>	
COMMENTS:	_____	

SAMPLER: <u>S. Lopez Montrose</u>	OBSERVER: _____
MATRIX TYPE CODES DC=DRILL CUTTINGS SL=SLUDGE WG=GROUNDWATER SO=SOIL SH=HAZARDOUS SOLID WASTE SW=SWAB/WIPE WS=SURFACE/WATER GS=SOIL GAS LH=HAZARDOUS LIQUID WASTE SE=SEDIMENT	SAMPLING METHOD CODES B=BAILER HA=HAND AUGER BR=BRASS RING HP=HYDRO PUNCH CS=COMPOSITE SAMPLE SP=SUBMERSIBLE PUMP G=GRAB SS=SPLIT SPOON H=HOLLOW STEM AUGER

FIELD SAMPLING REPORT

LOCATION: EPASW23 **PROJECT NAME:** SSFL Radiological Survey Area 10 of 137
SITE: SSFL **PROJECT No.:** EP9038.01, 22.04.05 (EPA Region 9)

SAMPLE INFORMATION

SAMPLE ID: EPASW23-SW032511	DATE: 3/25/11	TIME: 1400
MATRIX TYPE: WS	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / (G) / H / HA HP / SP / SS	MATRIX SPIKE (MS): _____	/
	MATRIX SPIKE DUP (SD): _____	
	FIELD DUP (FD): _____	
SAMPLE BEG. DEPTH (FT): NA	AMBIENT BLANK (AB): _____	
SAMPLE END DEPTH (FT):	EQUIPMENT BLANK (EB): _____	
GRAB (X) COMPOSITE ()	TRIP BLANK (TB): _____	

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE #			
1 liter poly 5	None	/	Isot-U, S-90, Spent vol.
250 mL poly 1	↓		Gross Beta
500 mL poly 1			Gross Alpha
250 mL carbon 1			Tritium
Gal jug 1			Gamma spec

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: fairly clear	
2nd: NA	COLOR: _____	
	OTHER: _____	

PHYSICAL PARAMETERS

Temperature _____ (°C) Dissolved Oxygen _____ (mg/L) Specific Conductivity _____ (UMHOS/CM)
 Iron _____ (mg/L) pH _____ Turbidity _____ Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN (X) _____ WIND DIRECTION _____
 AMBIENT TEMPERATURE ~62°F

SHIPMENT VIA: FEDEX (X) _____ HAND DELIVER _____ COURIER _____
 OTHER (overnight) _____

SHIPPED TO: Test America

COMMENTS: _____

SAMPLER: S. Lopez Nitroze **OBSERVER:** _____

MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: <u>EPASW24</u>	PROJECT NAME: <u>SSFL Radiological Survey Area NW 4</u> NBZ
SITE: <u>SSFL</u>	PROJECT No.: <u>EP9088.01.22.04.05</u> (589 Region 9)

SAMPLE INFORMATION			
SAMPLE ID: <u>EPASW24-SW032511</u>		DATE: <u>3/25/11</u>	TIME: <u>1440</u>
MATRIX TYPE: <u>WS</u>		Enter sample numbers below for QC samples and/or blanks associated with this sample: MATRIX SPIKE (MS): _____ MATRIX SPIKE DUP (SD): _____ FIELD DUP (FD): _____ AMBIENT BLANK (AB): _____ EQUIPMENT BLANK (EB): _____ TRIP BLANK (TB): _____	
SAMPLING METHOD: (Circle one below) B / BR / CS / <u>G</u> / H / HA HP / SP / SS			
SAMPLE BEG. DEPTH (FT): <u>NA</u>			
SAMPLE END DEPTH (FT): _____			
GRAB <input checked="" type="checkbox"/> COMPOSITE () _____			
CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE #			
<u>1 liter poly</u> 5	<u>None</u>		<u>Esso-U, Sr-90, Spine vol</u>
<u>250ml poly</u> 1			<u>Gross Beta</u>
<u>500ml poly</u> 1			<u>Gross Alpha</u>
<u>250 ml amber</u> 1			<u>Thyrium</u>
<u>1-gal jug</u> 1			<u>Gamma Spec</u>

NOTABLE OBSERVATIONS		
PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: <u>NA</u>	COLOR: <u>faintly clear</u>	
2nd: <u>NA</u>	COLOR: _____	
	OTHER: _____	

PHYSICAL PARAMETERS			
Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)	
Iron _____ (mg/L)	pH _____	Turbidity _____	Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION		
WEATHER:	SUN/CLEAR _____	OVERCAST/RAIN <input checked="" type="checkbox"/>
	WIND DIRECTION _____	
	AMBIENT TEMPERATURE <u>62°F</u>	
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/>	HAND DELIVER _____
	COURIER _____	
	OTHER <u>(overnight)</u>	
SHIPPED TO:	<u>Test America</u>	
COMMENTS:	_____	

SAMPLER: <u>S. Lepeque Montrose</u>		OBSERVER: _____	
MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: EPASW 25 **PROJECT NAME:** SSFL Radiological Survey Area 10 - N8E
SITE: SSFL **PROJECT No.:** EP9038.01.22.04.05 (EPA Region 9)

SAMPLE INFORMATION			
SAMPLE ID: EPASW 25-SW032211		DATE: 3/22/11	TIME: 1145
MATRIX TYPE: WS		Enter sample numbers below for QC samples and/or blanks associated with this sample: MATRIX SPIKE (MS): _____ MATRIX SPIKE DUP (SD): _____ FIELD DUP (FD): _____ AMBIENT BLANK (AB): _____ EQUIPMENT BLANK (EB): _____ TRIP BLANK (TB): _____	
SAMPLING METHOD: (Circle one below) B / BR / CS / G / H / HA HP / SP / SS			
SAMPLE BEG. DEPTH (FT): NA			
SAMPLE END DEPTH (FT): NA			
GRAB <input checked="" type="checkbox"/> COMPOSITE ()			

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE #			
1 liter poly 5	None	/	Isot-U, Sr-90, Spent vol
250 ml poly 1			Gross Beta
500 ml poly 1			Gross Alpha
250 ml amber 1			Tritium
1-Gal jug 1			Gamma Spec

NOTABLE OBSERVATIONS		
PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: fairly clear	
2nd: NA	COLOR:	
	OTHER:	

PHYSICAL PARAMETERS			
Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)	
Iron _____ (mg/L)	pH _____	Turbidity _____	Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION		
WEATHER:	SUN/CLEAR _____ OVERCAST/RAIN <input checked="" type="checkbox"/>	WIND DIRECTION _____
	AMBIENT TEMPERATURE ~55°F	
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/> HAND DELIVER _____	COURIER _____
	OTHER (overnight) _____	
SHIPPED TO:	Test America	
COMMENTS:		

SAMPLER: S. Coyne Nertox	OBSERVER: _____
MATRIX TYPE CODES	SAMPLING METHOD CODES
DC=DRILL CUTTINGS	B=BAILER
WG=GROUNDWATER	BR=BRASS RING
SH=HAZARDOUS SOLID WASTE	CS=COMPOSITE SAMPLE
WS=SURFACE/WATER	G=GRAB
LH=HAZARDOUS LIQUID WASTE	H=HOLLOW STEM AUGER
SL=SLUDGE	HA=HAND AUGER
SO=SOIL	HP=HYDRO PUNCH
SW=SWAB/WIPE	SP=SUBMERSIBLE PUMP
GS=SOIL GAS	SS=SPLIT SPOON
SE=SEDIMENT	

FIELD SAMPLING REPORT

LOCATION: <u>EPASW 26</u>	PROJECT NAME: <u>SSFL Radiological Survey Area 10 & NBZ</u>
SITE: <u>SSFL</u>	PROJECT No.: <u>EP9038.01.22.04.05</u> (<u>EPAS Reg 109</u>)

SAMPLE INFORMATION

SAMPLE ID: <u>EPASW 26-SW03</u>	DATE: <u>3/21/11</u>	TIME: <u>1421</u>
MATRIX TYPE: <u>WS</u>	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / <u>(G)</u> / H / HA HP / SP / SS	MATRIX SPIKE (MS):	_____
	MATRIX SPIKE DUP (SD):	_____
SAMPLE BEG. DEPTH (FT): <u>N/A</u>	FIELD DUP (FD):	_____
SAMPLE END DEPTH (FT): _____	AMBIENT BLANK (AB):	_____
GRAB <input checked="" type="checkbox"/> COMPOSITE ()	EQUIPMENT BLANK (EB):	_____
	TRIP BLANK (TB):	_____

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
<u>1 liter poly</u>	<u>5</u>	<u>None</u>	<u>D90-U, Sr-90, Spaw U</u>
<u>250 ml poly</u>	<u>1</u>		<u>Gross Beta</u>
<u>500 ml poly</u>	<u>1</u>		<u>Gross Alpha</u>
<u>250 ml amber</u>	<u>1</u>		<u>Tritium</u>
<u>1-ozal jug</u>			<u>Gamma Spcl</u>

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: <u>N/A</u>	COLOR: <u>faintly clear</u>	
2nd: _____	COLOR: _____	
	OTHER: _____	

PHYSICAL PARAMETERS

Temperature _____ (°C) Dissolved Oxygen _____ (mg/L) Specific Conductivity _____ (UMHOS/CM)
 Iron _____ (mg/L) pH _____ Turbidity _____ Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____ OVERCAST/RAIN X WIND DIRECTION _____
 AMBIENT TEMPERATURE ~55°F

SHIPMENT VIA: FEDEX X HAND DELIVER _____ COURIER _____
 OTHER (Cover night)

SHIPPED TO: Test America

COMMENTS: _____

SAMPLER: S. Williford **OBSERVER:** _____

MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: <u>EPASW 27</u>	PROJECT NAME: <u>SSFL Radiological Survey Area NW & WS</u>
SITE: <u>SSFL</u>	PROJECT No.: <u>EP9088.01.22.04.05 (BRA Region 9)</u>

SAMPLE INFORMATION

SAMPLE ID: <u>EPASW27-SW03</u>	DATE: <u>3/21/11</u>	TIME: <u>0800</u>
MATRIX TYPE: <u>WS</u>	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / <u>G</u> / H / HA HP / SP / SS	MATRIX SPIKE (MS):	/
	MATRIX SPIKE DUP (SD):	/
SAMPLE BEG. DEPTH (FT): <u>NA</u> SAMPLE END DEPTH (FT): <u>NA</u>	FIELD DUP (FD):	/
	AMBIENT BLANK (AB):	/
GRAB <input checked="" type="checkbox"/> COMPOSITE ()	EQUIPMENT BLANK (EB):	/
	TRIP BLANK (TB):	/

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
<u>1 liter poly</u>	<u>5</u>	<u>NONE</u>	<u>Isot-U, Sr-90, gamma</u>
<u>250 ml poly</u>	<u>1</u>	/	<u>Gross Beta</u>
<u>500 ml poly</u>	<u>1</u>	/	<u>Gross Alpha</u>
<u>250 ml amber</u>	<u>1</u>	/	<u>Tritium</u>
<u>1 cal glass</u>	<u>1</u>	/	<u>Gamma Spc</u>

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: <u>NA</u>	COLOR: <u>fairly clear</u>	
2nd: <u>NA</u>	COLOR: _____	
	OTHER: _____	

PHYSICAL PARAMETERS

Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)
Iron _____ (mg/L)	pH _____	Turbidity _____
		Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER: SUN/CLEAR _____	OVERCAST/RAIN <u>X</u>	WIND DIRECTION _____
AMBIENT TEMPERATURE <u>55°F</u>		
SHIPMENT VIA: FEDEX <u>X</u>	HAND DELIVER _____	COURIER _____
OTHER <u>(overnight)</u>		
SHIPPED TO: <u>Test America</u>		
COMMENTS: _____		

SAMPLER: <u>S. Lopez Montrose</u>	OBSERVER: _____
MATRIX TYPE CODES DC=DRILL CUTTINGS SL=SLUDGE WG=GROUNDWATER SO=SOIL SH=HAZARDOUS SOLID WASTE SW=SWAB/WIPE WS=SURFACE/WATER GS=SOIL GAS LH=HAZARDOUS LIQUID WASTE SE=SEDIMENT	SAMPLING METHOD CODES B=BAILER HA=HAND AUGER BR=BRASS RING HP=HYDRO PUNCH CS=COMPOSITE SAMPLE SP=SUBMERSIBLE PUMP G=GRAB SS=SPLIT SPOON H=HOLLOW STEM AUGER

FIELD SAMPLING REPORT

LOCATION: EPASW 28	PROJECT NAME: SSFL Radiological Survey Area IV-NOTE	
SITE: SSFL	PROJECT No.: EP 9038.01, 22.04.05	(EPA Region 9)

SAMPLE INFORMATION

SAMPLE ID: EPASW 28-SW032311	DATE: 3/23/11	TIME: 1100
MATRIX TYPE: WS	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / <u>G</u> / H / HA HP / SP / SS	MATRIX SPIKE (MS): _____	/
	MATRIX SPIKE DUP (SD): _____	
	FIELD DUP (FD): _____	
SAMPLE BEG. DEPTH (FT): NA	AMBIENT BLANK (AB): _____	
SAMPLE END DEPTH (FT): NA	EQUIPMENT BLANK (EB): _____	
GRAB <input checked="" type="checkbox"/> COMPOSITE ()	TRIP BLANK (TB): _____	

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
1 liter poly	5	None	/
250 ml poly	1		
500 ml poly	1		
250 ml amber	1		
1-Gal jug	1		
			Ess-U, Sr-90, spec vol
			Gross Beta
			Gross Alpha
			Tritium
			Gamma Spec

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: fairly clear	
2nd: NA	COLOR: _____	
	OTHER: _____	

PHYSICAL PARAMETERS

Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)
Iron _____ (mg/L)	pH _____	Turbidity _____
		Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER:	SUN/CLEAR _____	OVERCAST/RAIN <u>X</u>	WIND DIRECTION _____
	AMBIENT TEMPERATURE <u>~60°F</u>		
SHIPMENT VIA:	FEDEX <u>X</u>	HAND DELIVER _____	COURIER _____
	OTHER <u>(overnight)</u>		
SHIPPED TO:	<u>Test America</u>		
COMMENTS:	_____		

SAMPLER: <u>S. Lapeyre Montrose</u>	OBSERVER: _____
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MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: EPASW 29	PROJECT NAME: SSPL Radiological Survey Area 10-W-38
SITE: SSPL	PROJECT No.: EP9038, 01, 22, 04, 05 (EPA Region 9)

SAMPLE INFORMATION		
SAMPLE ID: EPASW 29-SW032111	DATE: 3/21/11 / 3/29/11 TIME: 1330 / 1130	
MATRIX TYPE: WS	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / <u>G</u> / H / HA HP / SP / SS		MATRIX SPIKE (MS): EPASW29-SW032911 MS
SAMPLE BEG. DEPTH (FT): NA		MATRIX SPIKE DUP (SD): _____
SAMPLE END DEPTH (FT): NA	FIELD DUP (FD): _____	
GRAB <input checked="" type="checkbox"/> COMPOSITE ()	AMBIENT-BLANK (AB): ^{lab} EPASW29-SW032911 Q	
	EQUIPMENT BLANK (EB): _____	
	TRIP BLANK (TB): _____	

CONTAINER SIZE/TYPE	#	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
1-liter poly	5	NONE	/	Pb-U, Sr-90, Spent Vol
250 ml poly	1			Gross Beta
500 ml poly	1			Gross Alpha
250 ml amber	1			Tritium
1-Gal jug	1			Gamma Spec

NOTABLE OBSERVATIONS		
PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: fairly clear	
2nd: NA	COLOR: _____	
	OTHER: _____	

PHYSICAL PARAMETERS			
Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)	
Iron _____ (mg/L)	pH _____	Turbidity _____	Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION																								
WEATHER:	SUN/CLEAR _____	OVERCAST/RAIN <u>X</u>																						
	AMBIENT TEMPERATURE <u>~55°F</u>	WIND DIRECTION _____ (on 3/29/11 → clear, sunny, ~65°F)																						
SHIPMENT VIA:	FEDEX <u>X</u>	HAND DELIVER _____																						
	OTHER <u>(overnight)</u>	COURIER _____																						
SHIPPED TO:	<u>Test America</u>																							
COMMENTS:	<u>Resampled well on 3/29/11 in order to collect lab dup, field dup, and MS. @</u>																							
SAMPLER:	<u>S. Lopez-Narvaez</u>	OBSERVER: _____																						
<table style="width: 100%; border-collapse: collapse;"> <tr> <th style="width: 50%;">MATRIX TYPE CODES</th> <th style="width: 50%;">SAMPLING METHOD CODES</th> </tr> <tr> <td>DC=DRILL CUTTINGS</td> <td>B=BAILER</td> </tr> <tr> <td>WG=GROUNDWATER</td> <td>BR=BRASS RING</td> </tr> <tr> <td>SH=HAZARDOUS SOLID WASTE</td> <td>CS=COMPOSITE SAMPLE</td> </tr> <tr> <td>WS=SURFACE/WATER</td> <td>G=GRAB</td> </tr> <tr> <td>LH=HAZARDOUS LIQUID WASTE</td> <td>H=HOLLOW STEM AUGER</td> </tr> <tr> <td>SL=SLUDGE</td> <td>HA=HAND AUGER</td> </tr> <tr> <td>SO=SOIL</td> <td>HP=HYDRO PUNCH</td> </tr> <tr> <td>SW=SWAB/WIPE</td> <td>SP=SUBMERSIBLE PUMP</td> </tr> <tr> <td>GS=SOIL GAS</td> <td>SS=SPLIT SPOON</td> </tr> <tr> <td>SE=SEDIMENT</td> <td></td> </tr> </table>		MATRIX TYPE CODES	SAMPLING METHOD CODES	DC=DRILL CUTTINGS	B=BAILER	WG=GROUNDWATER	BR=BRASS RING	SH=HAZARDOUS SOLID WASTE	CS=COMPOSITE SAMPLE	WS=SURFACE/WATER	G=GRAB	LH=HAZARDOUS LIQUID WASTE	H=HOLLOW STEM AUGER	SL=SLUDGE	HA=HAND AUGER	SO=SOIL	HP=HYDRO PUNCH	SW=SWAB/WIPE	SP=SUBMERSIBLE PUMP	GS=SOIL GAS	SS=SPLIT SPOON	SE=SEDIMENT		
MATRIX TYPE CODES	SAMPLING METHOD CODES																							
DC=DRILL CUTTINGS	B=BAILER																							
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SW=SWAB/WIPE	SP=SUBMERSIBLE PUMP																							
GS=SOIL GAS	SS=SPLIT SPOON																							
SE=SEDIMENT																								

FIELD SAMPLING REPORT

LOCATION: <u>EPASW30</u>	PROJECT NAME: <u>SSFL Radiological Survey Area 10 v. NR2</u>
SITE: <u>SSFL</u>	PROJECT No.: <u>EP9058-01.27.04.05 (EPB Region 9)</u>

SAMPLE INFORMATION			
SAMPLE ID: <u>SSFL-EPASW30-SW032111</u>		DATE: <u>3/21/11</u>	TIME: <u>1450</u>
MATRIX TYPE: <u>WS</u>		Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / <u>G</u> / H / HA HP / SP / SS		MATRIX SPIKE (MS): _____	/
SAMPLE BEG. DEPTH (FT): _____		MATRIX SPIKE DUP (SD): _____	
SAMPLE END DEPTH (FT): <u>NA</u>		FIELD DUP (FD): _____	
GRAB <input checked="" type="checkbox"/> COMPOSITE ()		AMBIENT BLANK (AB): _____	
		EQUIPMENT BLANK (EB): _____	
		TRIP BLANK (TB): _____	
CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE #			
<u>1 liter poly 5</u>	<u>None</u>		<u>P30-U, Sr-90, spec vol</u>
<u>250 ml poly 1</u>			<u>Gross Beta</u>
<u>500 ml poly 1</u>			<u>Gross Alpha</u>
<u>250 ml another 1</u>			<u>Thimble</u>
			<u>Gamma Spec</u>

NOTABLE OBSERVATIONS		
PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: <u>NA</u>	COLOR: <u>fairly clear</u>	
2nd: _____	COLOR: _____	
	OTHER: _____	

PHYSICAL PARAMETERS			
Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)	
Iron _____ (mg/L)	pH _____	Turbidity _____	Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION		
WEATHER:	SUN/CLEAR _____	OVERCAST/RAIN <u>α</u>
	WIND DIRECTION _____	
	AMBIENT TEMPERATURE <u>~55°F</u>	
SHIPMENT VIA:	FEDEX <u>α</u>	HAND DELIVER _____
	COURIER _____	
	OTHER <u>(overnight)</u>	
SHIPPED TO:	<u>Test America</u>	
COMMENTS:	_____	

SAMPLER: <u>S. Lopez Norton</u>	OBSERVER: _____
MATRIX TYPE CODES	SAMPLING METHOD CODES
DC=DRILL CUTTINGS	B=BAILER
WG=GROUNDWATER	HA=HAND AUGER
SH=HAZARDOUS SOLID WASTE	BR=BRASS RING
WS=SURFACE/WATER	HP=HYDRO PUNCH
LH=HAZARDOUS LIQUID WASTE	CS=COMPOSITE SAMPLE
SL=SLUDGE	SP=SUBMERSIBLE PUMP
SO=SOIL	SS=SPLIT SPOON
SW=SWAB/WIPE	G=GRAB
GS=SOIL GAS	H=HOLLOW STEM AUGER
SE=SEDIMENT	

Location No.: EPA SW 31 (Hole 56)	Site: SSFL Radiological Survey Area 10 + N32 (EPA Region 4)		
Sampler(s): Stephanie Lopez-Konrose (H&W)	Project No.: EP9038.01.22.04.05		
Sampler(s): Jan Store (H&W) / James Leung (TPE) / Matt Engle (TPE)	Date: 5/23/11	Time: 0810	
Sampling Equipment/Method: Van Dorn / Grab sample			
Sample ID: EPASW-31-T-SW052311 (Top)	Sample Date: 5/23/11	Sample Time: 0955	
Additional Samples: EPASW-31-B-SW052311 (Bottom)	Sample Date: 5/23/11	Sample Time: 1115	
Additional Samples (DUP/MSD/Blanks): EPASW-DW-04-SW052311	Sample Date: 5/23/11	Sample Time: NO TIME	
Additional Samples (DUP/MSD/Blanks):	Sample Date:	Sample Time:	
Total Depth: 37 ft. below top of open hole	DTW (from top of open hole, measured in ft): 29.5		
Depth of sample: Top = surface (29.5 ft. below top of open hole) / Bottom = 36 ft. below top of open hole			
Weather (sun/clear, overcast/rain, wind direction, ambient temperature): overcast (patches of sun throughout day), no breeze, cool (~68°F)			

FIELD PARAMETERS

DATE	TIME	DEPTH TO WATER (FT)	PH	TEMP. (°C)	COND. (UMHOS/CM)	D.O. (MG/L)	TURB (N.T.U.)	Sal	COMMENTS
5/23/11	0950	29.5	5.79	16.7	0.371 ms/cm	10.11	94	0.01	Surface (29.5')
5/23/11	1115	36	5.82	16.1	0.330 ms/cm	10.43	94	0.01	Bottom (36')

OBSERVATIONS

Color: Clear Other (describe):

Odor (circle one): None Low Medium High Very strong H2S Fuel-like

Notes:
 Started water (top) collection: 0950 End: 1040
 Started water (bottom → 36') collection: 1050 End: 1140
 Note: weight release would not work for bottom water collection due to thick algae/vegetation, so had to rig Van Dorn to release with another rope.

Signed/Sampler(s): [Signature] [Signature]

FIELD SAMPLING REPORT

LOCATION: <u>EPASW32</u>	PROJECT NAME: <u>SSFL Pathological Survey Area 10-10-08</u>
SITE: <u>SSFL</u>	PROJECT No.: <u>EP9058.01.22.04.05</u> (EPA Region 9)

SAMPLE INFORMATION	
SAMPLE ID: <u>EPASW32-SW032111</u>	DATE: <u>3/21/11</u> TIME: <u>1330</u>
MATRIX TYPE: <u>WS</u>	Enter sample numbers below for QC samples and/or blanks associated with this sample: MATRIX SPIKE (MS): _____ MATRIX SPIKE DUP (SD): _____ FIELD DUP (FD): _____ AMBIENT BLANK (AB): _____ EQUIPMENT BLANK (EB): _____ TRIP BLANK (TB): _____
SAMPLING METHOD: (Circle one below) B / BR / CS / <u>G</u> / H / HA HP / SP / SS	
SAMPLE BEG. DEPTH (FT): <u>NA</u>	
SAMPLE END DEPTH (FT): <u>NA</u>	
GRAB <input checked="" type="checkbox"/> COMPOSITE ()	

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE #			
<u>1 liter poly 5</u>	<u>None</u>	/	<u>ISO-11, Sr-90, spare vol</u>
<u>250 ml poly 1</u>			<u>Gross Beta</u>
<u>500 ml poly 1</u>			<u>Gross Alpha</u>
<u>250 ml amber 1</u>			<u>Protein</u>
<u>1-gal jug 1</u>			<u>Gamma spec</u>

NOTABLE OBSERVATIONS		
PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: <u>NA</u>	COLOR: <u>fairly clear</u>	
2nd: <u>NA</u>	COLOR: _____	
	OTHER: _____	

PHYSICAL PARAMETERS			
Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)	
Iron _____ (mg/L)	pH _____	Turbidity _____	Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION		
WEATHER:	SUN/CLEAR _____ OVERCAST/RAIN <input checked="" type="checkbox"/>	WIND DIRECTION _____
	AMBIENT TEMPERATURE <u>45.5° F</u>	
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/> HAND DELIVER _____	COURIER _____
	OTHER: <u>(overnight)</u>	
SHIPPED TO:	<u>Test America</u>	
COMMENTS:	_____	

SAMPLER: <u>S. Williford</u>	OBSERVER: _____
MATRIX TYPE CODES DC=DRILL CUTTINGS SL=SLUDGE WG=GROUNDWATER SO=SOIL SH=HAZARDOUS SOLID WASTE SW=SWAB/WIPE WS=SURFACE/WATER GS=SOIL GAS LH=HAZARDOUS LIQUID WASTE SE=SEDIMENT	SAMPLING METHOD CODES B=BAILER HA=HAND AUGER BR=BRASS RING HP=HYDRO PUNCH CS=COMPOSITE SAMPLE SP=SUBMERSIBLE PUMP G=GRAB SS=SPLIT SPOON H=HOLLOW STEM AUGER

FIELD SAMPLING REPORT

LOCATION: EPBW 34	PROJECT NAME: SSFL Radiological Survey Area IV-10132
SITE: SSFL	PROJECT No.: EP9038.01.22.04.05 (EPA Region 9)

SAMPLE INFORMATION

SAMPLE ID: EPBW34-032111	DATE: 3/21/11	TIME: 1125
MATRIX TYPE: WS	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / <u>G</u> / H / HA HP / SP / SS	MATRIX SPIKE (MS):	_____
	MATRIX SPIKE DUP (SD):	_____
SAMPLE BEG. DEPTH (FT): NA	FIELD DUP (FD):	_____
	AMBIENT BLANK (AB):	_____
SAMPLE END DEPTH (FT):	EQUIPMENT BLANK (EB):	_____
GRAB <input checked="" type="checkbox"/> COMPOSITE ()	TRIP BLANK (TB):	_____

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
1 liter poly	5	None	/
250 ml poly	1		
500 ml poly	1		
250 ml amber	1		
1 gal jug	1		
			Isot-U, Sr-90, Spent vol
			Gross Beta
			Gross Alpha
			Tritium
			Gamma Spec

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: faintly clear	
2nd:	COLOR:	
	OTHER:	

PHYSICAL PARAMETERS

Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)
Iron _____ (mg/L)	pH _____	Turbidity _____
		Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER:	SUN/CLEAR _____	OVERCAST/RAIN <input checked="" type="checkbox"/>	WIND DIRECTION _____
	AMBIENT TEMPERATURE <u>~55°F</u>		
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/>	HAND DELIVER _____	COURIER _____
	OTHER <u>(overnight)</u>		
SHIPPED TO:	<u>Test America</u>		
COMMENTS:	_____		

SAMPLER: <u>S. Leanne Norbone</u>	OBSERVER: _____
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MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: EPASW35	PROJECT NAME: SSFL Radiological Survey Area 10 + M02
SITE: SSFL	PROJECT No.: EP9038, 01.22.04.05 (EPA Region 9)

SAMPLE INFORMATION	
SAMPLE ID: EPASW35-SW032211	DATE: 5/22/11 TIME: 1300
MATRIX TYPE: WS	Enter sample numbers below for QC samples and/or blanks associated with this sample: MATRIX SPIKE (MS): _____ MATRIX SPIKE DUP (SD): _____ FIELD DUP (FD): _____ AMBIENT BLANK (AB): _____ EQUIPMENT BLANK (EB): _____ TRIP BLANK (TB): _____
SAMPLING METHOD: (Circle one below) B / BR / CS / G / H / HA HP / SP / SS	
SAMPLE BEG. DEPTH (FT):	
SAMPLE END DEPTH (FT): NA	
GRAB <input checked="" type="checkbox"/> COMPOSITE ()	

CONTAINER	PREPARATIVE	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
1 liter poly	5	None	/ Iso-U Sr-90, Spare vol Gross Beta Gross Alpha Tritium Gamma spec
250 ml poly	1		
500 ml poly	1		
250 ml carbon	1		
1-gal jug	1		

NOTABLE OBSERVATIONS		
PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: Cloudy clear	
2nd: NA	COLOR:	
	OTHER:	

PHYSICAL PARAMETERS			
Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)	
Iron _____ (mg/L)	pH _____	Turbidity _____	Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION		
WEATHER:	SUN/CLEAR _____	OVERCAST/RAIN <input checked="" type="checkbox"/>
	WIND DIRECTION _____	
	AMBIENT TEMPERATURE 55°F	
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/>	HAND DELIVER _____
	COURIER _____	
	OTHER (Overnight)	
SHIPPED TO:	Test America	
COMMENTS:		

SAMPLER: S. Lopez Nistrose	OBSERVER: _____
MATRIX TYPE CODES DC=DRILL CUTTINGS SL=SLUDGE WG=GROUNDWATER SO=SOIL SH=HAZARDOUS SOLID WASTE SW=SWAB/WIPE WS=SURFACE/WATER GS=SOIL GAS LH=HAZARDOUS LIQUID WASTE SE=SEDIMENT	SAMPLING METHOD CODES B=BAILER HA=HAND AUGER BR=BRASS RING HP=HYDRO PUNCH CS=COMPOSITE SAMPLE SP=SUBMERSIBLE PUMP G=GRAB SS=SPLIT SPOON H=HOLLOW STEM AUGER

FIELD SAMPLING REPORT

LOCATION: EPASW 38	PROJECT NAME: SSFL Ecotoxicological Survey Area IV + AUC 2
SITE: SSFL	PROJECT No.: EP9038.01.22.04.05 (EPA Region 9)

SAMPLE INFORMATION

SAMPLE ID: EPASW38-SW03	DATE: 3/25/11	TIME: 1250
MATRIX TYPE: WS	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / G / H / HA HP / SP / SS	MATRIX SPIKE (MS):	_____
	MATRIX SPIKE DUP (SD):	_____
SAMPLE BEG. DEPTH (FT): N/A	FIELD DUP (FD):	_____
	AMBIENT BLANK (AB):	_____
SAMPLE END DEPTH (FT):	EQUIPMENT BLANK (EB):	_____
GRAB <input checked="" type="checkbox"/> COMPOSITE ()	TRIP BLANK (TB):	_____

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
1 liter poly	5	/	Es0-4, Sr-90, spec vol
250ml poly	1		Gross Beta
500ml poly	1		Gross Alpha
250ml amber	1		Tritium
1-gal jug	1		Gamma Spec

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: faintly clear	
2nd:	COLOR:	
	OTHER:	

PHYSICAL PARAMETERS

Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)
Iron _____ (mg/L)	pH _____	Turbidity _____
		Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER:	SUN/CLEAR _____	OVERCAST/RAIN <input checked="" type="checkbox"/>	WIND DIRECTION _____
	AMBIENT TEMPERATURE <u>62°F</u>		
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/>	HAND DELIVER _____	COURIER _____
	OTHER <u>(overnight)</u>		
SHIPPED TO:	<u>Test Service</u>		
COMMENTS:	_____		

SAMPLER: <u>S. Lepeque Montrose</u>	OBSERVER: _____
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MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: EPASW39	PROJECT NAME: SSFL Radiological Survey Area 10-1108 (EPA Region 9)
SITE: SSFL	PROJECT No.: ER9038.01.22.04.05

SAMPLE INFORMATION

SAMPLE ID: EPASW39-SW032211	DATE: 3/22/11	TIME: 0925
MATRIX TYPE: WS	Enter sample numbers below for QC samples and/or blanks associated with this sample:	
SAMPLING METHOD: (Circle one below) B / BR / CS / <u>G</u> / H / HA HP / SP / SS	MATRIX SPIKE (MS): _____	/
	MATRIX SPIKE DUP (SD): _____	
	FIELD DUP (FD): _____	
	AMBIENT BLANK (AB): _____	
SAMPLE BEG. DEPTH (FT): NA	EQUIPMENT BLANK (EB): _____	
SAMPLE END DEPTH (FT): NA	TRIP BLANK (TB): _____	
GRAB <input checked="" type="checkbox"/> COMPOSITE ()		

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE	#		
1 liter poly	5	/	Iso-4, Sr-90, spec vol
250 ml poly	1		Gross Beta
500 ml poly	1		Gross Alpha
250 ml amber	1		Tritium
1-gal jug	1		Gamma spec

NOTABLE OBSERVATIONS

PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: fairly clear	
2nd: NA	COLOR: _____	
	OTHER: _____	

PHYSICAL PARAMETERS

Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)
Iron _____ (mg/L)	pH _____	Turbidity _____
		Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION

WEATHER:	SUN/CLEAR _____ OVERCAST/RAIN <input checked="" type="checkbox"/>	WIND DIRECTION _____
	AMBIENT TEMPERATURE ~55°F	
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/>	HAND DELIVER _____ COURIER _____
	OTHER (overnight) _____	
SHIPPED TO:	Test America	
COMMENTS:	_____	

SAMPLER: S. Lapeere Northox	OBSERVER: _____
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MATRIX TYPE CODES		SAMPLING METHOD CODES	
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

FIELD SAMPLING REPORT

LOCATION: EPASW 40 **PROJECT NAME:** SSFL Radiological Survey Area 1 & ADBZ
SITE: SSFL **PROJECT No.:** FP9038.01.22.04.05 (EPA Region 9)

SAMPLE INFORMATION			
SAMPLE ID: EPASW 40-SW032111		DATE: 3/21/11	TIME: 1040
MATRIX TYPE: WS		Enter sample numbers below for QC samples and/or blanks associated with this sample: MATRIX SPIKE (MS): _____ MATRIX SPIKE DUP (SD): _____ FIELD DUP (FD): _____ AMBIENT BLANK (AB): _____ EQUIPMENT BLANK (EB): _____ TRIP BLANK (TB): _____	
SAMPLING METHOD: (Circle one below) B / BR / CS / G / H / HA			
HP / SP / SS			
SAMPLE BEG. DEPTH (FT): _____			
SAMPLE END DEPTH (FT): NA			
GRAB (X) COMPOSITE ()			

CONTAINER	PRESERVATIVE PREPARATION	ANALYTICAL METHOD	ANALYSIS
SIZE/TYPE #			
1 liter poly 5	None	/	Isotope -90, Sr-90, Sp-60
250 ml poly 1			Gross Beta
500 ml poly 1			Gross Alpha
250 ml perch 1			Tritium
1-gal jug 1			Gamma Spec

NOTABLE OBSERVATIONS		
PID READINGS	SAMPLE CHARACTERISTICS	MISCELLANEOUS
1st: NA	COLOR: fairly clear	
2nd:	COLOR:	
	OTHER:	

PHYSICAL PARAMETERS			
Temperature _____ (°C)	Dissolved Oxygen _____ (mg/L)	Specific Conductivity _____ (UMHOS/CM)	
Iron _____ (mg/L)	pH _____	Turbidity _____	Oxidation/Reduction Potential _____ (mv)

GENERAL INFORMATION		
WEATHER:	SUN/CLEAR _____	OVERCAST/RAIN <input checked="" type="checkbox"/>
	WIND DIRECTION _____	
	AMBIENT TEMPERATURE ~55°F	
SHIPMENT VIA:	FEDEX <input checked="" type="checkbox"/>	HAND DELIVER _____
	COURIER _____	
	OTHER (Overnight)	
SHIPPED TO:	Test America	
COMMENTS:		

SAMPLER: S. Lepera Montrose	OBSERVER: _____		
MATRIX TYPE CODES SAMPLING METHOD CODES			
DC=DRILL CUTTINGS	SL=SLUDGE	B=BAILER	HA=HAND AUGER
WG=GROUNDWATER	SO=SOIL	BR=BRASS RING	HP=HYDRO PUNCH
SH=HAZARDOUS SOLID WASTE	SW=SWAB/WIPE	CS=COMPOSITE SAMPLE	SP=SUBMERSIBLE PUMP
WS=SURFACE/WATER	GS=SOIL GAS	G=GRAB	SS=SPLIT SPOON
LH=HAZARDOUS LIQUID WASTE	SE=SEDIMENT	H=HOLLOW STEM AUGER	

APPENDIX B

**TECHNICAL MEMORANDUM
PHASE I SEDIMENT SAMPLE RESULTS**

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FINAL
TECHNICAL MEMORANDUM
PHASE I SEDIMENT SAMPLE RESULTS
SANTA SUSANA FIELD LABORATORY SITE
AREA IV RADIOLOGICAL STUDY

TO: Mary Aycock, EPA Region 9 RPM
FROM: T. Stewart Williford, P.G., HGL
THROUGH: L. Steven Vaughn, R.G., HGL Project Manager
CC: Andrew Bain, EPA Region 9 RPM
Yarissa Martinez, P.E., EPA Region 9 RPM
Shiann-Jang Chern, Ph.D., P.E., EPA Region 9 RPM
Gregg Dempsey, Technical Advisor
DATE: May 3, 2012
SUBJECT: Phase I Sediment Sample Results

CONTRACT NO: EP-S7-05-05
TASK ORDER NO: 0038

1.0 INTRODUCTION

HydroGeoLogic, Inc. (HGL) is conducting a comprehensive radiological characterization study of Area IV and the Northern Buffer Zone (NBZ) at the Santa Susana Field Laboratory (SSFL) site in Ventura County, California. This work is being executed under U.S. Environmental Protection Agency (USEPA) Region 7 Architect and Engineering Services Contract EP-S7-05-05, Task Order 0038, Amendment 3. The technical lead on the project is USEPA Region 9.

As part of the radiological study, sediment samples were collected from locations within drainages that originate in Area IV. This Technical Memorandum documents the sediment sampling activities, analytical results, and findings of the Phase I Sediment Sampling. The primary objective of the sediment sampling effort is to evaluate the nature of potential radionuclide contamination in sediment that may have resulted from past nuclear research activities. This objective was achieved through the collection and analysis of sediment samples within Area IV and the NBZ.

The overall approach for the sediment sampling program was to identify drainages that originated in, and exited from, Area IV, identify sediment sampling locations through site reconnaissance, prepare a Field Sampling Plan (FSP) Addendum for the Phase I Sampling, and then present the FSP Addendum and review and finalize proposed locations with USEPA's SSFL Technical Stakeholder workgroup.

2.0 SEDIMENT SAMPLING ACTIVITIES

2.1 Sediment Sample Location Placement

A field reconnaissance, to determine the optimal location for collecting sediment samples, was conducted from October 6, 2010 to November 5, 2010. A total of 40 sediment sampling locations were identified during the reconnaissance. Detailed notes and photographs were taken at each location, as well as, X-Y survey coordinates which were recorded using a SPS 852 handheld Trimble global positioning system unit. The 40 proposed sample locations were documented in the Surface Water and Sediment Addendum to the Phase I Field Sampling Plan for Groundwater, Surface Water, and Sediment (HGL, 2010b). Table 1 provides a summary of the sediment sample locations. Figure 1 illustrates the sediment sampling locations.

2.2 Sample Collection

Sampling collection activities commenced in mid December 2010 after the Site Historic Preservation Office approval letter for the NBZ was received on December 1, 2010.

Sediment samples were collected using a stainless steel trowel and bowl, in accordance with the Final Phase I FSP for Groundwater, Surface Water, and Sediment (HGL, 2010a). A total of 39 sediment samples were collected within Area IV and the NBZ from December 13, 2010 to January 13, 2011. On May 23, 2011, one sediment sample was collected from the bottom of the Building 56 Excavation, also known as the Million Dollar Hole.

2.3 Deviations from the Field Sampling Plan Addendum

There were no deviations from the Phase I FSP (HGL, 2010a) or the FSP Addendum (HGL, 2010b).

2.4 Sediment Description Summary

A total of 39 sediment samples were collected from drainage channels within Area IV and the NBZ and one sediment sample was collected from the Building 56 Excavation. Sediment samples were classified and described in accordance with Description and Identification of Soils (Visual Manual Procedures ASTM D-2488). Sediment mainly consisted of a silty sand, however, other sediment types observed included sandy silt, sandy silt with clay, sand with silt, and poor to well graded sand. The descriptions recorded during the Phase I sampling event are summarized in Table 2. Sediment descriptions by sample location are shown on Table A.1.

3.0 PHASE I SEDIMENT ANALYTICAL RESULTS

Analyses of sediment samples were conducted in accordance with the Quality Assurance Project Plan (QAPP) for Groundwater, Surface Water, and Sediment (HGL, 2010c). All sediment samples were tested for the carbon-14, tritium (H-3), technetium-99, and the default suite of radionuclides presented in Table 3.1 of the Phase I FSP (HGL, 2010a).

3.1 Radiological Trigger Levels

Analytical results were compared to the radiological trigger levels (RTL) established specifically for the Area IV Santa Susana Field Laboratory Radiological Study. RTLs are reference soil concentrations for the radionuclides of concern for the Radiological Study. Analytical results below each RTL are considered uncontaminated or non-actionable, and results that exceed RTL are actionable and may represent contamination. The process used to derive the RTLs is presented in the Technical Memorandum, Radiological Trigger Levels (HGL, 2011).

3.2 Analytical Results

Two of the 40 sediment samples collected during the Phase I sediment sampling event contained radionuclide concentrations that exceeded the RTLs.

The sediment sample collected from location EPASED-13 contained uranium (U)-233/U-234 at a concentration of 2.47 pCi/g that exceeded the RTL of 2.02 pCi/g, and U-238 at a concentration of 2.3 pCi/g that exceeded the RTL of 1.80 pCi/g.

The sample collected from location EPASED-17 contained cesium (Cs)-137 at a concentration of 0.208 pCi/g which exceeded the RTL of 0.207 pCi/g.

Table 2 presents the sample location, sample depth, radionuclide concentration, associated lines of evidence, and technical justification for collecting additional soil samples. Figure 1 presents the sample locations of all the sediment samples collected during Phase I. Figure 2 presents the location, radionuclide, and concentration detected above the RTLs in samples collected from locations EPASED-13 and EPASED-17. A summary of the analytical results is provided in Table A.2.

4.0 QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

In addition to the environmental samples collected, quality control samples were collected as described in the QAPP (HGL, 2010c). The results of the quality control samples collected and their affect on data usability are described in the following subsections.

4.1 Field Duplicates

Field duplicate sediment samples were collected at a frequency of 1 per 20 samples (5 percent). A total of two field duplicate sediment samples were collected during the sampling event. The field duplicate evaluation criterion includes an additional 1σ uncertainty factor of 10 percent to allow for heterogeneity of co-located, but non-homogenized, field samples.

The comparability of a field duplicate result to that of the original sample is assessed by evaluating the Z-score (Z_{DUP}). The Z-score is a statistical test that indicates how many standard deviations an observation is from the expected value. The Z-score is defined in the QAPP (HGL, 2010c), and the Z_{DUP} is calculated as follows:

$$Z_{DUP} = \frac{|X_s - X_d|}{\sqrt{u_s^2 + u_d^2}}$$

where:

- X_s = activity of the sample
- X_d = activity of the duplicate
- u_s = combined standard (1σ) uncertainty of the sample
- u_d = combined standard (1σ) uncertainty of the duplicate

Higher Z_{DUP} scores indicate greater disparity between the sample and the duplicate results. A Z_{DUP} score of 2.0, for example, indicates that the duplicate result differs from the sample result by twice the overall uncertainty of the two results. By extension, a Z_{DUP} score of 1.96 (the warning level) indicates that the two results are statistically equivalent, at the 95 percent confidence interval. A Z_{DUP} score of 2.58 (the exceedance level) indicates that the two results are statistically equivalent, at the 99 percent confidence interval.

A Z_{DUP} evaluation is performed on each paired set of analytes for which parent and duplicate data are reported. Phase I field duplicate sediment sample data includes 202 results from 101 sample/duplicate pairs. Of those, any results that were rejected by data validation were removed from consideration. In addition, analytes that are simply inferred from previously reported results, such as barium-137m, which is inferred from the reported Cs-137 results, are considered redundant and have been removed from consideration, as well. The Z_{DUP} evaluation of the remaining 82 qualified pairs follows:

- 74 results (90.2 percent) were within the expected 95 percent confidence interval for this evaluation, with Z_{DUP} less than 1.96;
- Six results (7.3 percent) were between the 95 percent and 99 percent confidence interval with Z_{DUP} at or above 1.96, but below 2.58;
- Two results (2.4 percent) exceeded the 99 percent confidence interval, with Z_{DUP} values at or above 2.58.

The Z_{DUP} statistical test predicts that, in a homogeneous sample/duplicate pairing, approximately 4 percent of reported Z_{DUP} scores will be in the range between 1.96 and 2.58. Of 74 Z_{DUP} results, approximately 3 percent are expected to fall in this warning range. For this data set, six Z_{DUP} results are in the warning range, suggesting a slightly increased degree of heterogeneity in the co-located field samples than has otherwise been estimated. Nonetheless, a review of the associated field sample and duplicate results does not indicate significant concerns regarding the quality or usability of the data.

The two Z_{DUP} results that exceeded 2.58 are; lead-214 at 3.25, and bismuth-214 at 2.84. These results are from the same sample/duplicate data pair and represent a single parent/daughter pair in the naturally occurring uranium decay chain. The small excursion supports the assertion of an increased degree of heterogeneity in the co-located field samples, discussed above. As with

the slight increase of results in the warning range, these results do not appear to indicate significant concerns regarding the quality or usability of the analytical data. A summary of the parent and associated duplicate sample results is provided Table A.3.

4.2 Equipment Rinsate and Source Water Blanks

Equipment rinsate blanks were collected at a frequency of one per day, for each type of sampling equipment used per field team. Equipment rinsate blanks were collected in accordance with the Phase I FSP (HGL, 2010a) and the QAPP (HGL, 2010c). A total of 10 rinsate and 10 source water samples were collected during the Phase I sediment sampling event. Each sample was tested for isotopic uranium, as a surrogate indicator of cross-contamination. The laboratory's reported results for thorium-231 are inferred directly from the reported U-235 results. Those redundant evaluations, as well as any results that are rejected for laboratory quality reasons, have been removed from consideration, as in the evaluation of field duplicate samples, above. Rinsate and source water samples were also analyzed for H-3 if it was included in the analytical suite for samples collected that day.

Phase I sediment equipment rinsate and source water sample data contains 79 total results, which include 39 data pairs evaluated by Z-score duplicate comparison. The ratio of the rinsate water activity to the source water activity is summarized below. The summary also includes a single rinsate sample with no measurable activity, for which the accompanying source water result is rejected due to incomplete analytical results at the time of this report. While corrected results are expected from the laboratory, those results are not believed to be relevant to this evaluation because the corresponding rinsate water is shown to be free of contaminants, which supports the successful decontamination of the associated field sampling equipment.

- 37 results (92.5 percent) were within the expected 95 percent confidence interval for this evaluation, with Z_{DUP} less than 1.96;
- Two results (5.0 percent) were between the 95 percent and 99 percent confidence interval with Z_{DUP} at or above 1.96, but below 2.58;
- One result (2.5 percent) exceeded the 99 percent confidence interval, with Z_{DUP} values at or above 2.58.

As with the field duplicates, the Z_{DUP} statistical test predicts that approximately 4 percent of reported Z_{DUP} scores will be in the range between 1.96 and 2.58. Given the small number of results being considered, the two results in that warning range is consistent with the expected rate. In addition:

- One Z_{DUP} result in the warning range resulted from reported activity in the source water sample, but no measurable activity in the corresponding rinsate sample. The rinsate water, therefore, is demonstrated to be free of measurable contaminants and the associated field samples are not believed to be subject to sample cross-contamination from the field sampling equipment.

- The second Z_{DUP} result in the warning range is related to a very small amount of activity reported for U-235 in the rinsate sample, but with no corresponding U-234 and U-238 activity, either one or both of which would be expected to be present in much higher concentrations if U-235 were present. The Z_{DUP} result is believed to be a routine statistical excursion, expected in the evaluation, with no indication of any cross-contamination from the field sampling equipment in the associated field samples.

The single Z_{DUP} result that exceeded 2.58, at 2.60, is related to small, but measurable amounts of U-238 activity in the rinsate water sample SED-R-008. The exceedance is marginal and is unsupported by the presence of other uranium isotopes, as expected. Nonetheless, the field sample results associated with this equipment rinsate sample have been reviewed and none exceed the corresponding RTLs for the analyzed radionuclides. It is therefore not possible that any potential sample cross-contamination has resulted in a false positive exceedance of the RTLs in any subsequent sample. The observed Z_{DUP} exceedance is not believed to be significant, and is not believed to indicate evidence of sample cross-contamination to a degree that would adversely affect the quality or usability of the data for its intended purpose.

The overall evaluation of equipment blank results indicates that the decontamination of the field sampling equipment is acceptable and that there is no evidence of sample cross-contamination from the sampling equipment that would adversely affect the quality or usability of the reported field sample data. A summary of the rinsate and source water blank analytical results are provided in Table A.4.

5.0 SUMMARY OF FINDINGS

Radionuclide concentrations exceeding RTLs were reported in samples collected at sample locations EPASED-13 and EPASED-17. Additional soil samples will be collected in the vicinity of sample locations EPASED-13 and EPASED-17 during Phase II sediment sampling activities. A Phase II FSP Addendum will be prepared describing the proposed step-out sediment sampling locations, analytical testing, and technical justification for the addition sampling.

6.0 REFERENCES

HydroGeoLogic, Inc., 2010a. Final Phase I Field Sampling Plan for Groundwater, Surface Water, and Sediment, Area IV Radiological Study, Santa Susana Field Laboratory Ventura County, California. July 28, 2010.

HydroGeoLogic, Inc., 2010b. Surface Water and Sediment Addendum to the Phase I Field Sampling Plan for Groundwater, Surface Water, and Sediment, Area IV Radiological Study, Santa Susana Field Laboratory Ventura County, California. December 10, 2010.

HydroGeoLogic, Inc., 2010c. Quality Assurance Project Plan for Groundwater, Surface Water, and Sediment, Area IV Radiological Study, Santa Susana Field Laboratory Ventura County, California. August 11, 2010.

HydroGeoLogic, Inc, 2011a. Technical Memorandum, Radiological Trigger Levels, Santa Susana Field Laboratory Site, Area IV Radiological Study. December.

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Table 2	Analytical Results Exceeding Radiological Trigger Levels

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Figure 2	Radiological Sediment Sampling Concentrations Exceeding RTLs

LIST OF ATTACHMENTS

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Attachment 2	Boring Logs

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TABLES

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Table 1
Summary of Planned and Collected Samples by Location
Phase I Sediment Sampling

Proposed Samples	Sample Collected	Date Collected	Analytes Analyzed¹
EPASED01	EPASED01	12/17/2010	SSFL Default, H-3, Tc-99, C-14
EPASED02	EPASED02	12/21/2010	SSFL Default, H-3, Tc-99, C-14
EPASED03	EPASED03	12/20/2010	SSFL Default, H-3, Tc-99, C-14
EPASED04	EPASED04	12/17/2010	SSFL Default, H-3, Tc-99, C-14
EPASED05	EPASED05	12/20/2010	SSFL Default, H-3, Tc-99, C-14
EPASED06	EPASED06	12/17/2010	SSFL Default, H-3, Tc-99, C-14
EPASED07	EPASED07	12/20/2010	SSFL Default, H-3, Tc-99, C-14
EPASED08	EPASED08	12/20/2010	SSFL Default, H-3, Tc-99, C-14
EPASED09	EPASED09	1/13/2011	SSFL Default, H-3, Tc-99, C-14
EPASED10	EPASED10	12/22/2010	SSFL Default, H-3, Tc-99, C-14
EPASED11	EPASED11	12/16/2010	SSFL Default, H-3, Tc-99, C-14
EPASED12	EPASED12	12/17/2010	SSFL Default, H-3, Tc-99, C-14
EPASED13	EPASED13	12/16/2010	SSFL Default, H-3, Tc-99, C-14
EPASED14	EPASED14	12/17/2010	SSFL Default, H-3, Tc-99, C-14
EPASED15	EPASED15	12/21/2010	SSFL Default, H-3, Tc-99, C-14
EPASED16	EPASED16	12/15/2010	SSFL Default, H-3, Tc-99, C-14
EPASED17	EPASED17	12/16/2010	SSFL Default, H-3, Tc-99, C-14
EPASED18	EPASED18	12/15/2010	SSFL Default, H-3, Tc-99, C-14
EPASED19	EPASED19	12/16/2010	SSFL Default, H-3, Tc-99, C-14
EPASED20	EPASED20	12/16/2010	SSFL Default, H-3, Tc-99, C-14
EPASED21	EPASED21	12/15/2010	SSFL Default, H-3, Tc-99, C-14
EPASED22	EPASED22	12/14/2010	SSFL Default, H-3, Tc-99, C-14
EPASED23	EPASED23	12/14/2010	SSFL Default, H-3, Tc-99, C-14
EPASED24	EPASED24	12/14/2010	SSFL Default, H-3, Tc-99, C-14
EPASED25	EPASED25	12/14/2010	SSFL Default, H-3, Tc-99, C-14
EPASED26	EPASED26	12/14/2010	SSFL Default, H-3, Tc-99, C-14
EPASED27	EPASED27	12/14/2010	SSFL Default, H-3, Tc-99, C-14
EPASED28	EPASED28	1/13/2011	SSFL Default, H-3, Tc-99, C-14
EPASED29	EPASED29	12/13/2010	SSFL Default, H-3, Tc-99, C-14

Table 1
Summary of Planned and Collected Samples by Location
Phase I Sediment Sampling

Proposed Samples	Sample Collected	Date Collected	Analytes Analyzed ¹
EPASED30	EPASED30	12/13/2010	SSFL Default, H-3, Tc-99, C-14
EPASED31	EPASED31	12/13/2010	SSFL Default, H-3, Tc-99, C-14
EPASED32	EPASED32	12/13/2010	SSFL Default, H-3, Tc-99, C-14
EPASED33	EPASED33	12/13/2010	SSFL Default, H-3, Tc-99, C-14
EPASED34	EPASED34	12/20/2010	SSFL Default, H-3, Tc-99, C-14
EPASED35	EPASED35	5/23/2011	SSFL Default, H-3, Tc-99, C-14
EPASED36	EPASED36	12/21/2010	SSFL Default, H-3, Tc-99, C-14
EPASED37	EPASED37	12/20/2010	SSFL Default, H-3, Tc-99, C-14
EPASED38	EPASED38	12/21/2010	SSFL Default, H-3, Tc-99, C-14
EPASED39	EPASED39	12/21/2010	SSFL Default, H-3, Tc-99, C-14
EPASED40	EPASED40	12/13/2010	SSFL Default, H-3, Tc-99, C-14

Note:

¹Default suite includes the radionuclide analysis shown in Table 3.1 of the Field Sampling Plan for Groundwater, Surface Water and Sediment (HGL, 2010a).

C-14 - carbon 14

H-3 - tritium (hydrogen 3)

SSFL - Santa Susana Field Laboratory

Tc-99 - technetium-99

Table 2
Analytical Results Exceeding Radiological Trigger Levels
Phase I Sediment Sampling

Sample Location	Sample Depth (feet)	Radionuclide Detected	Activity	RTL	Associated Line Of Evidence	Step-out Justification
EPASED-13	0.0 - 0.5	U-233/U-234	2.47	2.02	Approximately 350 feet downgradient from Outfall 3. This location is also northwest and downgradient of the RMHF.	Elevated concentrations of U-233/U-234, and U-238. Characterize the sediment upgradient and downgradient of the location where elevated levels of radionuclides were reported in Phase I sediment samples.
		U-238	2.30	1.80		
EPASED-17	0.0 - 0.5	Cs-137	0.208	0.207	Approximately 200 feet downgradient from the SRE Pond.	Elevated concentrations of Cs-137. Characterize the sediment upgradient and downgradient of the location where an elevated concentration of Cs-137 was reported in Phase I sediment samples.

Notes:

Reporting units in picocuries per gram.

Cs - cesium

RMHF - Radioactive Materials Handling Facility

RTL - radiological trigger level

SRE - Sodium Reactor Experiment

U - uranium

FIGURES

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Figure 1
Radiological Sediment Sampling Locations
Phase I Sediment Sampling
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

- NPDES Outfall Locations
- Sediment Sample Location Results Below RTLs
- Sediment Sample Locations Exceeding RTLs

- Drainage Pathways
- Intermittent Stream
- Permanent Stream
- Subareas

- EPASED40 Sediment Sample Location ID
- 10 NPDES Outfall Location ID

Notes:

NPDES - National Pollutant Discharge Elimination System
RTL - Radiological Trigger Levels



Y:\Santa_Susana\EP9038\GW_SW_Sediment_FSP\Sediment_Report\
Fig1_SedimentSamplingLocations.mxd
Project: EP9038
Source: Boeing 2009, CIRGIS 2007, HGL 2010
3/8/2012 pbillock

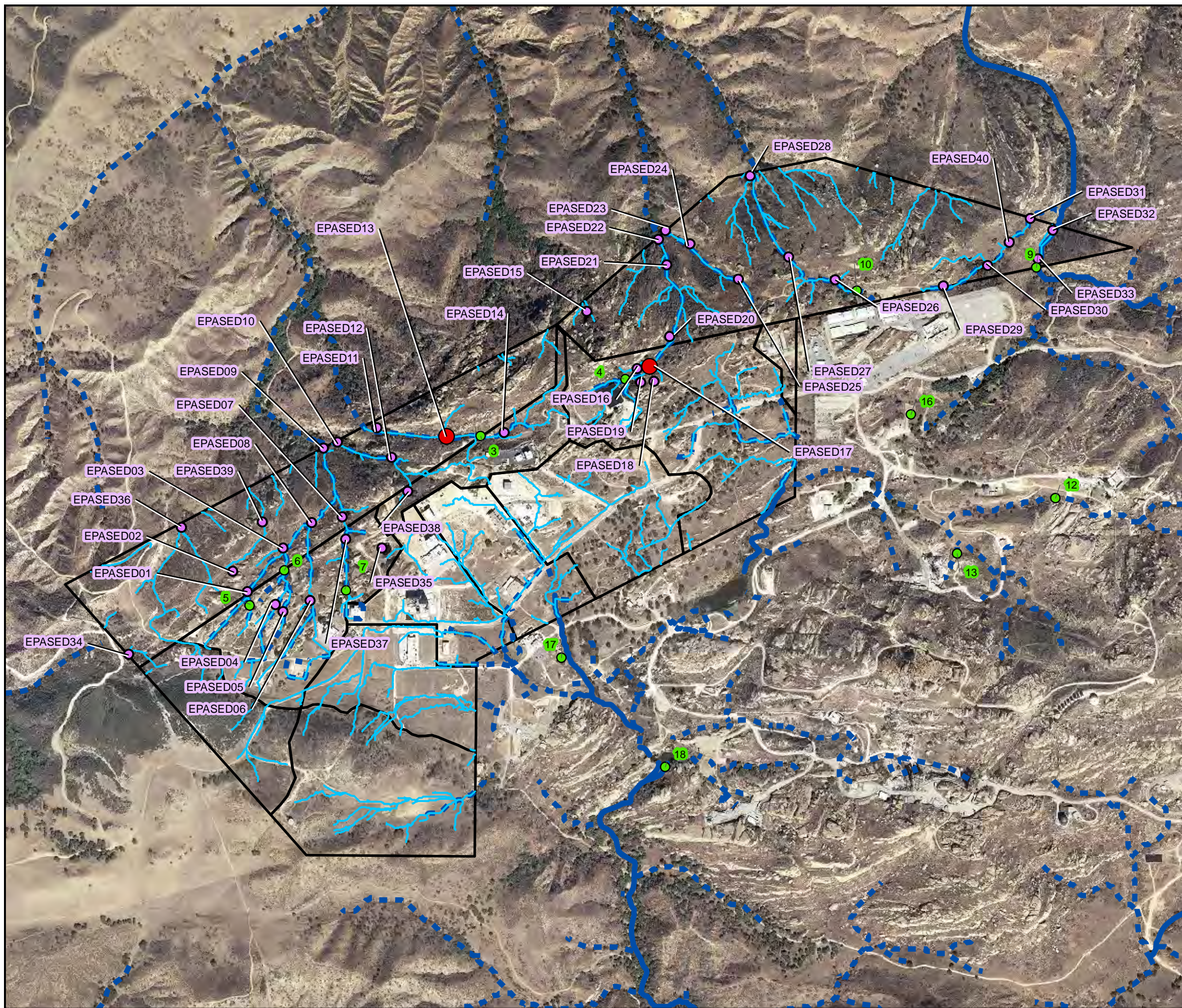


Figure 2
Radiological Sediment Sampling
Concentrations Exceeding RTLs
Phase I Sediment Sampling
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

- Sediment Sample Location
Results Below RTLs
- Sediment Sample Locations
Exceeding RTLs
- Drainage Pathways
- - - Intermittent Stream
- Permanent Stream
- Subareas

Notes:
 All activity and RTL values shown in picocuries per gram
 Cs - Cesium
 RTL - Radiological Trigger Levels
 U - Uranium

Location ID	Analyte	Activity	RTL
EPASED 13	U-233/234	2.47	2.02
	U-238	2.3	1.8

Location ID	Analyte	Activity	RTL
EPASED 17	Cs-137	0.208	0.207



ATTACHMENT 1

Tables

Table A.1	Sediment Descriptions by Sample Location
Table A.2	Analytical Results Summary
Table A.3	Parent and Field Duplicate Results Summary
Table A.4	Rinsate and Source Comparison Summary

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Table A.1
Sediment Descriptions by Sample Location
Phase I Sediment Sampling

Sample Location	Interval Collection (inches)	Soil Description	Soil Description	Northing ¹	Easting ¹
EPASED01	0-6	Silty sand	SM	1909821.31252000	6350748.47227000
EPASED02	0-6	Silty sand	SM	1907744.85670000	6345335.93257000
EPASED03	0-6	Poorly graded sand	SP	1910066.41079000	6351601.32489000
EPASED04	0-6	sandy Silt with clay	ML	1910322.57760000	6351734.19011000
EPASED05	0-6	Silty sand	SM	1910003.93978000	6351148.03151000
EPASED06	0-6	Sandy silt	ML	1910430.31951000	6351530.79912000
EPASED07	0-6	Poorly graded sand with silt	SP/SM	1906955.86681000	6344733.51711000
EPASED08	0-6	Poorly graded sand with silt	SP/SM	1906894.73537000	6344803.70430000
EPASED09	0-6	Silty sand	SM	1906990.73649000	6345046.93511000
EPASED10	0-6	Well graded sand	SW	1907692.99559000	6345059.31435000
EPASED11	0-6	Silty sand	SM	1908545.57131000	6345646.14225000
EPASED12	0-6	Well graded sand	SW	1908281.72275000	6345779.93955000
EPASED13	0-6	Silty sand	SM	1909366.90628000	6348282.94472000
EPASED14	0-6	Silty sand	SM	1909875.69201000	6349776.55328000
EPASED15	0-6	Silty sand	SM	1910082.96981000	6349354.95471000
EPASED16	0-6	Silty sand	SM	1908364.70750000	6345166.50049000
EPASED17	0-6	Silty sand	SM	1909883.25859000	6348902.21874000
EPASED18	0-6	Silty sand	SM	1910199.05619000	6348466.71961000
EPASED19	0-6	Silty sand	SM	1910319.00903000	6348246.09112000
EPASED20	0-6	Silty sand	SM	1910240.48229000	6348181.67261000
EPASED21	0-6	Poorly graded sand	SP	1910011.41352000	6348258.62095000
EPASED22	0-6	Silty sand	SM	1908419.03547000	6345291.48548000
EPASED23	0-6	Silty sand	SM	1907465.27229000	6344801.09046000

Table A.1
Sediment Descriptions by Sample Location
Phase I Sediment Sampling

Sample Location	Interval Collection (inches)	Soil Description	Soil Description	Northing ¹	Easting ¹
EPASED24	0-6	Silty sand	SM	1909591.75426000	6347539.24509000
EPASED25	0-6	Silty sand	SM	1907465.29689000	6345692.80423000
EPASED26	0-6	Sandy silt	ML	1908963.52290000	6348141.27866000
EPASED27	0-6	Silty sand	SM	1908953.23322000	6348022.94688000
EPASED28	0-6	Silty sand	SM	1908469.61739000	6346273.69775000
EPASED29	0-6	Silty sand	SM	1908503.05893000	6346793.32762000
EPASED30	0-6	Silty sand	SM	1910810.24001000	6349006.62011000
EPASED31	0-6	Silty sand	SM	1907070.21796000	6344480.71741000
EPASED32	0-6	Silty sand	SM	1907255.43248000	6344349.52345000
EPASED33	0-6	Well graded sand	SW	1909076.70968000	6347989.50534000
EPASED34	0-6	Poorly graded sand with silt	SP/SM	1909097.28904000	6348102.69213000
EPASED35	--	--	--	1907648.86936000	6343887.24026000
EPASED36	0-6	Sandy silt with clay	ML	1907697.73967000	6344616.99929000
EPASED37	0-6	Silty sand	SM	1907545.33151000	6345366.25042000
EPASED38	0-6	Silty sand	SM	1907974.58000000	6345926.68007000
EPASED39	0-6	Poorly graded sand	SP	1910214.58011000	6351341.68040000
EPASED40	0-6	Silty sand	SM	1906508.85753000	6343413.90688000

Notes:

¹Northing and easting measured using NAD83 SPZ5 US Feet

-- Excavation hole 56 location. Little amount and very saturated sediment - boring log not available.

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED01	Ac-227	0.03 U	0.18	0.061	0.217
EPASED01	Ac-228	1.31 J	0.093	0.047	2.4
EPASED01	Am-241	0.0097 J	0.01	0.004	0.0454
EPASED01	Bi-212	0.956 J	0.15	0.089	2.15
EPASED01	Bi-214	1.05	0.03	0.038	1.59
EPASED01	Cd-113m	0.4 U	50	15	3030
EPASED01	Cm-243/Cm-244	0.0159 J	0.011	0.005	0.0443
EPASED01	Cm-245/Cm-246	0.0048 J	0.0032	0.0024	0.0401
EPASED01	Cm-247/Cm-248	-0.0023 U	0.014	0.0031	0.0306
EPASED01	Co-60	0.0027 U	0.021	0.0045	0.028
EPASED01	Cs-134	0.011 U	0.059	0.0047	0.0864
EPASED01	Cs-137	0.0655 J	0.015	0.0071	0.207
EPASED01	Eu-152	0.007 U	0.028	0.017	0.0566
EPASED01	Eu-154	-0.05 U	0.13	0.038	0.15
EPASED01	Eu-155	0.089 J	0.037	0.015	0.231
EPASED01	H-3	0.059 J	0.062	0.02	11.9
EPASED01	Ho-166m	0.0119 U	0.03	0.0092	0.0432
EPASED01	K-40	21.1 J	0.17	0.65	32.4
EPASED01	Na-22	0.001 U	0.025	0.0074	0.037
EPASED01	Nb-94	0.0115 J	0.017	0.0053	0.0214
EPASED01	Np-236	-0.009 U	0.037	0.011	0.047
EPASED01	Np-239	-0.002 U	0.11	0.032	0.139
EPASED01	Pa-231	-0.01 U	0.71	0.21	0.936
EPASED01	Pb-212	1.51	0.029	0.062	2.69
EPASED01	Pb-214	1.18 J	0.033	0.04	1.7
EPASED01	Pu-236	-0.0062 UL	0.011	0.0027	7.79
EPASED01	Pu-238	0.0015 U	0.0088	0.0024	0.0415
EPASED01	Pu-239/Pu-240	0.0044 J	0.0068	0.0024	0.0404
EPASED01	Pu-244	0.0015 U	0.002	0.001	0.0313
EPASED01	Sb-125	0.151 J	0.047	0.014	0.354
EPASED01	Sn-126	-0.0003 U	0.022	0.0065	0.0237
EPASED01	Sr-90	-0.025 U	0.071	0.02	0.485
EPASED01	Tc-99	0.028 U	0.071	0.021	1.63
EPASED01	Te-125m	0.0348 J	0.011	0.0031	0.0838
EPASED01	Th-228	1.53 K	0.013	0.079	3.98
EPASED01	Th-229	0.0085 J	0.0023	0.0027	0.145
EPASED01	Th-230	1.02 K	0.004	0.057	2.2
EPASED01	Th-232	1.32 K	0.01	0.07	3.1

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED01	Th-234	2.18 R	0.18	0.11	3.19
EPASED01	Tl-208	0.472	0.021	0.019	0.937
EPASED01	Tm-171	-0.1 U	6.9	2.1	72.4
EPASED01	U-233/U-234	1.5	0.013	0.076	2.02
EPASED01	U-235/U-236	0.061 J	0.011	0.01	0.151
EPASED01	U-238	1.39	0.003	0.071	1.8
EPASED02	Ac-227	0.023 U	0.18	0.054	0.217
EPASED02	Ac-228	1.38 J	0.11	0.053	2.4
EPASED02	Am-241	0.0037 J	0.0087	0.0027	0.0454
EPASED02	Bi-212	1.11	0.17	0.11	2.15
EPASED02	Bi-214	0.914	0.032	0.036	1.59
EPASED02	Cd-113m	0 U	51	8.5	3030
EPASED02	Cm-243/Cm-244	0.0046 U	0.012	0.0037	0.0443
EPASED02	Cm-245/Cm-246	-0.0011 U	0.0098	0.002	0.0401
EPASED02	Cm-247/Cm-248	0 U	0.0028	0.0012	0.0306
EPASED02	Co-60	0.0044 U	0.02	0.0059	0.028
EPASED02	Cs-134	0.0056 U	0.067	0.0023	0.0864
EPASED02	Cs-137	0.0622 J	0.016	0.0076	0.207
EPASED02	Eu-152	0.0007 U	0.05	0.0019	0.0566
EPASED02	Eu-154	0.014 U	0.12	0.019	0.15
EPASED02	Eu-155	0.12 J	0.055	0.024	0.231
EPASED02	H-3	0.049 J	0.064	0.02	11.9
EPASED02	Ho-166m	0.0016 U	0.024	0.0093	0.0432
EPASED02	K-40	19.9 J	0.15	0.61	32.4
EPASED02	Na-22	0.0053 U	0.025	0.0076	0.037
EPASED02	Nb-94	-0.0002 U	0.018	0.0053	0.0214
EPASED02	Np-236	-0.008 U	0.044	0.013	0.047
EPASED02	Np-239	0.034 U	0.11	0.032	0.139
EPASED02	Pa-231	0.077 U	0.79	0.064	0.936
EPASED02	Pb-212	1.59	0.028	0.049	2.69
EPASED02	Pb-214	0.958 J	0.031	0.043	1.7
EPASED02	Pu-236	-0.001 U	0.009	0.0024	7.79
EPASED02	Pu-238	0.0021 U	0.0028	0.0015	0.0415
EPASED02	Pu-239/Pu-240	0.0031 U	0.0097	0.0029	0.0404
EPASED02	Pu-244	0.001 U	0.0028	0.001	0.0313
EPASED02	Sb-125	0.127 J	0.052	0.012	0.354
EPASED02	Sn-126	0.0043 U	0.019	0.0058	0.0237
EPASED02	Sr-90	0.1 J	0.078	0.026	0.485

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED02	Tc-99	0.048 J	0.076	0.023	1.63
EPASED02	Te-125m	0.0294 J	0.012	0.0027	0.0838
EPASED02	Th-228	1.35	0.022	0.068	3.98
EPASED02	Th-229	0.0035 J	0.0024	0.0018	0.145
EPASED02	Th-230	0.87	0.008	0.047	2.2
EPASED02	Th-232	1.44	0.008	0.071	3.1
EPASED02	Th-234	1.58 R	0.26	0.097	3.19
EPASED02	Tl-208	0.52	0.021	0.021	0.937
EPASED02	Tm-171	-13.8 R	11	3.4	72.4
EPASED02	U-233/U-234	0.814	0.007	0.044	2.02
EPASED02	U-235/U-236	0.0355 J	0.0032	0.0066	0.151
EPASED02	U-238	0.885	0.003	0.047	1.8
EPASED03	Ac-227	-0.034 U	0.16	0.05	0.217
EPASED03	Ac-228	1	0.098	0.041	2.4
EPASED03	Am-241	0.0029 J	0.0053	0.0018	0.0454
EPASED03	Bi-212	0.799	0.12	0.073	2.15
EPASED03	Bi-214	0.805	0.03	0.031	1.59
EPASED03	Cd-113m	16 U	45	14	3030
EPASED03	Cm-243/Cm-244	0.0011 U	0.0052	0.0014	0.0443
EPASED03	Cm-245/Cm-246	0.0056 J	0.0068	0.0027	0.0401
EPASED03	Cm-247/Cm-248	0.0018 U	0.0025	0.0013	0.0306
EPASED03	Co-60	-0.0001 U	0.018	0.0053	0.028
EPASED03	Cs-134	0.0127 UJ	0.058	0.0065	0.0864
EPASED03	Cs-137	0.0622 J	0.016	0.0078	0.207
EPASED03	Eu-152	0.034 J	0.044	0.017	0.0566
EPASED03	Eu-154	-0.05 U	0.12	0.036	0.15
EPASED03	Eu-155	0.077 J	0.049	0.021	0.231
EPASED03	H-3	0.015 U	0.08	0.024	11.9
EPASED03	Ho-166m	0.0102 U	0.027	0.0051	0.0432
EPASED03	K-40	22.4	0.14	0.68	32.4
EPASED03	Na-22	0.0015 U	0.025	0.0073	0.037
EPASED03	Nb-94	0.0024 U	0.016	0.0024	0.0214
EPASED03	Ni-59	0 UL	0.014	0.0051	5.96
EPASED03	Ni-63	-0.01 U	0.41	0.12	4.92
EPASED03	Np-236	-0.001 U	0.04	0.012	0.047
EPASED03	Np-239	-0.002 U	0.1	0.03	0.139
EPASED03	Pa-231	0.16 U	0.69	0.21	0.936
EPASED03	Pb-212	0.918	0.033	0.032	2.69

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED03	Pb-214	0.865	0.03	0.038	1.7
EPASED03	Pu-236	-0.0026 U	0.0073	0.0016	7.79
EPASED03	Pu-238	0.00138 U	0.0019	0.00098	0.0415
EPASED03	Pu-239/Pu-240	0.00138 U	0.0019	0.00098	0.0404
EPASED03	Pu-244	0.00069 U	0.0019	0.00069	0.0313
EPASED03	Sb-125	0.023 J	0.034	0.01	0.354
EPASED03	Sn-126	0.0029 U	0.018	0.0053	0.0237
EPASED03	Sr-90	0.036 J	0.055	0.017	0.485
EPASED03	Tc-99	0.136	0.19	0.059	1.63
EPASED03	Te-125m	0.0054 J	0.0079	0.0024	0.0838
EPASED03	Th-228	1.02	0.01	0.054	3.98
EPASED03	Th-229	0.0021 U	0.0078	0.0022	0.145
EPASED03	Th-230	0.789 J	0.003	0.044	2.2
EPASED03	Th-232	1.07 J	0.003	0.056	3.1
EPASED03	Th-234	1.24 R	0.23	0.083	3.19
EPASED03	Tl-208	0.348	0.017	0.015	0.937
EPASED03	Tm-171	-10.1 R	9.4	2.9	72.4
EPASED03	U-233/U-234	0.7	0.006	0.038	2.02
EPASED03	U-235/U-236	0.0377 J	0.0071	0.0064	0.151
EPASED03	U-238	0.727 J	0.002	0.039	1.8
EPASED04	Ac-227	0.068 J	0.11	0.014	0.217
EPASED04	Ac-228	1.19 J	0.06	0.04	2.4
EPASED04	Am-241	0.0047 J	0.0049	0.002	0.0454
EPASED04	Bi-212	0.882 J	0.1	0.062	2.15
EPASED04	Bi-214	0.85	0.021	0.029	1.59
EPASED04	Cd-113m	2 U	33	10	3030
EPASED04	Cm-243/Cm-244	0.0079 J	0.0048	0.0025	0.0443
EPASED04	Cm-245/Cm-246	0.0014 U	0.0019	0.001	0.0401
EPASED04	Cm-247/Cm-248	0.00069 U	0.0019	0.0007	0.0306
EPASED04	Co-60	0.003 U	0.012	0.0036	0.028
EPASED04	Cs-134	0.013 U	0.033	0.0032	0.0864
EPASED04	Cs-137	0.0162 J	0.009	0.004	0.207
EPASED04	Eu-152	-0.0098 U	0.032	0.0098	0.0566
EPASED04	Eu-154	0.028 J	0.056	0.015	0.15
EPASED04	Eu-155	0.072 J	0.028	0.012	0.231
EPASED04	H-3	0.085 J	0.063	0.021	11.9
EPASED04	Ho-166m	0.0062 U	0.02	0.0041	0.0432
EPASED04	K-40	19.4 J	0.13	0.58	32.4

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED04	Na-22	0 U	0.017	0.0051	0.037
EPASED04	Nb-94	0.0016 U	0.011	0.0034	0.0214
EPASED04	Np-236	-0.0035 U	0.027	0.0082	0.047
EPASED04	Np-239	-0.01 U	0.074	0.022	0.139
EPASED04	Pa-231	0.03 U	0.47	0.14	0.936
EPASED04	Pb-212	1.47	0.02	0.06	2.69
EPASED04	Pb-214	0.988 J	0.022	0.033	1.7
EPASED04	Pu-236	0 U	0.005	0.0012	7.79
EPASED04	Pu-238	0.0037 J	0.0034	0.0015	0.0415
EPASED04	Pu-239/Pu-240	-0.00046 U	0.0043	0.00086	0.0404
EPASED04	Pu-244	0 U	0.0012	0.00051	0.0313
EPASED04	Sb-125	0.143 J	0.025	0.01	0.354
EPASED04	Sn-126	0.0019 U	0.013	0.0038	0.0237
EPASED04	Sr-90	0.038 U	0.08	0.024	0.485
EPASED04	Tc-99	0.04 J	0.074	0.023	1.63
EPASED04	Te-125m	0.0331 J	0.0057	0.0023	0.0838
EPASED04	Th-228	1.38	0.011	0.071	3.98
EPASED04	Th-229	0.0068 J	0.0023	0.0024	0.145
EPASED04	Th-230	0.975	0.009	0.053	2.2
EPASED04	Th-232	1.29	0.009	0.067	3.1
EPASED04	Th-234	0.389 J R	0.14	0.046	3.19
EPASED04	Tl-208	0.433	0.014	0.016	0.937
EPASED04	Tm-171	4.5 J	4.2	1.6	72.4
EPASED04	U-233/U-234	0.762	0.002	0.038	2.02
EPASED04	U-235/U-236	0.0428 J	0.002	0.0059	0.151
EPASED04	U-238	0.755	0.004	0.038	1.8
EPASED05	Ac-227	0.032 U	0.18	0.06	0.217
EPASED05	Ac-228	1.28	0.1	0.048	2.4
EPASED05	Am-241	0.0025 J	0.0017	0.0012	0.0454
EPASED05	Bi-212	0.902	0.17	0.094	2.15
EPASED05	Bi-214	1.02	0.036	0.039	1.59
EPASED05	Cd-113m	-4 U	51	15	3030
EPASED05	Cm-243/Cm-244	0.0006 U	0.0057	0.0014	0.0443
EPASED05	Cm-245/Cm-246	0.0087 J	0.0064	0.0031	0.0401
EPASED05	Cm-247/Cm-248	0.0026 J	0.0063	0.002	0.0306
EPASED05	Co-60	0.0028 U	0.022	0.0065	0.028
EPASED05	Cs-134	0.0091 UJ	0.06	0.0039	0.0864
EPASED05	Cs-137	0.161	0.017	0.01	0.207

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED05	Eu-152	-0.027 UL	0.05	0.015	0.0566
EPASED05	Eu-154	0.029 U	0.13	0.015	0.15
EPASED05	Eu-155	0.076 J	0.04	0.013	0.231
EPASED05	H-3	0.008 U	0.077	0.023	11.9
EPASED05	Ho-166m	0.025 J	0.032	0.013	0.0432
EPASED05	K-40	20.2	0.23	0.64	32.4
EPASED05	Na-22	0.0051 U	0.026	0.0079	0.037
EPASED05	Nb-94	0.0155 J	0.016	0.0076	0.0214
EPASED05	Ni-59	0 UL	0.016	0.0058	5.96
EPASED05	Ni-63	-0.07 U	0.48	0.14	4.92
EPASED05	Np-236	0.007 U	0.04	0.012	0.047
EPASED05	Np-239	0.007 U	0.089	0.027	0.139
EPASED05	Pa-231	-0.07 U	0.73	0.22	0.936
EPASED05	Pb-212	1.48	0.028	0.046	2.69
EPASED05	Pb-214	1.14	0.034	0.049	1.7
EPASED05	Pu-236	0.0023 J	0.005	0.0016	7.79
EPASED05	Pu-238	0.0017 J	0.0046	0.0014	0.0415
EPASED05	Pu-239/Pu-240	0.0085 J	0.0012	0.0019	0.0404
EPASED05	Pu-244	0 U	0.0012	0.00048	0.0313
EPASED05	Sb-125	0.113	0.046	0.011	0.354
EPASED05	Sn-126	0.0032 U	0.021	0.0062	0.0237
EPASED05	Sr-90	0.068	0.045	0.015	0.485
EPASED05	Tc-99	0.025 U	0.2	0.058	1.63
EPASED05	Te-125m	0.026 J	0.011	0.0026	0.0838
EPASED05	Th-228	1.4	0.014	0.069	3.98
EPASED05	Th-229	0.0016 U	0.013	0.0031	0.145
EPASED05	Th-230	1.01 J	0.009	0.053	2.2
EPASED05	Th-232	1.39 J	0.006	0.069	3.1
EPASED05	Th-234	0.741 J R	0.2	0.068	3.19
EPASED05	Tl-208	0.464	0.023	0.02	0.937
EPASED05	Tm-171	-1.3 U	6.7	2	72.4
EPASED05	U-233/U-234	0.829	0.005	0.04	2.02
EPASED05	U-235/U-236	0.0377 J	0.0017	0.0051	0.151
EPASED05	U-238	0.898 J	0.005	0.043	1.8
EPASED06	Ac-227	-0.002 U	0.16	0.05	0.217
EPASED06	Ac-228	1.41 J	0.097	0.051	2.4
EPASED06	Am-241	0.0035 J	0.0065	0.0022	0.0454
EPASED06	Bi-212	1.1	0.14	0.084	2.15

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED06	Bi-214	0.957	0.026	0.034	1.59
EPASED06	Cd-113m	0.3 U	48	14	3030
EPASED06	Cm-243/Cm-244	0.0009 U	0.0063	0.0016	0.0443
EPASED06	Cm-245/Cm-246	0.0034 J	0.0084	0.0026	0.0401
EPASED06	Cm-247/Cm-248	0 U	0.0082	0.0017	0.0306
EPASED06	Co-60	-0.0008 U	0.02	0.0015	0.028
EPASED06	Cs-134	0.014 U	0.061	0.0045	0.0864
EPASED06	Cs-137	0.205	0.014	0.01	0.207
EPASED06	Eu-152	-0.008 U	0.045	0.014	0.0566
EPASED06	Eu-154	0.005 U	0.11	0.031	0.15
EPASED06	Eu-155	0.081 J	0.047	0.019	0.231
EPASED06	H-3	0.063 J	0.063	0.02	11.9
EPASED06	Ho-166m	-0.0077 U	0.027	0.0083	0.0432
EPASED06	K-40	20.1 J	0.13	0.61	32.4
EPASED06	Na-22	0.0002 U	0.019	0.0057	0.037
EPASED06	Nb-94	0.007 U	0.015	0.0047	0.0214
EPASED06	Np-236	-0.001 U	0.041	0.012	0.047
EPASED06	Np-239	-0.031 U	0.11	0.032	0.139
EPASED06	Pa-231	0.07 U	0.7	0.21	0.936
EPASED06	Pb-212	1.39	0.035	0.045	2.69
EPASED06	Pb-214	1 J	0.03	0.044	1.7
EPASED06	Pu-236	0 U	0.0013	0.00053	7.79
EPASED06	Pu-238	0.0048 J	0.0071	0.0026	0.0415
EPASED06	Pu-239/Pu-240	0.0067 J	0.0026	0.0026	0.0404
EPASED06	Pu-244	0 U	0.0026	0.0011	0.0313
EPASED06	Sb-125	0.147 J	0.047	0.013	0.354
EPASED06	Sn-126	0.0024 U	0.017	0.0052	0.0237
EPASED06	Sr-90	0.014 U	0.063	0.019	0.485
EPASED06	Tc-99	0.004 U	0.082	0.025	1.63
EPASED06	Te-125m	0.034 J	0.011	0.0031	0.0838
EPASED06	Th-228	1.31	0.01	0.064	3.98
EPASED06	Th-229	0.0042 J	0.0038	0.0024	0.145
EPASED06	Th-230	1	0.002	0.05	2.2
EPASED06	Th-232	1.26	0.008	0.062	3.1
EPASED06	Th-234	1.51 R	0.24	0.089	3.19
EPASED06	Tl-208	0.511	0.019	0.02	0.937
EPASED06	Tm-171	-12.7 R	9.6	3	72.4
EPASED06	U-233/U-234	0.943	0.022	0.052	2.02

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED06	U-235/U-236	0.0485 J	0.015	0.0093	0.151
EPASED06	U-238	0.976	0.003	0.053	1.8
EPASED07	Ac-227	0.031 U	0.11	0.067	0.217
EPASED07	Ac-228	1.22	0.095	0.045	2.4
EPASED07	Am-241	0.0043 J	0.0039	0.0017	0.0454
EPASED07	Bi-212	0.92	0.15	0.088	2.15
EPASED07	Bi-214	0.847	0.03	0.032	1.59
EPASED07	Cd-113m	7 U	43	13	3030
EPASED07	Cm-243/Cm-244	0.00157 J	0.0014	0.00091	0.0443
EPASED07	Cm-245/Cm-246	0.0014 U	0.01	0.0024	0.0401
EPASED07	Cm-247/Cm-248	0 U	0.0098	0.002	0.0306
EPASED07	Co-60	-0.01 U	0.021	0.0065	0.028
EPASED07	Cs-134	-0.0161 UJ	0.019	0.0058	0.0864
EPASED07	Cs-137	0.0565 J	0.015	0.0079	0.207
EPASED07	Eu-152	0.014 U	0.042	0.013	0.0566
EPASED07	Eu-154	0.0089 U	0.12	0.0071	0.15
EPASED07	Eu-155	0.01 U	0.035	0.011	0.231
EPASED07	H-3	-0.005 U	0.078	0.022	11.9
EPASED07	Ho-166m	0.0072 U	0.028	0.0076	0.0432
EPASED07	K-40	20.9	0.15	0.64	32.4
EPASED07	Na-22	0.0018 U	0.027	0.008	0.037
EPASED07	Nb-94	0.0036 U	0.016	0.0033	0.0214
EPASED07	Ni-59	0 UL	0.016	0.0059	5.96
EPASED07	Ni-63	-0.13 U	0.47	0.14	4.92
EPASED07	Np-236	-0.0025 U	0.031	0.0094	0.047
EPASED07	Np-239	0.019 U	0.096	0.029	0.139
EPASED07	Pa-231	0.009 U	0.66	0.2	0.936
EPASED07	Pb-212	1.48	0.023	0.06	2.69
EPASED07	Pb-214	0.961	0.03	0.034	1.7
EPASED07	Pu-236	-0.0004 U	0.0047	0.0011	7.79
EPASED07	Pu-238	0.0005 U	0.005	0.0013	0.0415
EPASED07	Pu-239/Pu-240	0.0032 J	0.0014	0.0013	0.0404
EPASED07	Pu-244	0.00053 U	0.0014	0.00053	0.0313
EPASED07	Sb-125	0.131	0.046	0.012	0.354
EPASED07	Sn-126	0.0016 U	0.019	0.0056	0.0237
EPASED07	Sr-90	0.067	0.062	0.02	0.485
EPASED07	Tc-99	0.035 U	0.17	0.05	1.63
EPASED07	Te-125m	0.0302 J	0.011	0.0027	0.0838

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED07	Th-228	1.23	0.013	0.066	3.98
EPASED07	Th-229	0.0136 J	0.0071	0.004	0.145
EPASED07	Th-230	0.839	0.004	0.049	2.2
EPASED07	Th-232	1.07	0.004	0.059	3.1
EPASED07	Th-234	0.489 J R	0.18	0.059	3.19
EPASED07	Tl-208	0.439	0.016	0.017	0.937
EPASED07	Tm-171	-1 U	6	1.8	72.4
EPASED07	U-233/U-234	1	0.005	0.05	2.02
EPASED07	U-235/U-236	0.0422 J	0.0024	0.0064	0.151
EPASED07	U-238	0.916 J	0.002	0.046	1.8
EPASED08	Ac-227	0.058 U	0.15	0.054	0.217
EPASED08	Ac-228	1.05	0.082	0.042	2.4
EPASED08	Am-241	0.0005 U	0.0046	0.0012	0.0454
EPASED08	Bi-212	0.946	0.14	0.084	2.15
EPASED08	Bi-214	0.961	0.026	0.034	1.59
EPASED08	Cd-113m	9 U	41	12	3030
EPASED08	Cm-243/Cm-244	0 U	0.0013	0.00054	0.0443
EPASED08	Cm-245/Cm-246	0.0023 U	0.014	0.0037	0.0401
EPASED08	Cm-247/Cm-248	0.0022 U	0.0082	0.0023	0.0306
EPASED08	Co-60	0.0027 U	0.02	0.0037	0.028
EPASED08	Cs-134	-0.0256 R	0.018	0.0058	0.0864
EPASED08	Cs-137	0.128	0.016	0.0093	0.207
EPASED08	Eu-152	-0.0019 U	0.04	0.0028	0.0566
EPASED08	Eu-154	-0.0019 U	0.11	0.0024	0.15
EPASED08	Eu-155	0.066 J	0.034	0.013	0.231
EPASED08	H-3	0.089 J	0.063	0.021	11.9
EPASED08	Ho-166m	0.000042 U	0.027	0.000049	0.0432
EPASED08	K-40	20.6	0.15	0.63	32.4
EPASED08	Na-22	0.009 U	0.025	0.0076	0.037
EPASED08	Nb-94	0.0067 U	0.015	0.0046	0.0214
EPASED08	Ni-59	0 UL	0.015	0.0056	5.96
EPASED08	Ni-63	-0.01 U	0.46	0.14	4.92
EPASED08	Np-236	-0.0093 U	0.033	0.0099	0.047
EPASED08	Np-239	-0.01 U	0.09	0.027	0.139
EPASED08	Pa-231	-0.002 U	0.62	0.19	0.936
EPASED08	Pb-212	1.33	0.026	0.055	2.69
EPASED08	Pb-214	1.06	0.027	0.036	1.7
EPASED08	Pu-236	0.0028 J	0.006	0.0019	7.79

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED08	Pu-238	0.0026 J	0.0048	0.0016	0.0415
EPASED08	Pu-239/Pu-240	0.0079 J	0.0061	0.0027	0.0404
EPASED08	Pu-244	-0.00066 U	0.0048	0.00073	0.0313
EPASED08	Sb-125	0.108	0.043	0.0094	0.354
EPASED08	Sn-126	-0.0004 U	0.017	0.0051	0.0237
EPASED08	Sr-90	0.033 J	0.055	0.017	0.485
EPASED08	Tc-99	-0.018 U	0.15	0.045	1.63
EPASED08	Te-125m	0.0249 J	0.01	0.0022	0.0838
EPASED08	Th-228	1.02	0.017	0.061	3.98
EPASED08	Th-228	1.17	0.012	0.064	3.98
EPASED08	Th-229	0.004 J	0.0027	0.002	0.145
EPASED08	Th-230	0.892 J	0.005	0.055	2.2
EPASED08	Th-230	1 J	0.004	0.056	2.2
EPASED08	Th-232	0.993 J	0.011	0.06	3.1
EPASED08	Th-232	1.07 J	0.009	0.059	3.1
EPASED08	Th-234	0.637 J R	0.15	0.053	3.19
EPASED08	Tl-208	0.434	0.019	0.018	0.937
EPASED08	Tm-171	-0.03 U	6.1	1.8	72.4
EPASED08	U-233/U-234	0.662	0.002	0.035	2.02
EPASED08	U-235/U-236	0.0356 J	0.0025	0.0059	0.151
EPASED08	U-238	0.676 J	0.002	0.036	1.8
EPASED09	Ac-227	-0.027 U	0.16	0.048	0.217
EPASED09	Ac-228	1.08	0.077	0.041	2.4
EPASED09	Am-241	0.001 U	0.0048	0.0013	0.0454
EPASED09	Bi-212	0.847	0.11	0.064	2.15
EPASED09	Bi-214	0.882	0.03	0.034	1.59
EPASED09	Cd-113m	-3 U	45	13	3030
EPASED09	Cm-243/Cm-244	0.0005 U	0.0047	0.0012	0.0443
EPASED09	Cm-245/Cm-246	0.0063 J	0.0085	0.003	0.0401
EPASED09	Cm-247/Cm-248	0.0023 U	0.0072	0.0021	0.0306
EPASED09	Co-60	0.00013 U	0.018	0.00029	0.028
EPASED09	Cs-134	0.0122 UJ	0.059	0.0037	0.0864
EPASED09	Cs-137	0.0761 J	0.013	0.0072	0.207
EPASED09	Eu-152	0.0199 U	0.044	0.0099	0.0566
EPASED09	Eu-154	0.031 U	0.1	0.024	0.15
EPASED09	Eu-155	0.076 J	0.05	0.022	0.231
EPASED09	H-3	0.037 J	0.076	0.023	11.9
EPASED09	Ho-166m	0.0177 J	0.026	0.008	0.0432

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED09	K-40	17.6	0.12	0.54	32.4
EPASED09	Na-22	0 U	0.027	0.0041	0.037
EPASED09	Nb-94	0.0018 U	0.015	0.0033	0.0214
EPASED09	Ni-59	0 UL	0.014	0.0051	5.96
EPASED09	Ni-63	-0.1 U	0.43	0.13	4.92
EPASED09	Np-236	-0.012 U	0.039	0.012	0.047
EPASED09	Np-239	-0.009 U	0.1	0.03	0.139
EPASED09	Pa-231	-0.09 U	0.67	0.2	0.936
EPASED09	Pb-212	1.25	0.024	0.039	2.69
EPASED09	Pb-214	0.967	0.03	0.043	1.7
EPASED09	Pu-236	-0.0008 U	0.0048	0.0011	7.79
EPASED09	Pu-238	0.00047 U	0.0035	0.00085	0.0415
EPASED09	Pu-239/Pu-240	0.0033 J	0.0013	0.0013	0.0404
EPASED09	Pu-244	0.00047 U	0.0013	0.00047	0.0313
EPASED09	Sb-125	0.094	0.044	0.009	0.354
EPASED09	Sn-126	0.0008 U	0.013	0.0037	0.0237
EPASED09	Sr-90	0.014 U	0.053	0.016	0.485
EPASED09	Tc-99	-0.04 U	0.17	0.051	1.63
EPASED09	Te-125m	0.0217 J	0.01	0.0021	0.0838
EPASED09	Th-228	1.03	0.006	0.052	3.98
EPASED09	Th-229	0.0031 J	0.0021	0.0016	0.145
EPASED09	Th-230	0.765 J	0.006	0.041	2.2
EPASED09	Th-232	1.02 J	0.006	0.052	3.1
EPASED09	Th-234	1.26 R	0.22	0.079	3.19
EPASED09	Tl-208	0.399	0.016	0.016	0.937
EPASED09	Tm-171	-11.3 R	9.2	2.9	72.4
EPASED09	U-233/U-234	0.8	0.006	0.041	2.02
EPASED09	U-235/U-236	0.033 J	0.0023	0.0055	0.151
EPASED09	U-238	0.859 J	0.002	0.043	1.8
EPASED10	Ac-227	0.109 J	0.11	0.025	0.217
EPASED10	Ac-228	1.2	0.11	0.045	2.4
EPASED10	Am-241	-0.0011 U	0.0069	0.0015	0.0454
EPASED10	Bi-212	0.962	0.15	0.088	2.15
EPASED10	Bi-214	0.976	0.031	0.036	1.59
EPASED10	Cd-113m	13 U	51	15	3030
EPASED10	Cm-243/Cm-244	-0.00112 U	0.0052	0.00089	0.0443
EPASED10	Cm-245/Cm-246	0.0101 J	0.0067	0.0031	0.0401
EPASED10	Cm-247/Cm-248	0.0007 U	0.0052	0.0013	0.0306

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED10	Co-60	-0.0047 U	0.025	0.0075	0.028
EPASED10	Cs-134	0.0145 UJ	0.063	0.0055	0.0864
EPASED10	Cs-137	0.0675 J	0.016	0.008	0.207
EPASED10	Eu-152	0.007 U	0.049	0.014	0.0566
EPASED10	Eu-154	-0.043 U	0.14	0.043	0.15
EPASED10	Eu-155	0.076 J	0.037	0.015	0.231
EPASED10	H-3	0.028 U	0.076	0.023	11.9
EPASED10	Ho-166m	0.009 U	0.028	0.011	0.0432
EPASED10	K-40	24	0.15	0.74	32.4
EPASED10	Na-22	-0.0002 U	0.031	0.0092	0.037
EPASED10	Nb-94	0.0047 U	0.019	0.0056	0.0214
EPASED10	Ni-59	0 UL	0.019	0.0072	5.96
EPASED10	Ni-63	-0.28 U	0.59	0.17	4.92
EPASED10	Np-236	0.0002 U	0.035	0.011	0.047
EPASED10	Np-239	0.018 U	0.11	0.032	0.139
EPASED10	Pa-231	0.06 U	0.73	0.15	0.936
EPASED10	Pb-212	1.56	0.025	0.064	2.69
EPASED10	Pb-214	1.05	0.034	0.038	1.7
EPASED10	Pu-236	0.0123 J	0.0057	0.0028	7.79
EPASED10	Pu-238	0.0033 J	0.0013	0.0013	0.0415
EPASED10	Pu-239/Pu-240	0.0066 J	0.0013	0.0018	0.0404
EPASED10	Pu-244	0.00047 U	0.0013	0.00047	0.0313
EPASED10	Sb-125	0.133	0.052	0.013	0.354
EPASED10	Sn-126	0 U	0.022	0.0046	0.0237
EPASED10	Sr-90	0.044 J	0.053	0.017	0.485
EPASED10	Tc-99	0.02 U	0.16	0.047	1.63
EPASED10	Te-125m	0.0308 J	0.012	0.0029	0.0838
EPASED10	Th-228	1.31	0.01	0.065	3.98
EPASED10	Th-229	0.0088 J	0.0022	0.0027	0.145
EPASED10	Th-230	0.939 J	0.007	0.05	2.2
EPASED10	Th-232	1.17 J	0.003	0.059	3.1
EPASED10	Th-234	0.451 J R	0.2	0.063	3.19
EPASED10	Tl-208	0.477	0.022	0.02	0.937
EPASED10	Tm-171	3.3 U	7	2.1	72.4
EPASED10	U-233/U-234	0.86	0.004	0.041	2.02
EPASED10	U-235/U-236	0.0453 J	0.0015	0.0054	0.151
EPASED10	U-238	0.847 J	0.003	0.041	1.8
EPASED11	Ac-227	0.06 U	0.18	0.072	0.217

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED11	Ac-228	1.25 J	0.11	0.05	2.4
EPASED11	Am-241	0 U	0.01	0.0027	0.0454
EPASED11	Bi-212	1.03 J	0.15	0.084	2.15
EPASED11	Bi-214	1.13	0.033	0.041	1.59
EPASED11	Cd-113m	-0.6 U	51	15	3030
EPASED11	Cm-243/Cm-244	0.0008 U	0.012	0.0034	0.0443
EPASED11	Cm-245/Cm-246	0.0011 U	0.01	0.0026	0.0401
EPASED11	Cm-247/Cm-248	-0.0011 U	0.01	0.002	0.0306
EPASED11	Co-60	-0.00033 U	0.023	0.00086	0.028
EPASED11	Cs-134	0.0102 U	0.063	0.0043	0.0864
EPASED11	Cs-137	0.108	0.016	0.0089	0.207
EPASED11	Eu-152	-0.0031 U	0.047	0.0054	0.0566
EPASED11	Eu-154	-0.00132 U	0.14	0.00088	0.15
EPASED11	Eu-155	0.114 J	0.037	0.015	0.231
EPASED11	H-3	0.091 J	0.061	0.02	11.9
EPASED11	Ho-166m	0.0102 U	0.033	0.0073	0.0432
EPASED11	K-40	21.9 J	0.19	0.68	32.4
EPASED11	Na-22	-0.0044 U	0.022	0.0066	0.037
EPASED11	Nb-94	0.0057 U	0.018	0.0055	0.0214
EPASED11	Np-236	-0.017 U	0.038	0.012	0.047
EPASED11	Np-239	-0.014 U	0.1	0.032	0.139
EPASED11	Pa-231	-0.22 U	0.76	0.23	0.936
EPASED11	Pb-212	1.54	0.035	0.064	2.69
EPASED11	Pb-214	1.27 J	0.033	0.044	1.7
EPASED11	Pu-236	-0.001 U	0.0055	0.0011	7.79
EPASED11	Pu-238	0 U	0.0051	0.0013	0.0415
EPASED11	Pu-239/Pu-240	0.0038 J	0.004	0.0016	0.0404
EPASED11	Pu-244	0.00085 U	0.0031	0.00088	0.0313
EPASED11	Sb-125	0.117 J	0.05	0.011	0.354
EPASED11	Sn-126	-0.007 U	0.022	0.0066	0.0237
EPASED11	Sr-90	0.011 U	0.064	0.019	0.485
EPASED11	Te-125m	0.027 J	0.012	0.0024	0.0838
EPASED11	Th-228	1.32	0.013	0.068	3.98
EPASED11	Th-229	0.0059 J	0.0055	0.0024	0.145
EPASED11	Th-230	1.01	0.011	0.055	2.2
EPASED11	Th-232	1.27	0.01	0.066	3.1
EPASED11	Th-234	1.93 R	0.18	0.11	3.19
EPASED11	Tl-208	0.517	0.021	0.021	0.937

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED11	Tm-171	5.8 J	5.6	2.1	72.4
EPASED11	U-233/U-234	1.19	0.007	0.061	2.02
EPASED11	U-235/U-236	0.0601 J	0.0033	0.009	0.151
EPASED11	U-238	1.19	0.007	0.061	1.8
EPASED12	Ac-227	0.377 J	0.16	0.018	0.217
EPASED12	Ac-228	1.26 J	0.11	0.048	2.4
EPASED12	Am-241	0.0041 U	0.011	0.0033	0.0454
EPASED12	Bi-212	0.939 J	0.13	0.071	2.15
EPASED12	Bi-214	1.03	0.03	0.038	1.59
EPASED12	Cd-113m	8 U	42	13	3030
EPASED12	Cm-243/Cm-244	0.0064 J	0.0097	0.0033	0.0443
EPASED12	Cm-245/Cm-246	0.0021 U	0.0028	0.0015	0.0401
EPASED12	Cm-247/Cm-248	0 U	0.0074	0.0015	0.0306
EPASED12	Co-60	-0.0001 U	0.019	0.0057	0.028
EPASED12	Cs-134	0.0184 U	0.056	0.0067	0.0864
EPASED12	Cs-137	0.0684 J	0.015	0.0079	0.207
EPASED12	Eu-152	-0.011 U	0.043	0.013	0.0566
EPASED12	Eu-154	-0.048 U	0.13	0.039	0.15
EPASED12	Eu-155	0.099 J	0.033	0.014	0.231
EPASED12	H-3	0.08 J	0.06	0.02	11.9
EPASED12	Ho-166m	0.0071 U	0.029	0.006	0.0432
EPASED12	K-40	22.4 J	0.16	0.68	32.4
EPASED12	Na-22	0.0027 U	0.027	0.0081	0.037
EPASED12	Nb-94	0.0063 U	0.016	0.0049	0.0214
EPASED12	Np-236	-0.0087 U	0.033	0.0099	0.047
EPASED12	Np-239	-0.006 U	0.098	0.029	0.139
EPASED12	Pa-231	0.003 U	0.58	0.17	0.936
EPASED12	Pb-212	1.51	0.025	0.062	2.69
EPASED12	Pb-214	1.17 J	0.032	0.041	1.7
EPASED12	Pu-236	0 U	0.0013	0.00054	7.79
EPASED12	Pu-238	0.004 J	0.0036	0.0016	0.0415
EPASED12	Pu-239/Pu-240	0.002 J	0.0046	0.0014	0.0404
EPASED12	Pu-242	0 J	0	0	0.0404
EPASED12	Pu-244	0 U	0.0013	0.00055	0.0313
EPASED12	Sb-125	0.129 J	0.045	0.011	0.354
EPASED12	Sn-126	0.00003 U	0.016	0.0048	0.0237
EPASED12	Sr-90	0.01 U	0.081	0.024	0.485
EPASED12	Tc-99	0.076 J	0.087	0.027	1.63

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED12	Te-125m	0.0298 J	0.01	0.0025	0.0838
EPASED12	Th-228	1.22	0.012	0.063	3.98
EPASED12	Th-229	0.0024 J	0.0055	0.0018	0.145
EPASED12	Th-230	1.16	0.003	0.06	2.2
EPASED12	Th-232	1.33	0.012	0.068	3.1
EPASED12	Th-234	2.41 R	0.17	0.12	3.19
EPASED12	Tl-208	0.46	0.018	0.018	0.937
EPASED12	Tm-171	-3 UL	5.9	1.8	72.4
EPASED12	U-233/U-234	1.74	0.013	0.086	2.02
EPASED12	U-235/U-236	0.09	0.004	0.012	0.151
EPASED12	U-238	1.74	0.003	0.086	1.8
EPASED13	Ac-227	0.106 J	0.15	0.047	0.217
EPASED13	Ac-228	1.76 J	0.12	0.061	2.4
EPASED13	Am-241	0 U	0.012	0.0027	0.0454
EPASED13	Bi-212	1.32	0.18	0.11	2.15
EPASED13	Bi-214	1.41	0.036	0.05	1.59
EPASED13	Cd-113m	18 U	57	17	3030
EPASED13	Cm-243/Cm-244	-0.0074 U	0.021	0.005	0.0443
EPASED13	Cm-245/Cm-246	0.0022 U	0.003	0.0016	0.0401
EPASED13	Cm-247/Cm-248	0.0011 U	0.0079	0.0019	0.0306
EPASED13	Co-60	0.003 U	0.028	0.0031	0.028
EPASED13	Cs-134	0.0129 J	0.014	0.0058	0.0864
EPASED13	Cs-137	0.156	0.021	0.013	0.207
EPASED13	Eu-152	-0.000023 U	0.054	0.000032	0.0566
EPASED13	Eu-154	-0.064 U	0.15	0.047	0.15
EPASED13	Eu-155	0.115 J	0.047	0.02	0.231
EPASED13	H-3	0.079 J	0.062	0.02	11.9
EPASED13	Ho-166m	0.0074 U	0.032	0.0076	0.0432
EPASED13	K-40	21.1 J	0.21	0.66	32.4
EPASED13	Na-22	-0.011 U	0.033	0.01	0.037
EPASED13	Nb-94	0.0094 U	0.021	0.0064	0.0214
EPASED13	Np-236	-0.006 U	0.044	0.013	0.047
EPASED13	Np-239	0.002 U	0.13	0.038	0.139
EPASED13	Pa-231	0.12 U	0.87	0.11	0.936
EPASED13	Pb-212	2.11	0.037	0.086	2.69
EPASED13	Pb-214	1.63 J	0.038	0.054	1.7
EPASED13	Pu-236	0.001 U	0.0085	0.0024	7.79
EPASED13	Pu-238	0.0036 J	0.0056	0.002	0.0415

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED13	Pu-239/Pu-240	0.0036 J	0.0016	0.0015	0.0404
EPASED13	Pu-244	0.0006 U	0.0016	0.0006	0.0313
EPASED13	Sb-125	0.209	0.05	0.018	0.354
EPASED13	Sn-126	0.0002 U	0.025	0.0073	0.0237
EPASED13	Sr-90	0.106 J	0.06	0.021	0.485
EPASED13	Te-125m	0.0482 J	0.011	0.0041	0.0838
EPASED13	Th-228	1.79	0.009	0.089	3.98
EPASED13	Th-229	0.0037 J	0.0099	0.003	0.145
EPASED13	Th-230	1.37	0.012	0.071	2.2
EPASED13	Th-232	1.62	0.009	0.082	3.1
EPASED13	Th-234	3.45	0.22	0.16	3.19
EPASED13	Tl-208	0.648	0.024	0.025	0.937
EPASED13	Tm-171	-7.1 UL	7.2	2.2	72.4
EPASED13	U-233/U-234	2.47	0.003	0.12	2.02
EPASED13	U-235/U-236	0.114	0.004	0.013	0.151
EPASED13	U-238	2.3	0.01	0.11	1.8
EPASED14	Ac-227	0.018 U	0.16	0.061	0.217
EPASED14	Ac-228	1.26 J	0.089	0.044	2.4
EPASED14	Am-241	0.0052 J	0.0055	0.0023	0.0454
EPASED14	Bi-212	0.98 J	0.12	0.057	2.15
EPASED14	Bi-214	0.991	0.031	0.037	1.59
EPASED14	Cd-113m	-13 U	45	14	3030
EPASED14	Cm-243/Cm-244	-0.0037 U	0.013	0.0033	0.0443
EPASED14	Cm-245/Cm-246	0 U	0.0066	0.0014	0.0401
EPASED14	Cm-247/Cm-248	0.0027 J	0.0024	0.0015	0.0306
EPASED14	Co-60	-0.0057 U	0.021	0.0062	0.028
EPASED14	Cs-134	0.014 U	0.055	0.0055	0.0864
EPASED14	Cs-137	0.107	0.015	0.0087	0.207
EPASED14	Eu-152	0.005 U	0.039	0.003	0.0566
EPASED14	Eu-154	-0.04 U	0.11	0.034	0.15
EPASED14	Eu-155	0.085 J	0.037	0.015	0.231
EPASED14	H-3	0.032 J	0.063	0.019	11.9
EPASED14	Ho-166m	0.0396 J	0.029	0.0058	0.0432
EPASED14	K-40	19.7 J	0.16	0.61	32.4
EPASED14	Na-22	0.0052 U	0.025	0.0074	0.037
EPASED14	Nb-94	0.0056 U	0.016	0.0034	0.0214
EPASED14	Np-236	-0.0001 U	0.035	0.01	0.047
EPASED14	Np-239	-0.0006 U	0.08	0.024	0.139

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED14	Pa-231	0.23 U	0.63	0.16	0.936
EPASED14	Pb-212	1.46	0.025	0.045	2.69
EPASED14	Pb-214	1.06 J	0.031	0.045	1.7
EPASED14	Pu-236	-0.00047 U	0.0044	0.00088	7.79
EPASED14	Pu-238	0.0038 J	0.0044	0.0017	0.0415
EPASED14	Pu-239/Pu-240	0.0024 J	0.0013	0.0011	0.0404
EPASED14	Pu-244	0 U	0.0013	0.00052	0.0313
EPASED14	Sb-125	0.102 J	0.047	0.0089	0.354
EPASED14	Sn-126	-0.0002 U	0.018	0.0053	0.0237
EPASED14	Sr-90	0.053 J	0.071	0.022	0.485
EPASED14	Tc-99	0.041 J	0.083	0.025	1.63
EPASED14	Te-125m	0.0234 J	0.011	0.0021	0.0838
EPASED14	Th-228	1.23	0.009	0.062	3.98
EPASED14	Th-229	0.0073 J	0.0059	0.0027	0.145
EPASED14	Th-230	0.958	0.007	0.051	2.2
EPASED14	Th-232	1.06	0.003	0.055	3.1
EPASED14	Th-234	2.17 R	0.19	0.11	3.19
EPASED14	Tl-208	0.481	0.02	0.019	0.937
EPASED14	Tm-171	-3.6 UL	6	1.8	72.4
EPASED14	U-233/U-234	1.59	0.004	0.081	2.02
EPASED14	U-235/U-236	0.081	0.012	0.012	0.151
EPASED14	U-238	1.53	0.004	0.078	1.8
EPASED15	Ac-227	0.044 U	0.16	0.049	0.217
EPASED15	Ac-228	1.14 J	0.097	0.042	2.4
EPASED15	Am-241	0.0008 U	0.0099	0.0026	0.0454
EPASED15	Bi-212	0.9 J	0.13	0.08	2.15
EPASED15	Bi-214	1.02	0.031	0.037	1.59
EPASED15	Cd-113m	-0.2 U	45	13	3030
EPASED15	Cm-243/Cm-244	-0.0041 U	0.011	0.0024	0.0443
EPASED15	Cm-245/Cm-246	0.0016 U	0.0022	0.0011	0.0401
EPASED15	Cm-247/Cm-248	0.00079 U	0.0021	0.00079	0.0306
EPASED15	Co-60	0.0002 U	0.022	0.0066	0.028
EPASED15	Cs-134	0.0187 U	0.054	0.0074	0.0864
EPASED15	Cs-137	0.0642 J	0.015	0.0077	0.207
EPASED15	Eu-152	-0.012 U	0.044	0.013	0.0566
EPASED15	Eu-154	-0.0009 U	0.11	0.0041	0.15
EPASED15	Eu-155	0.079 J	0.033	0.013	0.231
EPASED15	H-3	0.066 J	0.066	0.021	11.9

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED15	Ho-166m	0.0335 J	0.029	0.0061	0.0432
EPASED15	K-40	21.1 J	0.15	0.65	32.4
EPASED15	Na-22	0 U	0.026	0.0077	0.037
EPASED15	Nb-94	0.0087 J	0.016	0.0049	0.0214
EPASED15	Np-236	0.005 U	0.034	0.01	0.047
EPASED15	Np-239	-0.001 U	0.096	0.029	0.139
EPASED15	Pa-231	-0.09 U	0.67	0.2	0.936
EPASED15	Pb-212	1.3	0.027	0.054	2.69
EPASED15	Pb-214	1.12 J	0.03	0.038	1.7
EPASED15	Pu-236	-0.0011 U	0.0059	0.0012	7.79
EPASED15	Pu-238	0.0012 U	0.0044	0.0012	0.0415
EPASED15	Pu-239/Pu-240	0.0012 U	0.0016	0.00085	0.0404
EPASED15	Pu-244	0.0006 U	0.0016	0.0006	0.0313
EPASED15	Sb-125	0.109 J	0.043	0.01	0.354
EPASED15	Sn-126	0.0021 U	0.019	0.0056	0.0237
EPASED15	Sr-90	0.044 J	0.055	0.017	0.485
EPASED15	Te-125m	0.0251 J	0.01	0.0023	0.0838
EPASED15	Th-228	1.12	0.003	0.059	3.98
EPASED15	Th-229	0.0039 J	0.0021	0.0018	0.145
EPASED15	Th-230	1.01	0.011	0.055	2.2
EPASED15	Th-232	1.16	0.003	0.061	3.1
EPASED15	Th-234	1.64 R	0.16	0.092	3.19
EPASED15	Tl-208	0.426	0.017	0.017	0.937
EPASED15	Tm-171	-0.2 U	6.2	1.9	72.4
EPASED15	U-233/U-234	0.912	0.012	0.05	2.02
EPASED15	U-235/U-236	0.0463 J	0.0038	0.0083	0.151
EPASED15	U-238	0.98	0.008	0.053	1.8
EPASED16	Ac-227	0.354	0.16	0.017	0.217
EPASED16	Ac-228	1.25	0.092	0.048	2.4
EPASED16	Am-241	0 U	0.0061	0.0014	0.0454
EPASED16	Bi-212	1.06	0.15	0.091	2.15
EPASED16	Bi-214	0.96	0.031	0.036	1.59
EPASED16	Cd-113m	-9 U	49	15	3030
EPASED16	Cm-243/Cm-244	-0.00064 U	0.0047	0.00072	0.0443
EPASED16	Cm-245/Cm-246	0 U	0.0097	0.0024	0.0401
EPASED16	Cm-247/Cm-248	-0.00089 U	0.0065	0.00099	0.0306
EPASED16	Co-60	-0.0003 U	0.019	0.0057	0.028
EPASED16	Cs-134	0.0187 UJ	0.066	0.0096	0.0864

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED16	Cs-137	0.0384 J	0.016	0.0072	0.207
EPASED16	Eu-152	0.012 U	0.041	0.016	0.0566
EPASED16	Eu-154	-0.054 U	0.12	0.036	0.15
EPASED16	Eu-155	0.105 J	0.052	0.022	0.231
EPASED16	H-3	-0.008 U	0.073	0.021	11.9
EPASED16	Ho-166m	0.0064 U	0.03	0.0049	0.0432
EPASED16	K-40	21.6	0.14	0.66	32.4
EPASED16	Na-22	-0.0006 U	0.025	0.0074	0.037
EPASED16	Nb-94	0.0019 U	0.018	0.0024	0.0214
EPASED16	Ni-59	0 UL	0.014	0.0051	5.96
EPASED16	Ni-63	-0.09 U	0.41	0.12	4.92
EPASED16	Np-236	-0.015 U	0.044	0.013	0.047
EPASED16	Np-239	0.03 U	0.099	0.03	0.139
EPASED16	Pa-231	-0.04 U	0.69	0.21	0.936
EPASED16	Pb-212	1.27	0.037	0.042	2.69
EPASED16	Pb-214	1.02	0.034	0.045	1.7
EPASED16	Pu-236	0.024 J	0.0033	0.0035	7.79
EPASED16	Pu-238	0.0013 J	0.0012	0.00076	0.0415
EPASED16	Pu-239/Pu-240	0.0017 J	0.0032	0.0011	0.0404
EPASED16	Pu-244	0 U	0.0012	0.00048	0.0313
EPASED16	Sb-125	0.147	0.046	0.013	0.354
EPASED16	Sn-126	0.0022 U	0.02	0.0058	0.0237
EPASED16	Sr-90	0.024 U	0.053	0.016	0.485
EPASED16	Tc-99	-0.028 U	0.15	0.043	1.63
EPASED16	Te-125m	0.0339 J	0.011	0.0031	0.0838
EPASED16	Th-228	1.31	0.008	0.067	3.98
EPASED16	Th-229	0.0098 J	0.0033	0.0035	0.145
EPASED16	Th-230	1.06 J	0.01	0.056	2.2
EPASED16	Th-232	1.22 J	0.003	0.063	3.1
EPASED16	Th-234	1.43 R	0.25	0.091	3.19
EPASED16	Tl-208	0.455	0.017	0.018	0.937
EPASED16	Tm-171	5.7 J	7.8	2.9	72.4
EPASED16	U-233/U-234	0.79	0.005	0.041	2.02
EPASED16	U-235/U-236	0.0421 J	0.0025	0.0065	0.151
EPASED16	U-238	0.853 J	0.005	0.044	1.8
EPASED17	Ac-227	0.051 U	0.17	0.037	0.217
EPASED17	Ac-228	1.23 J	0.1	0.045	2.4
EPASED17	Am-241	0.0013 U	0.0062	0.0017	0.0454

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED17	Bi-212	1.01 J	0.15	0.091	2.15
EPASED17	Bi-214	0.963	0.034	0.037	1.59
EPASED17	Cd-113m	-8 U	49	15	3030
EPASED17	Cm-243/Cm-244	-0.0013 U	0.007	0.0014	0.0443
EPASED17	Cm-245/Cm-246	0.0023 J	0.0021	0.0013	0.0401
EPASED17	Cm-247/Cm-248	0.0015 U	0.0056	0.0016	0.0306
EPASED17	Co-60	0.00004 U	0.02	0.0059	0.028
EPASED17	Cs-134	0.0081 U	0.061	0.007	0.0864
EPASED17	Cs-137	0.208	0.02	0.013	0.207
EPASED17	Eu-152	0.0003 U	0.042	0.013	0.0566
EPASED17	Eu-154	-0.055 U	0.13	0.038	0.15
EPASED17	Eu-155	0.068 J	0.036	0.014	0.231
EPASED17	H-3	0.046 J	0.067	0.02	11.9
EPASED17	Ho-166m	0.0072 U	0.031	0.0067	0.0432
EPASED17	K-40	22.4 J	0.19	0.69	32.4
EPASED17	Na-22	-0.0009 U	0.025	0.0075	0.037
EPASED17	Nb-94	0.0042 U	0.018	0.0053	0.0214
EPASED17	Np-236	0.006 U	0.036	0.011	0.047
EPASED17	Np-239	-0.011 U	0.11	0.032	0.139
EPASED17	Pa-231	0.23 U	0.68	0.21	0.936
EPASED17	Pb-212	1.45	0.034	0.061	2.69
EPASED17	Pb-214	1.08 J	0.032	0.037	1.7
EPASED17	Pu-236	0.0005 U	0.0097	0.0028	7.79
EPASED17	Pu-238	0.0046 J	0.0048	0.0019	0.0415
EPASED17	Pu-239/Pu-240	0.0302 J	0.0014	0.0041	0.0404
EPASED17	Pu-244	0.00051 U	0.0014	0.00051	0.0313
EPASED17	Sb-125	0.106 J	0.049	0.011	0.354
EPASED17	Sn-126	0.0029 U	0.019	0.0058	0.0237
EPASED17	Sr-90	0.005 U	0.056	0.016	0.485
EPASED17	Te-125m	0.0245 J	0.011	0.0026	0.0838
EPASED17	Th-228	1.11	0.012	0.056	3.98
EPASED17	Th-229	0.0074 J	0.0019	0.0023	0.145
EPASED17	Th-230	0.796	0.002	0.043	2.2
EPASED17	Th-232	1.1	0.002	0.056	3.1
EPASED17	Th-234	0.35 J R	0.19	0.061	3.19
EPASED17	Tl-208	0.457	0.021	0.019	0.937
EPASED17	Tm-171	-2.8 U	6.2	1.9	72.4
EPASED17	U-233/U-234	0.837	0.001	0.041	2.02

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED17	U-235/U-236	0.0366 J	0.005	0.0053	0.151
EPASED17	U-238	0.813	0.001	0.04	1.8
EPASED18	Ac-227	0.05 U	0.14	0.016	0.217
EPASED18	Ac-228	1.31	0.071	0.043	2.4
EPASED18	Am-241	0.0042 J	0.0065	0.0023	0.0454
EPASED18	Bi-212	1.06	0.12	0.077	2.15
EPASED18	Bi-214	0.968	0.025	0.034	1.59
EPASED18	Cd-113m	-7 U	39	12	3030
EPASED18	Cm-243/Cm-244	0.00069 U	0.0019	0.00069	0.0443
EPASED18	Cm-245/Cm-246	0.0128 J	0.0099	0.0042	0.0401
EPASED18	Cm-247/Cm-248	0 U	0.0066	0.0013	0.0306
EPASED18	Co-60	-0.0002 U	0.016	0.0046	0.028
EPASED18	Cs-134	0.0157 UJ	0.043	0.0048	0.0864
EPASED18	Cs-137	0.0572 J	0.012	0.0056	0.207
EPASED18	Eu-152	0.019 J	0.037	0.013	0.0566
EPASED18	Eu-154	-0.021 U	0.095	0.028	0.15
EPASED18	Eu-155	0.083 J	0.034	0.014	0.231
EPASED18	H-3	0.065 J	0.069	0.022	11.9
EPASED18	Ho-166m	0.0374 J	0.023	0.0049	0.0432
EPASED18	K-40	23.9	0.15	0.71	32.4
EPASED18	Na-22	-0.0001 U	0.022	0.0064	0.037
EPASED18	Nb-94	0.0079 J	0.014	0.0042	0.0214
EPASED18	Ni-59	0 UL	0.015	0.018	5.96
EPASED18	Ni-63	-0.08 U	0.47	0.14	4.92
EPASED18	Np-236	-0.0168 UL	0.031	0.0095	0.047
EPASED18	Np-239	-0.009 U	0.087	0.026	0.139
EPASED18	Pa-231	0.03 U	0.55	0.17	0.936
EPASED18	Pb-212	1.64	0.023	0.066	2.69
EPASED18	Pb-214	1.09	0.026	0.036	1.7
EPASED18	Pu-236	0.01 J	0.0041	0.0025	7.79
EPASED18	Pu-238	0.0014 U	0.0051	0.0014	0.0415
EPASED18	Pu-239/Pu-240	0.0041 J	0.0019	0.0017	0.0404
EPASED18	Pu-244	0.00069 U	0.0019	0.00069	0.0313
EPASED18	Sb-125	0.146	0.036	0.011	0.354
EPASED18	Sn-126	0.0003 U	0.014	0.0042	0.0237
EPASED18	Sr-90	0.044 J	0.054	0.017	0.485
EPASED18	Tc-99	0.09	0.19	0.056	1.63
EPASED18	Te-125m	0.0338 J	0.0084	0.0026	0.0838

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED18	Th-228	1.2	0.013	0.06	3.98
EPASED18	Th-229	0.005 J	0.0075	0.0027	0.145
EPASED18	Th-230	0.825 J	0.006	0.044	2.2
EPASED18	Th-232	1.2 J	0.002	0.06	3.1
EPASED18	Th-234	1.68 R	0.16	0.093	3.19
EPASED18	Tl-208	0.497	0.016	0.018	0.937
EPASED18	Tm-171	-0.02 U	6.2	1.9	72.4
EPASED18	U-233/U-234	0.833	0.005	0.042	2.02
EPASED18	U-235/U-236	0.032 J	0.0021	0.0052	0.151
EPASED18	U-238	0.914 J	0.002	0.045	1.8
EPASED19	Ac-227	0.029 U	0.088	0.028	0.217
EPASED19	Ac-228	1.23 J	0.073	0.043	2.4
EPASED19	Am-241	0 U	0.0081	0.0016	0.0454
EPASED19	Bi-212	1.01 J	0.13	0.077	2.15
EPASED19	Bi-214	0.966	0.027	0.034	1.59
EPASED19	Cd-113m	-14 U	42	13	3030
EPASED19	Cm-243/Cm-244	-0.0011 U	0.014	0.0034	0.0443
EPASED19	Cm-245/Cm-246	0.001 U	0.012	0.003	0.0401
EPASED19	Cm-247/Cm-248	0.0019 U	0.0025	0.0013	0.0306
EPASED19	Co-60	0 U	0.019	0.0035	0.028
EPASED19	Cs-134	0.0025 U	0.048	0.0022	0.0864
EPASED19	Cs-137	0.188	0.014	0.0095	0.207
EPASED19	Eu-152	-0.019 U	0.039	0.012	0.0566
EPASED19	Eu-154	0.012 U	0.088	0.018	0.15
EPASED19	Eu-155	0.078 J	0.036	0.015	0.231
EPASED19	H-3	0.038 J	0.066	0.02	11.9
EPASED19	Ho-166m	0.0309 J	0.025	0.0046	0.0432
EPASED19	K-40	18.9 J	0.16	0.58	32.4
EPASED19	Na-22	-0.002 U	0.022	0.0064	0.037
EPASED19	Nb-94	0.0002 U	0.014	0.0042	0.0214
EPASED19	Np-236	-0.0033 U	0.027	0.008	0.047
EPASED19	Np-239	-0.0005 U	0.086	0.026	0.139
EPASED19	Pa-231	-0.13 U	0.59	0.18	0.936
EPASED19	Pb-212	1.43	0.022	0.043	2.69
EPASED19	Pb-214	0.987 J	0.027	0.042	1.7
EPASED19	Pu-236	0.001 U	0.0039	0.0011	7.79
EPASED19	Pu-238	0.0029 U	0.01	0.003	0.0415
EPASED19	Pu-239/Pu-240	0.0058 J	0.0071	0.0028	0.0404

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED19	Pu-244	0 U	0.0026	0.0011	0.0313
EPASED19	Sb-125	0.127 J	0.04	0.0096	0.354
EPASED19	Sn-126	0.0015 U	0.015	0.0046	0.0237
EPASED19	Sr-90	0.185 J	0.06	0.024	0.485
EPASED19	Te-125m	0.0294 J	0.0093	0.0022	0.0838
EPASED19	Th-228	1.3	0.011	0.065	3.98
EPASED19	Th-229	0.005 J	0.0027	0.0023	0.145
EPASED19	Th-230	0.98	0.01	0.051	2.2
EPASED19	Th-232	1.15	0.007	0.058	3.1
EPASED19	Th-234	1.76 R	0.16	0.09	3.19
EPASED19	Tl-208	0.483	0.015	0.018	0.937
EPASED19	Tm-171	-3.3 UL	5.4	1.7	72.4
EPASED19	U-233/U-234	1.23	0.009	0.063	2.02
EPASED19	U-235/U-236	0.0649 J	0.0034	0.0095	0.151
EPASED19	U-238	1.2	0.008	0.062	1.8
EPASED20	Ac-227	-0.04 U	0.18	0.054	0.217
EPASED20	Ac-228	1.05 J	0.096	0.043	2.4
EPASED20	Am-241	0.0009 U	0.0087	0.0022	0.0454
EPASED20	Bi-212	0.902 J	0.14	0.08	2.15
EPASED20	Bi-214	0.813	0.028	0.031	1.59
EPASED20	Cd-113m	0.9 U	47	14	3030
EPASED20	Cm-243/Cm-244	0 U	0.0025	0.001	0.0443
EPASED20	Cm-245/Cm-246	0.0018 U	0.0068	0.0019	0.0401
EPASED20	Cm-247/Cm-248	0.0018 U	0.0024	0.0013	0.0306
EPASED20	Co-60	-0.0014 U	0.018	0.0052	0.028
EPASED20	Cs-134	0.012 U	0.068	0.0087	0.0864
EPASED20	Cs-137	0.0606 J	0.016	0.0077	0.207
EPASED20	Eu-152	0.008 U	0.049	0.0055	0.0566
EPASED20	Eu-154	0.032 J	0.063	0.019	0.15
EPASED20	Eu-155	0.099 J	0.047	0.019	0.231
EPASED20	H-3	-0.007 K	0.076	0.02	11.9
EPASED20	Ho-166m	-0.0025 U	0.031	0.0038	0.0432
EPASED20	K-40	22.8 J	0.14	0.7	32.4
EPASED20	Na-22	0 U	0.027	0.008	0.037
EPASED20	Nb-94	0.0036 U	0.016	0.0049	0.0214
EPASED20	Np-236	-0.01 U	0.041	0.012	0.047
EPASED20	Np-239	0.022 U	0.11	0.032	0.139
EPASED20	Pa-231	0.12 U	0.59	0.14	0.936

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED20	Pb-212	1.15	0.038	0.039	2.69
EPASED20	Pb-214	0.911 J	0.032	0.041	1.7
EPASED20	Pu-236	-0.0027 U	0.0067	0.0014	7.79
EPASED20	Pu-238	0.0006 U	0.0052	0.0013	0.0415
EPASED20	Pu-239/Pu-240	0.0034 J	0.0042	0.0016	0.0404
EPASED20	Pu-244	0.00112 U	0.0015	0.0008	0.0313
EPASED20	Sb-125	0.108 J	0.052	0.013	0.354
EPASED20	Sn-126	0.0055 U	0.019	0.0057	0.0237
EPASED20	Sr-90	0.075 J	0.068	0.022	0.485
EPASED20	Te-125m	0.0249 J	0.012	0.0031	0.0838
EPASED20	Th-228	0.966	0.012	0.052	3.98
EPASED20	Th-229	0.005 J	0.0052	0.0022	0.145
EPASED20	Th-230	0.74	0.003	0.042	2.2
EPASED20	Th-232	0.912	0.008	0.05	3.1
EPASED20	Th-234	1.12 R	0.25	0.085	3.19
EPASED20	Tl-208	0.416	0.019	0.018	0.937
EPASED20	Tm-171	-8.5 UL	11	3.2	72.4
EPASED20	U-233/U-234	0.688	0.012	0.04	2.02
EPASED20	U-235/U-236	0.0349 J	0.01	0.0074	0.151
EPASED20	U-238	0.698	0.003	0.04	1.8
EPASED21	Ac-227	0.006 U	0.16	0.054	0.217
EPASED21	Ac-228	1.09	0.11	0.043	2.4
EPASED21	Am-241	0.00133 U	0.0018	0.00094	0.0454
EPASED21	Bi-212	0.934	0.15	0.085	2.15
EPASED21	Bi-214	0.956	0.034	0.037	1.59
EPASED21	Cd-113m	8 U	46	14	3030
EPASED21	Cm-243/Cm-244	0 U	0.0048	0.00098	0.0443
EPASED21	Cm-245/Cm-246	0.0107 J	0.0029	0.0034	0.0401
EPASED21	Cm-247/Cm-248	-0.0011 U	0.0077	0.0012	0.0306
EPASED21	Co-60	0.0014 U	0.022	0.0064	0.028
EPASED21	Cs-134	0.008 UJ	0.057	0.0047	0.0864
EPASED21	Cs-137	0.0412 J	0.013	0.006	0.207
EPASED21	Eu-152	0.026 J	0.043	0.014	0.0566
EPASED21	Eu-154	0.028 U	0.12	0.036	0.15
EPASED21	Eu-155	0.022 J	0.039	0.012	0.231
EPASED21	H-3	0.004 U	0.071	0.021	11.9
EPASED21	Ho-166m	0.0146 J	0.027	0.0058	0.0432
EPASED21	K-40	25.2	0.19	0.77	32.4

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED21	Na-22	-0.0111 U	0.03	0.0091	0.037
EPASED21	Nb-94	0.0093 J	0.016	0.005	0.0214
EPASED21	Ni-59	0 UL	0.015	0.013	5.96
EPASED21	Ni-63	-0.12 U	0.47	0.14	4.92
EPASED21	Np-236	0.0008 U	0.036	0.011	0.047
EPASED21	Np-239	-0.008 U	0.096	0.029	0.139
EPASED21	Pa-231	-0.02 U	0.6	0.18	0.936
EPASED21	Pb-212	1.17	0.031	0.038	2.69
EPASED21	Pb-214	1.03	0.032	0.045	1.7
EPASED21	Pu-236	0.0118 J	0.0044	0.0026	7.79
EPASED21	Pu-238	0.0028 J	0.0025	0.0016	0.0415
EPASED21	Pu-239/Pu-240	0.00092 U	0.0025	0.00092	0.0404
EPASED21	Pu-244	-0.0009 U	0.0068	0.001	0.0313
EPASED21	Sb-125	0.0938	0.048	0.0099	0.354
EPASED21	Sn-126	0 U	0.02	0.0048	0.0237
EPASED21	Sr-90	-0.009 U	0.053	0.015	0.485
EPASED21	Tc-99	0.138	0.19	0.058	1.63
EPASED21	Te-125m	0.0217 J	0.011	0.0023	0.0838
EPASED21	Th-228	0.958 J	0.01	0.05	3.98
EPASED21	Th-229	0.0054 J	0.003	0.0024	0.145
EPASED21	Th-230	0.833 J	0.01	0.044	2.2
EPASED21	Th-232	0.936 J	0.006	0.049	3.1
EPASED21	Th-234	0.234 J R	0.26	0.034	3.19
EPASED21	Tl-208	0.392	0.018	0.016	0.937
EPASED21	Tm-171	-4 UL	6.8	2.1	72.4
EPASED21	U-233/U-234	0.709	0.008	0.039	2.02
EPASED21	U-235/U-236	0.0357 J	0.0077	0.0065	0.151
EPASED21	U-238	0.81 J	0.002	0.043	1.8
EPASED22	Ac-227	0.06 U	0.17	0.052	0.217
EPASED22	Ac-228	1.21	0.1	0.048	2.4
EPASED22	Am-241	0 U	0.0051	0.0012	0.0454
EPASED22	Bi-212	0.889	0.14	0.079	2.15
EPASED22	Bi-214	0.984	0.035	0.038	1.59
EPASED22	Cd-113m	-0.4 U	43	13	3030
EPASED22	Cm-243/Cm-244	0.0018 J	0.0034	0.0012	0.0443
EPASED22	Cm-245/Cm-246	0.007 J	0.0057	0.0026	0.0401
EPASED22	Cm-247/Cm-248	0.0023 J	0.0021	0.0013	0.0306
EPASED22	Co-60	0.0065 U	0.023	0.0055	0.028

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED22	Cs-134	-0.002 UJ	0.061	0.018	0.0864
EPASED22	Cs-137	0.107	0.015	0.0085	0.207
EPASED22	Eu-152	-0.012 U	0.048	0.014	0.0566
EPASED22	Eu-154	-0.032 U	0.12	0.037	0.15
EPASED22	Eu-155	0.105 J	0.038	0.016	0.231
EPASED22	H-3	0.007 U	0.072	0.021	11.9
EPASED22	Ho-166m	0.008 U	0.03	0.011	0.0432
EPASED22	K-40	22.4	0.15	0.69	32.4
EPASED22	Na-22	0.0019 U	0.026	0.0078	0.037
EPASED22	Nb-94	0.0026 U	0.017	0.0034	0.0214
EPASED22	Ni-59	0 UL	0.014	0.0052	5.96
EPASED22	Ni-63	0.003 U	0.4	0.12	4.92
EPASED22	Np-236	-0.007 U	0.032	0.0095	0.047
EPASED22	Np-239	0.002 U	0.1	0.031	0.139
EPASED22	Pa-231	-0.13 U	0.72	0.22	0.936
EPASED22	Pb-212	1.49	0.026	0.061	2.69
EPASED22	Pb-214	1.1	0.033	0.038	1.7
EPASED22	Pu-236	0.00157 J	0.0014	0.00091	7.79
EPASED22	Pu-238	0.00137 U	0.0019	0.00097	0.0415
EPASED22	Pu-239/Pu-240	0.0041 J	0.0019	0.0017	0.0404
EPASED22	Pu-244	0 U	0.0018	0.00076	0.0313
EPASED22	Sb-125	0.148	0.049	0.014	0.354
EPASED22	Sn-126	-0.0003 U	0.021	0.0062	0.0237
EPASED22	Sr-90	0.051 J	0.059	0.019	0.485
EPASED22	Tc-99	0.035 U	0.2	0.06	1.63
EPASED22	Te-125m	0.0343 J	0.011	0.0033	0.0838
EPASED22	Th-228	1.05	0.008	0.056	3.98
EPASED22	Th-229	0.0072 J	0.0075	0.0031	0.145
EPASED22	Th-230	0.843 J	0.003	0.047	2.2
EPASED22	Th-232	1.07 J	0.008	0.057	3.1
EPASED22	Th-234	1.65 R	0.18	0.099	3.19
EPASED22	Tl-208	0.454	0.019	0.018	0.937
EPASED22	Tm-171	-2.5 U	6.1	1.9	72.4
EPASED22	U-233/U-234	0.794	0.004	0.04	2.02
EPASED22	U-235/U-236	0.0454 J	0.0053	0.0061	0.151
EPASED22	U-238	0.801 J	0.002	0.04	1.8
EPASED23	Ac-227	0.08 J	0.14	0.043	0.217
EPASED23	Ac-228	1.21	0.089	0.044	2.4

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED23	Am-241	0.0044 J	0.0051	0.002	0.0454
EPASED23	Bi-212	1.01	0.16	0.091	2.15
EPASED23	Bi-214	1.1	0.031	0.04	1.59
EPASED23	Cd-113m	-14 U	46	14	3030
EPASED23	Cm-243/Cm-244	0.0005 U	0.0051	0.0013	0.0443
EPASED23	Cm-245/Cm-246	0.0029 J	0.0071	0.0022	0.0401
EPASED23	Cm-247/Cm-248	0 U	0.0026	0.0011	0.0306
EPASED23	Co-60	-0.0073 U	0.023	0.0069	0.028
EPASED23	Cs-134	0.001 UJ	0.038	0.011	0.0864
EPASED23	Cs-137	0.0809	0.016	0.0078	0.207
EPASED23	Eu-152	-0.00077 U	0.045	0.0009	0.0566
EPASED23	Eu-154	0.0007 U	0.11	0.0026	0.15
EPASED23	Eu-155	0.079 J	0.038	0.015	0.231
EPASED23	H-3	0.011 U	0.076	0.022	11.9
EPASED23	Ho-166m	0.0402 J	0.027	0.0056	0.0432
EPASED23	K-40	22.1	0.18	0.68	32.4
EPASED23	Na-22	0.0012 U	0.022	0.0063	0.037
EPASED23	Nb-94	0.0007 U	0.019	0.0039	0.0214
EPASED23	Ni-59	0 UL	0.018	0.0065	5.96
EPASED23	Ni-63	0.07 U	0.52	0.15	4.92
EPASED23	Np-236	0.001 U	0.035	0.011	0.047
EPASED23	Np-239	0.009 U	0.1	0.031	0.139
EPASED23	Pa-231	0.25	0.45	0.15	0.936
EPASED23	Pb-212	1.48	0.029	0.061	2.69
EPASED23	Pb-214	1.17	0.032	0.04	1.7
EPASED23	Pu-236	-0.00089 U	0.0041	0.0007	7.79
EPASED23	Pu-238	0.0036 J	0.0068	0.0022	0.0415
EPASED23	Pu-239/Pu-240	0.0022 J	0.0054	0.0017	0.0404
EPASED23	Pu-244	0 U	0.002	0.00081	0.0313
EPASED23	Sb-125	0.123	0.05	0.011	0.354
EPASED23	Sn-126	-0.009 U	0.021	0.0063	0.0237
EPASED23	Sr-90	0.023 U	0.062	0.019	0.485
EPASED23	Tc-99	-0.069 U	0.17	0.049	1.63
EPASED23	Te-125m	0.0284 J	0.012	0.0026	0.0838
EPASED23	Th-228	1.06	0.005	0.058	3.98
EPASED23	Th-229	0.0071 J	0.0074	0.0031	0.145
EPASED23	Th-230	0.903 J	0.004	0.051	2.2
EPASED23	Th-232	1.06 J	0.004	0.058	3.1

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED23	Th-234	0.501 J R	0.18	0.059	3.19
EPASED23	Tl-208	0.495	0.018	0.019	0.937
EPASED23	Tm-171	-2.6 U	6.7	2	72.4
EPASED23	U-233/U-234	0.772	0.001	0.037	2.02
EPASED23	U-235/U-236	0.0375 J	0.0015	0.0049	0.151
EPASED23	U-238	0.812 J	0.001	0.039	1.8
EPASED24	Ac-227	0.064 U	0.17	0.078	0.217
EPASED24	Ac-228	1.37	0.11	0.051	2.4
EPASED24	Am-241	0.0059 J	0.004	0.002	0.0454
EPASED24	Bi-212	1.12	0.15	0.092	2.15
EPASED24	Bi-214	1.1	0.034	0.04	1.59
EPASED24	Cd-113m	5 U	47	14	3030
EPASED24	Cm-243/Cm-244	-0.0021 U	0.01	0.0027	0.0443
EPASED24	Cm-245/Cm-246	0.01 J	0.003	0.0034	0.0401
EPASED24	Cm-247/Cm-248	0.0033 J	0.003	0.0019	0.0306
EPASED24	Co-60	0.00058 U	0.023	0.00052	0.028
EPASED24	Cs-134	0.0187 J	0.015	0.0067	0.0864
EPASED24	Cs-137	0.0963	0.015	0.0083	0.207
EPASED24	Eu-152	-0.007 U	0.046	0.014	0.0566
EPASED24	Eu-154	0.013 U	0.091	0.015	0.15
EPASED24	Eu-155	0.074 J	0.038	0.015	0.231
EPASED24	H-3	0.054 J	0.059	0.019	11.9
EPASED24	Ho-166m	0.0078 U	0.03	0.0091	0.0432
EPASED24	K-40	20.9	0.16	0.65	32.4
EPASED24	Na-22	-0.0032 U	0.028	0.0082	0.037
EPASED24	Nb-94	0.0067 U	0.017	0.0052	0.0214
EPASED24	Ni-59	0 UL	0.013	0.0049	5.96
EPASED24	Ni-63	-0.07 U	0.4	0.12	4.92
EPASED24	Np-236	-0.01 U	0.037	0.011	0.047
EPASED24	Np-239	-0.006 U	0.077	0.023	0.139
EPASED24	Pa-231	-0.05 U	0.7	0.21	0.936
EPASED24	Pb-212	1.65	0.026	0.067	2.69
EPASED24	Pb-214	1.17	0.033	0.041	1.7
EPASED24	Pu-236	-0.00135 U	0.0048	0.00087	7.79
EPASED24	Pu-238	0.0032 J	0.006	0.002	0.0415
EPASED24	Pu-239/Pu-240	0.0016 U	0.0022	0.0012	0.0404
EPASED24	Pu-244	0 U	0.006	0.0012	0.0313
EPASED24	Sb-125	0.137	0.049	0.011	0.354

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED24	Sn-126	-0.0012 U	0.021	0.0061	0.0237
EPASED24	Sr-90	0.006 U	0.06	0.018	0.485
EPASED24	Tc-99	0.035 U	0.2	0.058	1.63
EPASED24	Te-125m	0.0317 J	0.011	0.0026	0.0838
EPASED24	Th-228	1.22	0.009	0.064	3.98
EPASED24	Th-229	0.00007 U	0.012	0.0029	0.145
EPASED24	Th-230	0.888 J	0.009	0.049	2.2
EPASED24	Th-232	1.16 J	0.009	0.061	3.1
EPASED24	Th-234	0.765 J R	0.17	0.062	3.19
EPASED24	Tl-208	0.482	0.021	0.02	0.937
EPASED24	Tm-171	-1.9 U	5.9	1.8	72.4
EPASED24	U-233/U-234	0.867	0.003	0.041	2.02
EPASED24	U-235/U-236	0.0466 J	0.0038	0.0053	0.151
EPASED24	U-238	0.855 J	0.001	0.04	1.8
EPASED25	Ac-227	0.04 U	0.16	0.049	0.217
EPASED25	Ac-228	1.26 J	0.12	0.05	2.4
EPASED25	Am-241	-0.0035 U	0.016	0.004	0.0454
EPASED25	Bi-212	1 J	0.14	0.083	2.15
EPASED25	Bi-214	1.03	0.029	0.037	1.59
EPASED25	Cd-113m	-4 U	47	14	3030
EPASED25	Cm-243/Cm-244	-0.0086 U	0.02	0.0049	0.0443
EPASED25	Cm-245/Cm-246	0.0023 U	0.011	0.0029	0.0401
EPASED25	Cm-247/Cm-248	0 U	0.003	0.0013	0.0306
EPASED25	Co-60	0.0023 U	0.025	0.0034	0.028
EPASED25	Cs-134	0.0282 J	0.01	0.0037	0.0864
EPASED25	Cs-137	0.106	0.017	0.0094	0.207
EPASED25	Eu-152	-0.004 U	0.047	0.014	0.0566
EPASED25	Eu-154	0.0062 U	0.14	0.0083	0.15
EPASED25	Eu-155	0.067 J	0.036	0.014	0.231
EPASED25	H-3	0.013 K	0.062	0.018	11.9
EPASED25	Ho-166m	0.012 U	0.031	0.012	0.0432
EPASED25	K-40	22 J	0.17	0.68	32.4
EPASED25	Na-22	-0.0052 U	0.028	0.0085	0.037
EPASED25	Nb-94	0.0068 U	0.018	0.0037	0.0214
EPASED25	Np-236	-0.011 U	0.036	0.011	0.047
EPASED25	Np-239	-0.022 U	0.1	0.032	0.139
EPASED25	Pa-231	-0.06 U	0.74	0.22	0.936
EPASED25	Pb-212	1.44	0.029	0.06	2.69

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED25	Pb-214	1.14 J	0.034	0.039	1.7
EPASED25	Pu-236	-0.00055 U	0.004	0.00061	7.79
EPASED25	Pu-238	0.0006 U	0.0067	0.0018	0.0415
EPASED25	Pu-239/Pu-240	0.0061 J	0.0015	0.0019	0.0404
EPASED25	Pu-244	0.00111 U	0.0015	0.00079	0.0313
EPASED25	Sb-125	0.107 J	0.049	0.01	0.354
EPASED25	Sn-126	0.0017 U	0.018	0.0054	0.0237
EPASED25	Sr-90	0.022 U	0.056	0.017	0.485
EPASED25	Te-125m	0.0247 J	0.011	0.0024	0.0838
EPASED25	Th-228	1.18	0.009	0.06	3.98
EPASED25	Th-229	0.0018 U	0.0068	0.0019	0.145
EPASED25	Th-230	0.987	0.012	0.052	2.2
EPASED25	Th-232	1.18	0.003	0.06	3.1
EPASED25	Th-234	0.426 J R	0.19	0.06	3.19
EPASED25	Tl-208	0.466	0.02	0.019	0.937
EPASED25	Tm-171	-0.2 U	6.8	2.1	72.4
EPASED25	U-233/U-234	0.819	0.011	0.045	2.02
EPASED25	U-235/U-236	0.037 J	0.0033	0.0069	0.151
EPASED25	U-238	0.873	0.003	0.047	1.8
EPASED26	Ac-227	0.05 U	0.15	0.06	0.217
EPASED26	Ac-228	1.52 J	0.076	0.056	2.4
EPASED26	Am-241	0.0018 U	0.0099	0.0027	0.0454
EPASED26	Bi-212	1.14	0.14	0.089	2.15
EPASED26	Bi-214	1.14	0.028	0.039	1.59
EPASED26	Cd-113m	-0.7 U	35	11	3030
EPASED26	Cm-243/Cm-244	0.0036 J	0.0084	0.0026	0.0443
EPASED26	Cm-245/Cm-246	-0.0018 U	0.0083	0.0014	0.0401
EPASED26	Cm-247/Cm-248	0.0026 J	0.0024	0.0015	0.0306
EPASED26	Co-60	-0.0017 U	0.018	0.0053	0.028
EPASED26	Cs-134	0.0096 U	0.05	0.0033	0.0864
EPASED26	Cs-137	0.0827	0.014	0.0078	0.207
EPASED26	Eu-152	0.015 U	0.041	0.013	0.0566
EPASED26	Eu-154	-0.0056 U	0.1	0.0045	0.15
EPASED26	Eu-155	0.093 J	0.037	0.015	0.231
EPASED26	H-3	0.041 J	0.063	0.019	11.9
EPASED26	Ho-166m	0.0127 J	0.025	0.0096	0.0432
EPASED26	K-40	24 J	0.17	0.72	32.4
EPASED26	Na-22	0 U	0.027	0.0067	0.037

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED26	Nb-94	0.0135 J	0.011	0.0048	0.0214
EPASED26	Np-236	-0.004 U	0.034	0.01	0.047
EPASED26	Np-239	-0.017 U	0.093	0.028	0.139
EPASED26	Pa-231	0.08 U	0.62	0.19	0.936
EPASED26	Pb-212	1.8	0.026	0.073	2.69
EPASED26	Pb-214	1.32 J	0.028	0.044	1.7
EPASED26	Pu-236	-0.0016 U	0.011	0.0031	7.79
EPASED26	Pu-238	0.0017 U	0.0053	0.0016	0.0415
EPASED26	Pu-239/Pu-240	0.004 J	0.0042	0.0017	0.0404
EPASED26	Pu-244	0.00057 U	0.0015	0.00057	0.0313
EPASED26	Sb-125	0.146 J	0.042	0.011	0.354
EPASED26	Sn-126	0.0079 J	0.012	0.0038	0.0237
EPASED26	Sr-90	0.006 U	0.054	0.016	0.485
EPASED26	Te-125m	0.0337 J	0.0096	0.0026	0.0838
EPASED26	Th-228	1.33	0.012	0.067	3.98
EPASED26	Th-229	0.0038 J	0.0071	0.0024	0.145
EPASED26	Th-230	0.969	0.011	0.052	2.2
EPASED26	Th-232	1.27	0.003	0.065	3.1
EPASED26	Th-234	1.91 R	0.17	0.1	3.19
EPASED26	Tl-208	0.547	0.017	0.02	0.937
EPASED26	Tm-171	1.4 U	4.6	1.4	72.4
EPASED26	U-233/U-234	0.905 K	0.002	0.047	2.02
EPASED26	U-235/U-236	0.0485 J	0.0029	0.0074	0.151
EPASED26	U-238	0.919 K	0.002	0.048	1.8
EPASED27	Ac-227	0.048 U	0.17	0.051	0.217
EPASED27	Ac-228	1.15 J	0.11	0.045	2.4
EPASED27	Am-241	0 U	0.01	0.0025	0.0454
EPASED27	Bi-212	1.02 J	0.16	0.1	2.15
EPASED27	Bi-214	0.997	0.028	0.036	1.59
EPASED27	Cd-113m	1 U	47	14	3030
EPASED27	Cm-243/Cm-244	0 U	0.0088	0.0021	0.0443
EPASED27	Cm-245/Cm-246	0.0025 J	0.0023	0.0015	0.0401
EPASED27	Cm-247/Cm-248	0 U	0.0061	0.0012	0.0306
EPASED27	Co-60	0.001 U	0.021	0.0052	0.028
EPASED27	Cs-134	0.01 U	0.057	0.017	0.0864
EPASED27	Cs-137	0.0611 J	0.014	0.0068	0.207
EPASED27	Eu-152	0.0078 U	0.042	0.0054	0.0566
EPASED27	Eu-154	-0.043 U	0.12	0.037	0.15

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED27	Eu-155	0.047 J	0.034	0.011	0.231
EPASED27	H-3	0.024 K	0.063	0.019	11.9
EPASED27	Ho-166m	-0.0007 U	0.03	0.0089	0.0432
EPASED27	K-40	21.8 J	0.18	0.67	32.4
EPASED27	Na-22	0.0038 U	0.027	0.0079	0.037
EPASED27	Nb-94	0.0034 U	0.017	0.0035	0.0214
EPASED27	Np-236	0.0006 U	0.036	0.011	0.047
EPASED27	Np-239	-0.009 U	0.097	0.029	0.139
EPASED27	Pa-231	0.01 U	0.68	0.2	0.936
EPASED27	Pb-212	1.44	0.025	0.059	2.69
EPASED27	Pb-214	1.11 J	0.033	0.039	1.7
EPASED27	Pu-236	-0.0025 U	0.011	0.0028	7.79
EPASED27	Pu-238	-0.0012 U	0.0062	0.0013	0.0415
EPASED27	Pu-239/Pu-240	0.0058 J	0.0016	0.0018	0.0404
EPASED27	Pu-244	0.00057 U	0.0016	0.00058	0.0313
EPASED27	Sb-125	0.11 J	0.046	0.011	0.354
EPASED27	Sn-126	0.0133 J	0.014	0.0062	0.0237
EPASED27	Sr-90	0.07 J	0.057	0.019	0.485
EPASED27	Te-125m	0.0254 J	0.011	0.0024	0.0838
EPASED27	Th-228	1.21	0.011	0.062	3.98
EPASED27	Th-229	0.0042 J	0.0019	0.0017	0.145
EPASED27	Th-230	0.969	0.008	0.052	2.2
EPASED27	Th-232	1.06	0.008	0.056	3.1
EPASED27	Th-234	1.6 R	0.16	0.092	3.19
EPASED27	Tl-208	0.444	0.018	0.018	0.937
EPASED27	Tm-171	-1.1 U	5.3	1.6	72.4
EPASED27	U-233/U-234	0.919	0.002	0.048	2.02
EPASED27	U-235/U-236	0.0451 J	0.0079	0.0074	0.151
EPASED27	U-238	0.964	0.006	0.05	1.8
EPASED28	Ac-227	0.052 U	0.15	0.048	0.217
EPASED28	Ac-228	1.39	0.072	0.047	2.4
EPASED28	Am-241	0.0023 J	0.0015	0.0011	0.0454
EPASED28	Bi-212	1.06	0.12	0.075	2.15
EPASED28	Bi-214	1.1	0.029	0.039	1.59
EPASED28	Cd-113m	-5 U	41	12	3030
EPASED28	Cm-243/Cm-244	0.0006 U	0.0041	0.001	0.0443
EPASED28	Cm-245/Cm-246	0.0065 J	0.0053	0.0024	0.0401
EPASED28	Cm-247/Cm-248	0.00071 U	0.0019	0.00071	0.0306

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED28	Co-60	-0.0062 U	0.017	0.0052	0.028
EPASED28	Cs-134	0.0102 UJ	0.045	0.0033	0.0864
EPASED28	Cs-137	0.0431 J	0.011	0.0052	0.207
EPASED28	Eu-152	0.0066 U	0.035	0.0043	0.0566
EPASED28	Eu-154	0.011 U	0.091	0.016	0.15
EPASED28	Eu-155	0.107 J	0.036	0.016	0.231
EPASED28	H-3	-0.012 U	0.075	0.022	11.9
EPASED28	Ho-166m	0.0021 U	0.021	0.0033	0.0432
EPASED28	K-40	23.5	0.15	0.7	32.4
EPASED28	Na-22	0.0005 U	0.021	0.0061	0.037
EPASED28	Nb-94	0.0065 U	0.014	0.0041	0.0214
EPASED28	Ni-59	0 UL	0.027	0.00997	5.96
EPASED28	Ni-63	0.83	0.7	0.22	4.92
EPASED28	Np-236	-0.0028 U	0.03	0.009	0.047
EPASED28	Np-239	0.008 U	0.088	0.026	0.139
EPASED28	Pa-231	0.1 U	0.58	0.18	0.936
EPASED28	Pb-212	1.53	0.031	0.063	2.69
EPASED28	Pb-214	1.24	0.028	0.04	1.7
EPASED28	Pu-236	-0.0005 U	0.0056	0.0012	7.79
EPASED28	Pu-238	0.0037 J	0.0034	0.0015	0.0415
EPASED28	Pu-239/Pu-240	0.0014 J	0.0013	0.00081	0.0404
EPASED28	Pu-244	0 U	0.0034	0.0007	0.0313
EPASED28	Sb-125	0.122	0.037	0.0093	0.354
EPASED28	Sn-126	0.0018 U	0.015	0.0046	0.0237
EPASED28	Sr-90	-0.036 UL	0.054	0.014	0.485
EPASED28	Tc-99	0.035 U	0.19	0.057	1.63
EPASED28	Te-125m	0.0281 J	0.0086	0.0022	0.0838
EPASED28	Th-228	1.47	0.009	0.073	3.98
EPASED28	Th-229	0.0093 J	0.0025	0.003	0.145
EPASED28	Th-230	1.04 J	0.007	0.054	2.2
EPASED28	Th-232	1.42	0.007	0.07	3.1
EPASED28	Th-234	0.425 J R	0.17	0.055	3.19
EPASED28	Tl-208	0.49	0.016	0.018	0.937
EPASED28	Tm-171	-1.8 U	6.2	1.9	72.4
EPASED28	U-233/U-234	0.826	0.004	0.04	2.02
EPASED28	U-235/U-236	0.0431 J	0.0016	0.0054	0.151
EPASED28	U-238	0.8 J	0.004	0.039	1.8
EPASED29	Ac-227	0.017 U	0.16	0.048	0.217

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED29	Ac-228	1.14	0.09	0.044	2.4
EPASED29	Am-241	0.0031 J	0.0038	0.0015	0.0454
EPASED29	Bi-212	0.883	0.14	0.082	2.15
EPASED29	Bi-214	0.753	0.03	0.03	1.59
EPASED29	Cd-113m	8 U	44	13	3030
EPASED29	Cm-243/Cm-244	0.001 U	0.0037	0.001	0.0443
EPASED29	Cm-245/Cm-246	0.0085 J	0.011	0.0041	0.0401
EPASED29	Cm-247/Cm-248	0.0024 U	0.0032	0.0017	0.0306
EPASED29	Co-60	0.0025 U	0.02	0.0059	0.028
EPASED29	Cs-134	0.0016 UJ	0.05	0.0025	0.0864
EPASED29	Cs-137	0.104	0.016	0.0088	0.207
EPASED29	Eu-152	-0.012 U	0.043	0.013	0.0566
EPASED29	Eu-154	0.0135 U	0.12	0.0082	0.15
EPASED29	Eu-155	0.075 J	0.034	0.013	0.231
EPASED29	H-3	0.021 U	0.074	0.022	11.9
EPASED29	Ho-166m	0.0113 U	0.028	0.0057	0.0432
EPASED29	K-40	20.2	0.21	0.63	32.4
EPASED29	Na-22	0.0095 U	0.024	0.0072	0.037
EPASED29	Nb-94	0.0047 U	0.016	0.0039	0.0214
EPASED29	Ni-59	0 UL	0.021	0.0079	5.96
EPASED29	Ni-63	0.13 U	0.64	0.19	4.92
EPASED29	Np-236	0.004 U	0.035	0.01	0.047
EPASED29	Np-239	0.018 U	0.096	0.029	0.139
EPASED29	Pa-231	-0.15 U	0.67	0.2	0.936
EPASED29	Pb-212	1.3	0.024	0.04	2.69
EPASED29	Pb-214	0.833	0.028	0.037	1.7
EPASED29	Pu-236	0 U	0.0043	0.00098	7.79
EPASED29	Pu-238	0.0022 U	0.0069	0.002	0.0415
EPASED29	Pu-239/Pu-240	0.0045 J	0.002	0.0018	0.0404
EPASED29	Pu-244	0.0015 U	0.002	0.001	0.0313
EPASED29	Sb-125	0.109	0.042	0.011	0.354
EPASED29	Sn-126	0.0146 J	0.014	0.0064	0.0237
EPASED29	Sr-90	-0.003 U	0.065	0.019	0.485
EPASED29	Tc-99	-0.047 U	0.15	0.044	1.63
EPASED29	Te-125m	0.0251 J	0.0098	0.0025	0.0838
EPASED29	Th-228	1.01	0.003	0.055	3.98
EPASED29	Th-229	0.0081 J	0.0022	0.0026	0.145
EPASED29	Th-230	0.674 J	0.003	0.04	2.2

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED29	Th-232	0.961	0.011	0.052	3.1
EPASED29	Th-234	0.292 J R	0.19	0.059	3.19
EPASED29	Tl-208	0.437	0.02	0.018	0.937
EPASED29	Tm-171	1 U	5.2	1.6	72.4
EPASED29	U-233/U-234	0.663	0.002	0.036	2.02
EPASED29	U-235/U-236	0.0324 J	0.0028	0.006	0.151
EPASED29	U-238	0.661 J	0.002	0.036	1.8
EPASED30	Ac-227	0.028 U	0.18	0.053	0.217
EPASED30	Ac-228	1.3	0.11	0.05	2.4
EPASED30	Am-241	0.0039 J	0.0057	0.0021	0.0454
EPASED30	Bi-212	1.07	0.16	0.098	2.15
EPASED30	Bi-214	1.09	0.032	0.039	1.59
EPASED30	Cd-113m	9 U	50	15	3030
EPASED30	Cm-243/Cm-244	0.0023 J	0.0056	0.0018	0.0443
EPASED30	Cm-245/Cm-246	0.0058 J	0.01	0.0034	0.0401
EPASED30	Cm-247/Cm-248	-0.0009 U	0.0069	0.0011	0.0306
EPASED30	Co-60	0.00001 U	0.021	0.0062	0.028
EPASED30	Cs-134	0.02 UJ	0.063	0.0053	0.0864
EPASED30	Cs-137	0.108	0.019	0.01	0.207
EPASED30	Eu-152	0.006 U	0.048	0.015	0.0566
EPASED30	Eu-154	0.013 U	0.12	0.016	0.15
EPASED30	Eu-155	0.075 J	0.041	0.016	0.231
EPASED30	H-3	0 U	0.081	0.023	11.9
EPASED30	Ho-166m	0.02 J	0.031	0.011	0.0432
EPASED30	K-40	22	0.22	0.68	32.4
EPASED30	Na-22	0.0034 U	0.026	0.0079	0.037
EPASED30	Nb-94	0.0045 U	0.018	0.004	0.0214
EPASED30	Ni-59	0 UL	0.016	0.0058	5.96
EPASED30	Ni-63	-0.12 U	0.46	0.14	4.92
EPASED30	Np-236	-0.008 U	0.039	0.012	0.047
EPASED30	Np-239	0.003 U	0.097	0.029	0.139
EPASED30	Pa-231	0.12 U	0.73	0.22	0.936
EPASED30	Pb-212	1.48	0.026	0.046	2.69
EPASED30	Pb-214	1.15	0.036	0.05	1.7
EPASED30	Pu-236	0 U	0.0015	0.00061	7.79
EPASED30	Pu-238	0.0029 U	0.0089	0.0026	0.0415
EPASED30	Pu-239/Pu-240	0.0086 J	0.0026	0.0029	0.0404
EPASED30	Pu-244	0 U	0.0026	0.0011	0.0313

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED30	Sb-125	0.161	0.049	0.015	0.354
EPASED30	Sn-126	0.0053 U	0.021	0.0062	0.0237
EPASED30	Sr-90	0.029 U	0.063	0.019	0.485
EPASED30	Tc-99	-0.056 U	0.15	0.045	1.63
EPASED30	Te-125m	0.0372 J	0.011	0.0034	0.0838
EPASED30	Th-228	1.35	0.01	0.071	3.98
EPASED30	Th-229	0.0057 J	0.011	0.0035	0.145
EPASED30	Th-230	1.01 J	0.01	0.057	2.2
EPASED30	Th-232	1.19	0.004	0.064	3.1
EPASED30	Th-234	1.92 R	0.19	0.1	3.19
EPASED30	Tl-208	0.495	0.023	0.021	0.937
EPASED30	Tm-171	0.8 U	7.2	2.2	72.4
EPASED30	U-233/U-234	0.879	0.007	0.044	2.02
EPASED30	U-235/U-236	0.0349 J	0.0021	0.0055	0.151
EPASED30	U-238	0.895 J	0.002	0.045	1.8
EPASED31	Ac-227	0.048 U	0.14	0.056	0.217
EPASED31	Ac-228	1.35	0.099	0.05	2.4
EPASED31	Am-241	0.00055 U	0.0041	0.00099	0.0454
EPASED31	Bi-212	0.994	0.15	0.08	2.15
EPASED31	Bi-214	1.02	0.038	0.039	1.59
EPASED31	Cd-113m	11 U	50	15	3030
EPASED31	Cm-243/Cm-244	-0.00054 U	0.004	0.0006	0.0443
EPASED31	Cm-245/Cm-246	0.0017 U	0.008	0.0022	0.0401
EPASED31	Cm-247/Cm-248	0.0008 U	0.0062	0.0015	0.0306
EPASED31	Co-60	0.0009 U	0.023	0.0067	0.028
EPASED31	Cs-134	0.0036 UJ	0.062	0.0042	0.0864
EPASED31	Cs-137	0.114	0.02	0.011	0.207
EPASED31	Eu-152	0.0008 U	0.048	0.014	0.0566
EPASED31	Eu-154	0.071 J	0.1	0.032	0.15
EPASED31	Eu-155	0.097 J	0.04	0.016	0.231
EPASED31	H-3	0.025 U	0.072	0.022	11.9
EPASED31	Ho-166m	0.013 U	0.033	0.01	0.0432
EPASED31	K-40	24.6	0.23	0.76	32.4
EPASED31	Na-22	-0.0035 U	0.027	0.008	0.037
EPASED31	Nb-94	0.0072 U	0.019	0.0057	0.0214
EPASED31	Ni-59	0 UL	0.016	0.03	5.96
EPASED31	Ni-63	-0.04 U	0.47	0.14	4.92
EPASED31	Np-236	-0.0005 U	0.037	0.011	0.047

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED31	Np-239	-0.038 U	0.1	0.031	0.139
EPASED31	Pa-231	-0.22 U	0.73	0.22	0.936
EPASED31	Pb-212	1.5	0.032	0.047	2.69
EPASED31	Pb-214	1.08	0.037	0.047	1.7
EPASED31	Pu-236	-0.0009 U	0.0049	0.001	7.79
EPASED31	Pu-238	0.0015 U	0.002	0.001	0.0415
EPASED31	Pu-239/Pu-240	0.0022 J	0.002	0.0013	0.0404
EPASED31	Pu-244	0.00073 U	0.002	0.00073	0.0313
EPASED31	Sb-125	0.137	0.054	0.013	0.354
EPASED31	Sn-126	0.0006 U	0.02	0.006	0.0237
EPASED31	Sr-90	0.03 U	0.061	0.019	0.485
EPASED31	Tc-99	0.013 U	0.15	0.044	1.63
EPASED31	Te-125m	0.0317 J	0.012	0.003	0.0838
EPASED31	Th-228	1.41	0.01	0.073	3.98
EPASED31	Th-229	0.0099 K	0.0045	0.0041	0.145
EPASED31	Th-230	0.958 J	0.012	0.054	2.2
EPASED31	Th-232	1.41	0.004	0.073	3.1
EPASED31	Th-234	0.44 J R	0.21	0.066	3.19
EPASED31	Tl-208	0.524	0.024	0.022	0.937
EPASED31	Tm-171	-6.4 R	6.2	1.9	72.4
EPASED31	U-233/U-234	0.75	0.002	0.04	2.02
EPASED31	U-235/U-236	0.0354 J	0.0027	0.0061	0.151
EPASED31	U-238	0.779 J	0.002	0.041	1.8
EPASED32	Ac-227	0.035 U	0.16	0.059	0.217
EPASED32	Ac-228	1.17	0.1	0.044	2.4
EPASED32	Am-241	0.0022 J	0.0015	0.0011	0.0454
EPASED32	Bi-212	0.96	0.15	0.088	2.15
EPASED32	Bi-214	0.92	0.037	0.036	1.59
EPASED32	Cd-113m	3 U	48	14	3030
EPASED32	Cm-243/Cm-244	0.00053 U	0.0014	0.00053	0.0443
EPASED32	Cm-245/Cm-246	0.0041 U	0.011	0.0034	0.0401
EPASED32	Cm-247/Cm-248	0.001 U	0.0027	0.001	0.0306
EPASED32	Co-60	-0.0046 U	0.021	0.0062	0.028
EPASED32	Cs-134	0.0225 UJ	0.054	0.0095	0.0864
EPASED32	Cs-137	0.1	0.017	0.0095	0.207
EPASED32	Eu-152	0.015 U	0.045	0.014	0.0566
EPASED32	Eu-154	-0.064 UL	0.12	0.037	0.15
EPASED32	Eu-155	0.098 J	0.041	0.017	0.231

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED32	H-3	-0.018 U	0.073	0.021	11.9
EPASED32	Ho-166m	-0.0002 U	0.024	0.007	0.0432
EPASED32	K-40	23.1	0.23	0.71	32.4
EPASED32	Na-22	0.006 U	0.022	0.0066	0.037
EPASED32	Nb-94	0.00007 U	0.015	0.0044	0.0214
EPASED32	Ni-59	0 UL	0.01	0.015	5.96
EPASED32	Ni-63	0.04 U	0.31	0.093	4.92
EPASED32	Np-236	0.001 U	0.038	0.011	0.047
EPASED32	Np-239	0.04 U	0.094	0.028	0.139
EPASED32	Pa-231	-0.14 U	0.68	0.21	0.936
EPASED32	Pb-212	1.34	0.029	0.042	2.69
EPASED32	Pb-214	1	0.032	0.043	1.7
EPASED32	Pu-236	0.012 J	0.0054	0.0028	7.79
EPASED32	Pu-238	0.0032 J	0.0014	0.0013	0.0415
EPASED32	Pu-239/Pu-240	0.0021 J	0.0039	0.0013	0.0404
EPASED32	Pu-244	0.00107 U	0.0014	0.00076	0.0313
EPASED32	Sb-125	0.111	0.048	0.011	0.354
EPASED32	Sn-126	0.0004 U	0.014	0.004	0.0237
EPASED32	Sr-90	0.025 U	0.049	0.015	0.485
EPASED32	Tc-99	0.033 U	0.2	0.06	1.63
EPASED32	Te-125m	0.0256 J	0.011	0.0026	0.0838
EPASED32	Th-228	1.15	0.009	0.058	3.98
EPASED32	Th-229	0.0085 J	0.0025	0.0028	0.145
EPASED32	Th-230	0.866 J	0.002	0.045	2.2
EPASED32	Th-232	1.17	0.002	0.058	3.1
EPASED32	Th-234	1.71 R	0.18	0.092	3.19
EPASED32	Tl-208	0.438	0.02	0.018	0.937
EPASED32	Tm-171	-5.7 UL	5.7	1.8	72.4
EPASED32	U-233/U-234	0.728	0.008	0.039	2.02
EPASED32	U-235/U-236	0.0382 J	0.0028	0.0065	0.151
EPASED32	U-238	0.722 J	0.002	0.039	1.8
EPASED33	Ac-227	0.041 U	0.16	0.05	0.217
EPASED33	Ac-228	1.03	0.097	0.043	2.4
EPASED33	Am-241	0.0024 J	0.0044	0.0015	0.0454
EPASED33	Bi-212	0.79	0.15	0.09	2.15
EPASED33	Bi-214	0.761	0.032	0.031	1.59
EPASED33	Cd-113m	21	35	14	3030
EPASED33	Cm-243/Cm-244	0.0006 U	0.0043	0.0011	0.0443

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED33	Cm-245/Cm-246	0.0058 J	0.0061	0.0026	0.0401
EPASED33	Cm-247/Cm-248	0 U	0.0022	0.00092	0.0306
EPASED33	Co-60	0.0019 U	0.02	0.0059	0.028
EPASED33	Cs-134	0.0033 UJ	0.059	0.0041	0.0864
EPASED33	Cs-137	0.0324 J	0.014	0.0064	0.207
EPASED33	Eu-152	0.0046 U	0.046	0.0044	0.0566
EPASED33	Eu-154	-0.028 U	0.11	0.034	0.15
EPASED33	Eu-155	0.071 J	0.045	0.018	0.231
EPASED33	H-3	0.069 J	0.057	0.018	11.9
EPASED33	Ho-166m	0.0283 J	0.028	0.0065	0.0432
EPASED33	K-40	22.6	0.16	0.69	32.4
EPASED33	Na-22	-0.0015 U	0.024	0.0071	0.037
EPASED33	Nb-94	0.0048 U	0.015	0.0036	0.0214
EPASED33	Ni-59	0 UL	0.013	0.0049	5.96
EPASED33	Ni-63	0.13 U	0.39	0.12	4.92
EPASED33	Np-236	-0.007 U	0.041	0.012	0.047
EPASED33	Np-239	0.0004 U	0.091	0.027	0.139
EPASED33	Pa-231	-0.07 U	0.67	0.2	0.936
EPASED33	Pb-212	0.991	0.035	0.035	2.69
EPASED33	Pb-214	0.815	0.032	0.038	1.7
EPASED33	Pu-236	0.0192 J	0.0038	0.0034	7.79
EPASED33	Pu-238	0.0005 U	0.0056	0.0015	0.0415
EPASED33	Pu-239/Pu-240	0.00047 U	0.0013	0.00047	0.0404
EPASED33	Pu-244	0 U	0.0013	0.00052	0.0313
EPASED33	Sb-125	0.111	0.047	0.011	0.354
EPASED33	Sn-126	0.0005 U	0.019	0.0056	0.0237
EPASED33	Sr-90	0.014 U	0.05	0.015	0.485
EPASED33	Tc-99	-0.056 U	0.16	0.046	1.63
EPASED33	Te-125m	0.0258 J	0.011	0.0027	0.0838
EPASED33	Th-228	1.1	0.009	0.057	3.98
EPASED33	Th-229	0.0021 U	0.011	0.0031	0.145
EPASED33	Th-230	0.879 J	0.007	0.047	2.2
EPASED33	Th-232	1.08	0.007	0.056	3.1
EPASED33	Th-234	1.21 R	0.24	0.083	3.19
EPASED33	Tl-208	0.377	0.018	0.016	0.937
EPASED33	Tm-171	-10.8 R	9	2.8	72.4
EPASED33	U-233/U-234	0.702	0.008	0.037	2.02
EPASED33	U-235/U-236	0.0461 J	0.0024	0.0067	0.151

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED33	U-238	0.671 J	0.005	0.036	1.8
EPASED34	Ac-227	0.024 U	0.14	0.03	0.217
EPASED34	Ac-228	1.13	0.092	0.044	2.4
EPASED34	Am-241	0.00064 U	0.0017	0.00064	0.0454
EPASED34	Bi-212	0.879	0.13	0.075	2.15
EPASED34	Bi-214	0.884	0.03	0.033	1.59
EPASED34	Cd-113m	9 U	42	13	3030
EPASED34	Cm-243/Cm-244	0.0019 J	0.0017	0.0011	0.0443
EPASED34	Cm-245/Cm-246	0.0083 J	0.0086	0.0034	0.0401
EPASED34	Cm-247/Cm-248	0.0027 J	0.0025	0.0016	0.0306
EPASED34	Co-60	-0.0051 U	0.02	0.0059	0.028
EPASED34	Cs-134	0.0103 UJ	0.048	0.0041	0.0864
EPASED34	Cs-137	0.101	0.016	0.0093	0.207
EPASED34	Eu-152	-0.009 U	0.036	0.011	0.0566
EPASED34	Eu-154	-0.027 U	0.11	0.033	0.15
EPASED34	Eu-155	0.091 J	0.037	0.016	0.231
EPASED34	H-3	0.034 U	0.078	0.024	11.9
EPASED34	Ho-166m	0.0076 U	0.026	0.007	0.0432
EPASED34	K-40	20.9	0.2	0.64	32.4
EPASED34	Na-22	-0.0053 U	0.024	0.0071	0.037
EPASED34	Nb-94	0.0028 U	0.015	0.0046	0.0214
EPASED34	Ni-59	0 UL	0.013	0.0047	5.96
EPASED34	Ni-63	-0.07 U	0.39	0.11	4.92
EPASED34	Np-236	-0.0007 U	0.033	0.0099	0.047
EPASED34	Np-239	-0.005 U	0.09	0.027	0.139
EPASED34	Pa-231	-0.03 U	0.62	0.18	0.936
EPASED34	Pb-212	1.25	0.022	0.039	2.69
EPASED34	Pb-214	0.919	0.028	0.04	1.7
EPASED34	Pu-236	0.0121 J	0.0032	0.0024	7.79
EPASED34	Pu-238	0.0007 U	0.0048	0.0012	0.0415
EPASED34	Pu-239/Pu-240	0.004 J	0.0018	0.0016	0.0404
EPASED34	Pu-244	0 U	0.0018	0.00073	0.0313
EPASED34	Sb-125	0.0953	0.039	0.0088	0.354
EPASED34	Sn-126	-0.0023 U	0.017	0.0052	0.0237
EPASED34	Sr-90	0.024 U	0.052	0.016	0.485
EPASED34	Tc-99	-0.006 U	0.14	0.043	1.63
EPASED34	Te-125m	0.022 J	0.0089	0.002	0.0838
EPASED34	Th-228	1.09	0.016	0.058	3.98

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED34	Th-229	0.0039 J	0.0095	0.003	0.145
EPASED34	Th-230	0.869 J	0.003	0.048	2.2
EPASED34	Th-232	1.07	0.003	0.057	3.1
EPASED34	Th-234	1.72 R	0.17	0.092	3.19
EPASED34	Tl-208	0.407	0.018	0.016	0.937
EPASED34	Tm-171	-0.4 U	5.7	1.7	72.4
EPASED34	U-233/U-234	0.999	0.01	0.052	2.02
EPASED34	U-235/U-236	0.0446 J	0.0031	0.0074	0.151
EPASED34	U-238	1.02 J	0.007	0.053	1.8
EPASED35	Ac-227	0.02 U	0.14	0.06	0.217
EPASED35	Ac-228	1.02	0.093	0.039	2.4
EPASED35	Am-241	0.0007 U	0.0065	0.0016	0.0454
EPASED35	Bi-212	0.788 J	0.11	0.058	2.15
EPASED35	Bi-214	0.798	0.026	0.029	1.59
EPASED35	Cd-113m	-9 U	39	12	3030
EPASED35	Cm-243/Cm-244	-0.0041 U	0.012	0.0028	0.0443
EPASED35	Cm-245/Cm-246	0.002 J	0.0018	0.0011	0.0401
EPASED35	Cm-247/Cm-248	-0.00064 U	0.0047	0.00072	0.0306
EPASED35	Co-60	0.0018 U	0.018	0.0031	0.028
EPASED35	Cs-134	0.0121 J	0.011	0.0034	0.0864
EPASED35	Cs-137	0.057 J	0.017	0.0064	0.207
EPASED35	Eu-152	0.017 J	0.028	0.011	0.0566
EPASED35	Eu-154	-0.062 UL	0.11	0.033	0.15
EPASED35	Eu-155	0.072 J	0.031	0.012	0.231
EPASED35	Ho-166m	0.0037 U	0.027	0.0049	0.0432
EPASED35	K-40	20.3	0.15	0.62	32.4
EPASED35	Na-22	-0.0009 U	0.023	0.0068	0.037
EPASED35	Nb-94	0.0038 U	0.015	0.0032	0.0214
EPASED35	Np-236	-0.0005 U	0.029	0.0088	0.047
EPASED35	Np-239	0.017 U	0.088	0.026	0.139
EPASED35	Pa-231	-0.25 U	0.62	0.19	0.936
EPASED35	Pb-212	1.17	0.019	0.048	2.69
EPASED35	Pb-214	0.855	0.026	0.03	1.7
EPASED35	Pu-236	-0.00088 U	0.0047	0.00094	7.79
EPASED35	Pu-238	0 U	0.0057	0.0014	0.0415
EPASED35	Pu-239/Pu-240	0.0013 J	0.0032	0.00099	0.0404
EPASED35	Pu-244	0.00086 U	0.0012	0.00061	0.0313
EPASED35	Sb-125	0.123 J	0.038	0.011	0.354

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED35	Sn-126	-0.0004 U	0.017	0.0049	0.0237
EPASED35	Sr-90	0.044 J	0.067	0.021	0.485
EPASED35	Te-125m	0.0283 J	0.0089	0.0026	0.0838
EPASED35	Th-228	1.01	0.008	0.05	3.98
EPASED35	Th-229	0.0022 U	0.0095	0.0026	0.145
EPASED35	Th-230	0.691	0.004	0.036	2.2
EPASED35	Th-232	0.929	0.002	0.046	3.1
EPASED35	Th-234	0.335 J	0.17	0.052	3.19
EPASED35	Tl-208	0.347	0.015	0.014	0.937
EPASED35	Tm-171	3 J	4.7	1.4	72.4
EPASED35	U-233/U-234	0.86 K	0.002	0.045	2.02
EPASED35	U-235/U-236	0.056 J	0.0028	0.0079	0.151
EPASED35	U-238	0.881	0.008	0.046	1.8
EPASED36	Ac-227	0.064 U	0.19	0.056	0.217
EPASED36	Ac-228	1.49 J	0.096	0.056	2.4
EPASED36	Am-241	-0.001 U	0.013	0.0031	0.0454
EPASED36	Bi-212	1.18	0.14	0.083	2.15
EPASED36	Bi-214	1.17	0.032	0.042	1.59
EPASED36	Cd-113m	4 U	53	16	3030
EPASED36	Cm-243/Cm-244	-0.001 U	0.012	0.0027	0.0443
EPASED36	Cm-245/Cm-246	-0.0011 U	0.01	0.0021	0.0401
EPASED36	Cm-247/Cm-248	0.0011 U	0.0079	0.0019	0.0306
EPASED36	Co-60	0.006 U	0.018	0.0055	0.028
EPASED36	Cs-134	0.0198 U	0.074	0.0055	0.0864
EPASED36	Cs-137	0.029 J	0.016	0.0051	0.207
EPASED36	Eu-152	-0.0034 U	0.051	0.0033	0.0566
EPASED36	Eu-154	-0.042 U	0.13	0.04	0.15
EPASED36	Eu-155	0.104 J	0.054	0.022	0.231
EPASED36	H-3	0.071 J	0.065	0.021	11.9
EPASED36	Ho-166m	0.0032 U	0.032	0.0026	0.0432
EPASED36	K-40	24.1 J	0.13	0.73	32.4
EPASED36	Na-22	-0.00059 U	0.033	0.00995	0.037
EPASED36	Nb-94	0.0035 U	0.018	0.0038	0.0214
EPASED36	Np-236	-0.014 U	0.046	0.014	0.047
EPASED36	Np-239	-0.0007 U	0.12	0.035	0.139
EPASED36	Pa-231	0.06 U	0.81	0.24	0.936
EPASED36	Pb-212	1.53	0.038	0.049	2.69
EPASED36	Pb-214	1.31 J	0.035	0.056	1.7

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED36	Pu-236	-0.00049 U	0.0045	0.00091	7.79
EPASED36	Pu-238	-0.0017 U	0.0092	0.0019	0.0415
EPASED36	Pu-239/Pu-240	0.006 J	0.0063	0.0026	0.0404
EPASED36	Pu-244	0.00086 U	0.0023	0.00086	0.0313
EPASED36	Sb-125	0.128 J	0.044	0.011	0.354
EPASED36	Sn-126	-0.0002 U	0.02	0.0061	0.0237
EPASED36	Sr-90	0.021 U	0.057	0.017	0.485
EPASED36	Tc-99	0.094 J	0.091	0.028	1.63
EPASED36	Te-125m	0.0295 J	0.01	0.0025	0.0838
EPASED36	Th-228	1.28	0.015	0.063	3.98
EPASED36	Th-229	0.009 J	0.0082	0.0036	0.145
EPASED36	Th-230	1.2	0.006	0.06	2.2
EPASED36	Th-232	1.25	0.008	0.062	3.1
EPASED36	Th-234	1.71 R	0.26	0.1	3.19
EPASED36	Tl-208	0.544	0.019	0.02	0.937
EPASED36	Tm-171	-11.5 R	11	3.4	72.4
EPASED36	U-233/U-234	1.07	0.009	0.058	2.02
EPASED36	U-235/U-236	0.0569 J	0.0043	0.0098	0.151
EPASED36	U-238	1.19	0.003	0.063	1.8
EPASED37	Ac-227	0.038 U	0.16	0.026	0.217
EPASED37	Ac-228	1.38	0.13	0.052	2.4
EPASED37	Am-241	0.0022 J	0.004	0.0013	0.0454
EPASED37	Bi-212	1.1	0.18	0.12	2.15
EPASED37	Bi-214	1.11	0.037	0.042	1.59
EPASED37	Cd-113m	-0.9 U	50	15	3030
EPASED37	Cm-243/Cm-244	0.00053 U	0.0039	0.00095	0.0443
EPASED37	Cm-245/Cm-246	0.0116 J	0.006	0.0031	0.0401
EPASED37	Cm-247/Cm-248	0.0019 J	0.0017	0.0011	0.0306
EPASED37	Co-60	0.0045 U	0.025	0.0051	0.028
EPASED37	Cs-134	0.0188 UJ	0.067	0.0051	0.0864
EPASED37	Cs-137	0.044 J	0.016	0.0072	0.207
EPASED37	Eu-152	0.002 U	0.046	0.011	0.0566
EPASED37	Eu-154	-0.06 U	0.14	0.043	0.15
EPASED37	Eu-155	0.097 J	0.041	0.017	0.231
EPASED37	H-3	0.037 J	0.076	0.023	11.9
EPASED37	Ho-166m	0.016 J	0.033	0.011	0.0432
EPASED37	K-40	21.6	0.18	0.67	32.4
EPASED37	Na-22	0.0023 U	0.028	0.0084	0.037

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED37	Nb-94	0.0009 U	0.014	0.0042	0.0214
EPASED37	Ni-59	0 UL	0.016	0.0058	5.96
EPASED37	Ni-63	-0.13 U	0.48	0.14	4.92
EPASED37	Np-236	-0.011 U	0.039	0.012	0.047
EPASED37	Np-239	0.025 U	0.11	0.032	0.139
EPASED37	Pa-231	0.11 U	0.74	0.22	0.936
EPASED37	Pb-212	1.62	0.032	0.067	2.69
EPASED37	Pb-214	1.23	0.033	0.042	1.7
EPASED37	Pu-236	0.0144 J	0.0035	0.0028	7.79
EPASED37	Pu-238	0.0034 J	0.0063	0.0021	0.0415
EPASED37	Pu-239/Pu-240	0.0027 J	0.005	0.0017	0.0404
EPASED37	Pu-244	0 U	0.0018	0.00075	0.0313
EPASED37	Sb-125	0.154	0.053	0.014	0.354
EPASED37	Sn-126	-0.0028 U	0.021	0.0064	0.0237
EPASED37	Sr-90	0.044 J	0.062	0.019	0.485
EPASED37	Tc-99	-0.055 U	0.16	0.046	1.63
EPASED37	Te-125m	0.0355 J	0.012	0.0033	0.0838
EPASED37	Th-228	1.21	0.013	0.063	3.98
EPASED37	Th-229	0.0012 U	0.011	0.0027	0.145
EPASED37	Th-230	0.865 J	0.003	0.049	2.2
EPASED37	Th-232	1.1	0.003	0.059	3.1
EPASED37	Th-234	2.31 R	0.2	0.12	3.19
EPASED37	Tl-208	0.524	0.023	0.022	0.937
EPASED37	Tm-171	-0.3 U	7.4	2.2	72.4
EPASED37	U-233/U-234	1.57	0.003	0.071	2.02
EPASED37	U-235/U-236	0.0804 J	0.0014	0.0073	0.151
EPASED37	U-238	1.47 J	0.001	0.066	1.8
EPASED38	Ac-227	0.062 U	0.15	0.02	0.217
EPASED38	Ac-228	1.48 J	0.074	0.048	2.4
EPASED38	Am-241	0.0013 U	0.0092	0.0023	0.0454
EPASED38	Bi-212	1.17	0.13	0.079	2.15
EPASED38	Bi-214	1.08	0.028	0.037	1.59
EPASED38	Cd-113m	0.6 U	42	13	3030
EPASED38	Cm-243/Cm-244	0 U	0.011	0.0026	0.0443
EPASED38	Cm-245/Cm-246	0.0034 J	0.0084	0.0026	0.0401
EPASED38	Cm-247/Cm-248	0 U	0.003	0.0012	0.0306
EPASED38	Co-60	0.0022 U	0.018	0.0029	0.028
EPASED38	Cs-134	0.0103 U	0.05	0.003	0.0864

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED38	Cs-137	0.0575 J	0.012	0.0055	0.207
EPASED38	Eu-152	0.023 J	0.04	0.012	0.0566
EPASED38	Eu-154	-0.035 U	0.1	0.03	0.15
EPASED38	Eu-155	0.022 J	0.037	0.011	0.231
EPASED38	H-3	0.076 J	0.062	0.02	11.9
EPASED38	Ho-166m	0.0079 U	0.025	0.0068	0.0432
EPASED38	K-40	23.1 J	0.16	0.69	32.4
EPASED38	Na-22	0.0002 U	0.022	0.0066	0.037
EPASED38	Nb-94	0.0053 U	0.014	0.0042	0.0214
EPASED38	Np-236	-0.0091 U	0.032	0.0098	0.047
EPASED38	Np-239	0.009 U	0.09	0.027	0.139
EPASED38	Pa-231	-0.07 U	0.52	0.16	0.936
EPASED38	Pb-212	1.85	0.025	0.075	2.69
EPASED38	Pb-214	1.28 J	0.027	0.042	1.7
EPASED38	Pu-236	-0.0009 U	0.0063	0.0015	7.79
EPASED38	Pu-238	-0.0005 U	0.0054	0.0012	0.0415
EPASED38	Pu-239/Pu-240	0.005 J	0.0014	0.0016	0.0404
EPASED38	Pu-244	0 U	0.0013	0.00056	0.0313
EPASED38	Sb-125	0.133 J	0.042	0.0088	0.354
EPASED38	Sn-126	-0.0007 U	0.011	0.0033	0.0237
EPASED38	Sr-90	0.051 J	0.055	0.018	0.485
EPASED38	Te-125m	0.0308 J	0.0097	0.002	0.0838
EPASED38	Th-228	1.31	0.01	0.067	3.98
EPASED38	Th-229	0.0068 J	0.0051	0.0024	0.145
EPASED38	Th-230	0.986	0.01	0.053	2.2
EPASED38	Th-232	1.27	0.003	0.065	3.1
EPASED38	Th-234	1.8 R	0.17	0.097	3.19
EPASED38	Tl-208	0.557	0.019	0.021	0.937
EPASED38	Tm-171	-6.1 R	5.6	1.7	72.4
EPASED38	U-233/U-234	1.06	0.003	0.057	2.02
EPASED38	U-235/U-236	0.0614 J	0.0038	0.0096	0.151
EPASED38	U-238	1.08	0.003	0.057	1.8
EPASED39	Ac-227	0.057 U	0.15	0.02	0.217
EPASED39	Ac-228	1 J	0.086	0.039	2.4
EPASED39	Am-241	0.0034 J	0.0091	0.0028	0.0454
EPASED39	Bi-212	0.857 J	0.14	0.083	2.15
EPASED39	Bi-214	0.793	0.029	0.031	1.59
EPASED39	Cd-113m	-0.1 U	44	13	3030

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED39	Cm-243/Cm-244	0 U	0.0061	0.0012	0.0443
EPASED39	Cm-245/Cm-246	0.003 J	0.0027	0.0018	0.0401
EPASED39	Cm-247/Cm-248	0.00099 U	0.0027	0.00099	0.0306
EPASED39	Co-60	0.0046 U	0.02	0.0054	0.028
EPASED39	Cs-134	0.001 U	0.047	0.014	0.0864
EPASED39	Cs-137	0.0525 J	0.013	0.0063	0.207
EPASED39	Eu-152	0.0005 U	0.041	0.012	0.0566
EPASED39	Eu-154	0.008 U	0.11	0.034	0.15
EPASED39	Eu-155	0.063 J	0.036	0.015	0.231
EPASED39	H-3	0.071 J	0.063	0.02	11.9
EPASED39	Ho-166m	0.0083 U	0.028	0.007	0.0432
EPASED39	K-40	21.4 J	0.19	0.66	32.4
EPASED39	Na-22	-0.0013 U	0.025	0.0073	0.037
EPASED39	Nb-94	0.0041 U	0.016	0.0031	0.0214
EPASED39	Np-236	0.0062 U	0.033	0.0099	0.047
EPASED39	Np-239	-0.009 U	0.092	0.028	0.139
EPASED39	Pa-231	0.16 U	0.63	0.19	0.936
EPASED39	Pb-212	1.13	0.023	0.035	2.69
EPASED39	Pb-214	0.816 J	0.027	0.036	1.7
EPASED39	Pu-236	-0.0022 U	0.0066	0.0012	7.79
EPASED39	Pu-238	0.0006 U	0.0052	0.0013	0.0415
EPASED39	Pu-239/Pu-240	0.0034 J	0.0015	0.0014	0.0404
EPASED39	Pu-244	0.00056 U	0.0015	0.00056	0.0313
EPASED39	Sb-125	0.0938 J	0.042	0.0095	0.354
EPASED39	Sn-126	0.0026 U	0.013	0.0038	0.0237
EPASED39	Sr-90	-0.0009 U	0.059	0.017	0.485
EPASED39	Te-125m	0.0217 J	0.0097	0.0022	0.0838
EPASED39	Th-228	1.02	0.011	0.055	3.98
EPASED39	Th-229	0.004 J	0.0074	0.0025	0.145
EPASED39	Th-230	0.732	0.009	0.042	2.2
EPASED39	Th-232	0.966	0.003	0.053	3.1
EPASED39	Th-234	1.27 R	0.17	0.082	3.19
EPASED39	Tl-208	0.36	0.019	0.016	0.937
EPASED39	Tm-171	-1.8 U	6.2	1.9	72.4
EPASED39	U-233/U-234	0.705	0.003	0.04	2.02
EPASED39	U-235/U-236	0.0424 J	0.0035	0.0076	0.151
EPASED39	U-238	0.695	0.008	0.04	1.8
EPASED40	Ac-227	0.148 J	0.13	0.051	0.217

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED40	Ac-228	1.29 J	0.1	0.051	2.4
EPASED40	Am-241	0.0016 U	0.0077	0.0021	0.0454
EPASED40	Bi-212	0.959 J	0.15	0.084	2.15
EPASED40	Bi-214	0.907	0.033	0.035	1.59
EPASED40	Cd-113m	-21 U	49	15	3030
EPASED40	Cm-243/Cm-244	-0.0016 U	0.014	0.0037	0.0443
EPASED40	Cm-245/Cm-246	0.0021 U	0.0028	0.0015	0.0401
EPASED40	Cm-247/Cm-248	0.002 U	0.0028	0.0014	0.0306
EPASED40	Co-60	0.0023 U	0.022	0.0065	0.028
EPASED40	Cs-134	0.0176 U	0.072	0.0064	0.0864
EPASED40	Cs-137	0.027 J	0.021	0.0067	0.207
EPASED40	Eu-152	0.006 U	0.051	0.015	0.0566
EPASED40	Eu-154	-0.048 U	0.13	0.038	0.15
EPASED40	Eu-155	0.108 J	0.058	0.025	0.231
EPASED40	H-3	0.061 J	0.06	0.019	11.9
EPASED40	Ho-166m	0.0117 U	0.033	0.0087	0.0432
EPASED40	K-40	22.9 J	0.15	0.7	32.4
EPASED40	Na-22	0 U	0.028	0.0056	0.037
EPASED40	Nb-94	0.0062 U	0.019	0.0056	0.0214
EPASED40	Np-236	-0.006 U	0.044	0.013	0.047
EPASED40	Np-239	0.019 U	0.12	0.035	0.139
EPASED40	Pa-231	0.03 U	0.66	0.2	0.936
EPASED40	Pb-212	1.48	0.03	0.046	2.69
EPASED40	Pb-214	0.954 J	0.034	0.043	1.7
EPASED40	Pu-236	-0.0005 U	0.0052	0.0011	7.79
EPASED40	Pu-238	0.0024 U	0.011	0.0031	0.0415
EPASED40	Pu-239/Pu-240	-0.0012 U	0.011	0.0023	0.0404
EPASED40	Pu-244	0 U	0.0033	0.0014	0.0313
EPASED40	Sb-125	0.132 J	0.054	0.013	0.354
EPASED40	Sn-126	0.0002 U	0.021	0.0064	0.0237
EPASED40	Sr-90	-0.005 U	0.068	0.019	0.485
EPASED40	Tc-99	0.059 J	0.073	0.023	0.0838
EPASED40	Te-125m	0.0305 J	0.013	0.003	3.98
EPASED40	Th-228	1.14	0.011	0.058	0.145
EPASED40	Th-229	0.0085 J	0.0019	0.0025	2.2
EPASED40	Th-230	0.813	0.01	0.044	3.1
EPASED40	Th-232	1.06	0.007	0.054	3.19
EPASED40	Th-234	1.38 R	0.27	0.096	0.937

Table A.2
Analytical Results Summary
Phase I Sediment Sampling

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED40	Tl-208	0.517	0.024	0.022	72.4
EPASED40	Tm-171	-16.6 R	11	3.5	2.02
EPASED40	U-233/U-234	0.855 K	0.004	0.05	0.151
EPASED40	U-235/U-236	0.0508 J	0.0049	0.0098	1.8
EPASED40	U-238	0.804 K	0.004	0.048	0.217

Notes:

Refer to Table 3.1 of the Final Groundwater, Surface Water and Sediment Sampling Plan (HGL, 2010a) for definition of radionuclide symbols.

Reporting units in picocuries per gram.

MDC - minimum detectable concentration

RTL - Radiological Trigger Levels

TPU - total propagated uncertainty

J - The analyte was detected at the reported concentration; the quantitation is an estimate.

K - Analyte present. Reported value may be biased high. Actual value is expected to be lower.

R - The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.

U - Not considered detected. The associated number is the reported concentration.

UJ - Not considered detected. The associated number is the reported concentration, which may be inaccurate.

UL - Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.

Table A.3
Parent and Field Duplicate Results Summary
Phase I Sediment Sampling

Sample Identification	Parent Sample				Sample Identification	Field Duplicate Sample			
	Analyte Name	Activity	MDC	TPU		Analyte Name	Activity	MDC	TPU
EPASED01	Ac-228	1.31 J	0.093	0.047	SED-DUP-001	Ac-228	1.35	0.12	0.052
EPASED01	Ac-227	0.03 U	0.18	0.061	SED-DUP-001	Ac-227	0.033 U	0.14	0.064
EPASED01	Am-241	0.0097 J	0.01	0.004	SED-DUP-001	Am-241	-0.0019 U	0.015	0.0036
EPASED01	Ba-133	-0.114 R	0.03	0.01	SED-DUP-001	Ba-133	-0.0179 UJ	0.022	0.0067
EPASED01	Ba-137m	0.062 J	0.014	0.0067	SED-DUP-001	Ba-137m	0.0433 J	0.012	0.0053
EPASED01	Bi-212	0.956 J	0.15	0.089	SED-DUP-001	Bi-212	1.07 J	0.14	0.079
EPASED01	Bi-214	1.05	0.03	0.038	SED-DUP-001	Bi-214	0.891	0.031	0.034
EPASED01	Cd-113m	0.4 U	50	15	SED-DUP-001	Cd-113m	-0.02 U	48	14
EPASED01	Cm-243/Cm-244	0.0159 J	0.011	0.005	SED-DUP-001	Cm-243/Cm-244	-0.001 U	0.014	0.0036
EPASED01	Cm-245/Cm-246	0.0048 J	0.0032	0.0024	SED-DUP-001	Cm-245/Cm-246	0.0014 U	0.01	0.0025
EPASED01	Cm-247/Cm-248	-0.0023 U	0.014	0.0031	SED-DUP-001	Cm-247/Cm-248	0.0013 U	0.0036	0.0013
EPASED01	Co-60	0.0027 U	0.021	0.0045	SED-DUP-001	Co-60	0.0028 U	0.019	0.0053
EPASED01	Cs-134	0.011 U	0.059	0.0047	SED-DUP-001	Cs-134	-0.001 U	0.058	0.018
EPASED01	Cs-137	0.0655 J	0.015	0.0071	SED-DUP-001	Cs-137	0.0458 J	0.013	0.0056
EPASED01	Eu-152	0.007 U	0.028	0.017	SED-DUP-001	Eu-152	-0.00009 U	0.044	0.013
EPASED01	Eu-154	-0.05 U	0.13	0.038	SED-DUP-001	Eu-154	-0.024 U	0.12	0.036
EPASED01	Eu-155	0.089 J	0.037	0.015	SED-DUP-001	Eu-155	0.104	0.041	0.017
EPASED01	H-3	0.059 J	0.062	0.02	SED-DUP-001	H-3	-0.039 UL	0.21	0.06
EPASED01	Ho-166m	0.0119 U	0.03	0.0092	SED-DUP-001	Ho-166m	0.0039 U	0.028	0.0042
EPASED01	K-40	21.1 J	0.17	0.65	SED-DUP-001	K-40	21.4	0.18	0.66
EPASED01	Na-22	0.001 U	0.025	0.0074	SED-DUP-001	Na-22	0.0003 U	0.027	0.0081

Table A.3
Parent and Field Duplicate Results Summary
Phase I Sediment Sampling

Sample Identification	Parent Sample				Sample Identification	Field Duplicate Sample			
	Analyte Name	Activity	MDC	TPU		Analyte Name	Activity	MDC	TPU
EPASED01	Nb-94	0.0115 J	0.017	0.0053	SED-DUP-001	Nb-94	0.006 U	0.017	0.0051
EPASED01	Np-236	-0.009 U	0.037	0.011	SED-DUP-001	Np-236	0.0006 U	0.037	0.011
EPASED01	Np-239	-0.002 U	0.11	0.032	SED-DUP-001	Np-239	-0.003 U	0.1	0.03
EPASED01	Pa-231	-0.01 U	0.71	0.21	SED-DUP-001	Pa-231	-0.01 U	0.69	0.21
EPASED01	Pb-212	1.51	0.029	0.062	SED-DUP-001	Pb-212	1.65	0.028	0.051
EPASED01	Pb-214	1.18 J	0.033	0.04	SED-DUP-001	Pb-214	0.97	0.033	0.043
EPASED01	Pu-236	-0.0062 UL	0.011	0.0027	SED-DUP-001	Pu-236	0 U	0.0049	0.0012
EPASED01	Pu-238	0.0015 U	0.0088	0.0024	SED-DUP-001	Pu-238	0.0005 U	0.0085	0.0023
EPASED01	Pu-239/Pu-240	0.0044 J	0.0068	0.0024	SED-DUP-001	Pu-239/Pu-240	0.0027 J	0.0015	0.0012
EPASED01	Pu-244	0.0015 U	0.002	0.001	SED-DUP-001	Pu-244	0.0027 J	0.0015	0.0012
EPASED01	Sb-125	0.151 J	0.047	0.014	SED-DUP-001	Sb-125	0.138 J	0.05	0.012
EPASED01	Sn-126	-0.0003 U	0.022	0.0065	SED-DUP-001	Sn-126	0.0069 U	0.015	0.0047
EPASED01	Sr-90	-0.025 U	0.071	0.02	SED-DUP-001	Sr-90	0.046 J	0.055	0.017
EPASED01	Tc-99	0.028 U	0.071	0.021	SED-DUP-001	Tc-99	0.026 U	0.082	0.025
EPASED01	Th-228	1.53 K	0.013	0.079	SED-DUP-001	Th-228	1.27 K	0.014	0.067
EPASED01	Th-229	0.0085 J	0.0023	0.0027	SED-DUP-001	Th-229	0.0074 J	0.013	0.0046
EPASED01	Th-230	1.02 K	0.004	0.057	SED-DUP-001	Th-230	1.06 K	0.01	0.058
EPASED01	Th-232	1.32 K	0.01	0.07	SED-DUP-001	Th-232	1.25 K	0.004	0.067
EPASED01	Th-234	2.18 R	0.18	0.11	SED-DUP-001	Th-234	2.43 R	0.19	0.12
EPASED01	Tl-208	0.472	0.021	0.019	SED-DUP-001	Tl-208	0.539	0.021	0.021
EPASED01	Tm-171	-0.1 U	6.9	2.1	SED-DUP-001	Tm-171	0.6 U	5.2	1.6

Table A.3
Parent and Field Duplicate Results Summary
Phase I Sediment Sampling

Sample Identification	Parent Sample				Sample Identification	Field Duplicate Sample			
	Analyte Name	Activity	MDC	TPU		Analyte Name	Activity	MDC	TPU
EPASED01	U-233/U-234	1.5	0.013	0.076	SED-DUP-001	U-233/U-234	1.73	0.007	0.083
EPASED01	U-235/U-236	0.061 J	0.011	0.01	SED-DUP-001	U-235/U-236	0.092	0.003	0.011
EPASED01	U-238	1.39	0.003	0.071	SED-DUP-001	U-238	1.57	0.007	0.077
EPASED02	Ac-228	1.38 J	0.11	0.053	SED-DUP-002	Ac-228	1.38 J	0.12	0.054
EPASED02	Ac-227	0.023 U	0.18	0.054	SED-DUP-002	Ac-227	0.03 U	0.18	0.072
EPASED02	Am-241	0.0037 J	0.0087	0.0027	SED-DUP-002	Am-241	0.0068 J	0.0062	0.0027
EPASED02	Ba-133	-0.128 R	0.033	0.012	SED-DUP-002	Ba-133	-0.0294 R	0.024	0.0076
EPASED02	Ba-137m	0.0588 J	0.015	0.0071	SED-DUP-002	Ba-137m	0.0683 J	0.014	0.007
EPASED02	Bi-212	1.11	0.17	0.11	SED-DUP-002	Bi-212	1.09 J	0.15	0.087
EPASED02	Bi-214	0.914	0.032	0.036	SED-DUP-002	Bi-214	0.981	0.032	0.037
EPASED02	Cd-113m	0 U	51	8.5	SED-DUP-002	Cd-113m	-4 U	51	15
EPASED02	Cm-243/Cm-244	0.0046 U	0.012	0.0037	SED-DUP-002	Cm-243/Cm-244	0.0099 J	0.0061	0.0032
EPASED02	Cm-245/Cm-246	-0.0011 U	0.0098	0.002	SED-DUP-002	Cm-245/Cm-246	0.0031 J	0.0077	0.0024
EPASED02	Cm-247/Cm-248	0 U	0.0028	0.0012	SED-DUP-002	Cm-247/Cm-248	-0.001 U	0.0095	0.0019
EPASED02	Co-60	0.0044 U	0.02	0.0059	SED-DUP-002	Co-60	0.0008 U	0.023	0.0013
EPASED02	Cs-134	0.0056 U	0.067	0.0023	SED-DUP-002	Cs-134	0.0097 U	0.061	0.0063
EPASED02	Cs-137	0.0622 J	0.016	0.0076	SED-DUP-002	Cs-137	0.0722 J	0.015	0.0074
EPASED02	Eu-152	0.0007 U	0.05	0.0019	SED-DUP-002	Eu-152	-0.018 U	0.049	0.015
EPASED02	Eu-154	0.014 U	0.12	0.019	SED-DUP-002	Eu-154	0.008 U	0.13	0.014
EPASED02	Eu-155	0.12 J	0.055	0.024	SED-DUP-002	Eu-155	0.11 J	0.039	0.017
EPASED02	H-3	0.049 J	0.064	0.02	SED-DUP-002	H-3	0.073 J	0.064	0.021

Table A.3
Parent and Field Duplicate Results Summary
Phase I Sediment Sampling

Sample Identification	Parent Sample				Sample Identification	Field Duplicate Sample			
	Analyte Name	Activity	MDC	TPU		Analyte Name	Activity	MDC	TPU
EPASED02	Ho-166m	0.0016 U	0.024	0.0093	SED-DUP-002	Ho-166m	0.018 J	0.033	0.012
EPASED02	K-40	19.9 J	0.15	0.61	SED-DUP-002	K-40	21.1 J	0.17	0.65
EPASED02	Na-22	0.0053 U	0.025	0.0076	SED-DUP-002	Na-22	0.0006 U	0.031	0.0091
EPASED02	Nb-94	-0.0002 U	0.018	0.0053	SED-DUP-002	Nb-94	0.0047 U	0.018	0.0041
EPASED02	Np-236	-0.008 U	0.044	0.013	SED-DUP-002	Np-236	-0.007 U	0.038	0.011
EPASED02	Np-239	0.034 U	0.11	0.032	SED-DUP-002	Np-239	0.0004 U	0.11	0.033
EPASED02	Pa-231	0.077 U	0.79	0.064	SED-DUP-002	Pa-231	0.02 U	0.73	0.22
EPASED02	Pb-212	1.59	0.028	0.049	SED-DUP-002	Pb-212	1.74	0.027	0.071
EPASED02	Pb-214	0.958 J	0.031	0.043	SED-DUP-002	Pb-214	1.11 J	0.032	0.039
EPASED02	Pu-236	-0.001 U	0.009	0.0024	SED-DUP-002	Pu-236	0.001 U	0.0053	0.0015
EPASED02	Pu-238	0.0021 U	0.0028	0.0015	SED-DUP-002	Pu-238	0.0024 J	0.0035	0.0013
EPASED02	Pu-239/Pu-240	0.0031 U	0.0097	0.0029	SED-DUP-002	Pu-239/Pu-240	0.0038 J	0.0013	0.0013
EPASED02	Pu-244	0.001 U	0.0028	0.001	SED-DUP-002	Pu-244	-0.00047 U	0.0035	0.00053
EPASED02	Sb-125	0.127 J	0.052	0.012	SED-DUP-002	Sb-125	0.143 J	0.045	0.013
EPASED02	Sn-126	0.0043 U	0.019	0.0058	SED-DUP-002	Sn-126	-0.0002 U	0.02	0.006
EPASED02	Sr-90	0.1 J	0.078	0.026	SED-DUP-002	Sr-90	0.027 U	0.077	0.023
EPASED02	Tc-99	0.048 J	0.076	0.023	SED-DUP-002	Tc-99	0.049 J	0.078	0.024
EPASED02	Th-228	1.35	0.022	0.068	SED-DUP-002	Th-228	1.22	0.011	0.061
EPASED02	Th-229	0.0035 J	0.0024	0.0018	SED-DUP-002	Th-229	0.0039 J	0.0087	0.0028
EPASED02	Th-230	0.87	0.008	0.047	SED-DUP-002	Th-230	0.86	0.003	0.046
EPASED02	Th-232	1.44	0.008	0.071	SED-DUP-002	Th-232	1.25	0.003	0.063

Table A.3
Parent and Field Duplicate Results Summary
Phase I Sediment Sampling

Sample Identification	Parent Sample				Sample Identification	Field Duplicate Sample			
	Analyte Name	Activity	MDC	TPU		Analyte Name	Activity	MDC	TPU
EPASED02	Th-234	1.58 R	0.26	0.097	SED-DUP-002	Th-234	1.72 R	0.19	0.1
EPASED02	Tl-208	0.52	0.021	0.021	SED-DUP-002	Tl-208	0.542	0.022	0.022
EPASED02	Tm-171	-13.8 R	11	3.4	SED-DUP-002	Tm-171	0.2 U	4.6	1.4
EPASED02	U-233/U-234	0.814	0.007	0.044	SED-DUP-002	U-233/U-234	0.866	0.003	0.047
EPASED02	U-235/U-236	0.0355 J	0.0032	0.0066	SED-DUP-002	U-235/U-236	0.0506 J	0.0034	0.0083
EPASED02	U-238	0.885	0.003	0.047	SED-DUP-002	U-238	0.906	0.003	0.049

Notes:

Refer to Table 3.1 of the Final Phase I Field Sampling Plan for Groundwater, Surface Water, and Sediment (HGL, 2010a) for a definition of radionuclide symbols.

Reporting units in picocuries per gram.

MDC - minimum detectable concentration

TPU - total propagated uncertainty

J - The analyte was detected at the reported concentration; the quantitation is an estimate.

K - Analyte present. Reported value may be biased high. Actual value is expected to be lower.

R - The result is rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria.

U - Not considered detected. The associated number is the reported concentration.

UJ - Not considered detected. The associated number is the reported concentration, which may be inaccurate.

UL - Not considered detected. The associated number is the reported concentration, which may be inaccurate due to a low bias.

Table A.4
Rinsate and Source Comparison Summary
Phase I Sediment Sampling

Sample Type	Sample Identification	H-3			U-233/ U234			U-235/ U236			U-238		
		Activity	MDC	TPU	Activity	MDC	TPU	Activity	MDC	TPU	Activity	MDC	TPU
Rinsate	SED-R-001	4	130	39	0.0033	0.014	0.0059	0.0024	0.0066	0.0024	0.006	0.014	0.0059
Source	SED-S-001	32	140	42	-0.0006	0.021	0.0065	-0.0049	0.023	0.0034	0.0059	0.014	0.0058
Rinsate	SED-R-002	37	140	41	-0.0043	0.022	0.0061	-0.0025	0.024	0.0044	0.0004	0.019	0.0058
Source	SED-S-002	49	130	39	0.0032	0.024	0.0078	0.0028	0.0076	0.0028	0.0013	0.017	0.0055
Rinsate	SED-R-003	14	140	42	0.0018	0.019	0.0064	0.0025	0.0068	0.0025	0.0024	0.019	0.0061
Source	SED-S-003	22	140	40	-0.0104	0.029	0.0069	0.003	0.0082	0.003	-0.0077	0.029	0.0069
Rinsate	SED-R-004	34	130	40	-0.0035	0.021	0.006	0.0085	0.0077	0.0049	-0.0009	0.0062	0.0039
Source	SED-S-004	45	130	41	0.0044	0.0057	0.0056	-0.0026	0.019	0.0026	0.0008	0.0057	0.0042
Rinsate	SED-R-005	39	140	42	-0.0103	0.028	0.0069	0.0052	0.019	0.0052	0.0089	0.019	0.0071
Source	SED-S-005	53	140	42	0.0116	0.006	0.007	0	0.02	0.0039	-0.0011	0.024	0.0066
Rinsate	SED-R-006	27	140	41	0.0052	0.021	0.0074	0.0028	0.0075	0.0028	0.0012	0.006	0.0044
Source	SED-S-006	71	140	42	0.0083	0.015	0.0069	0	0.024	0.0052	0.0068	0.0056	0.0055
Rinsate	SED-R-007	51	140	42	0.0139	0.019	0.0081	0.0025	0.023	0.0056	-0.0077	0.022	0.0049
Source	SED-S-007	59	130	40	-0.0013	0.0061	0.0045	0	0.0076	0.0028	0.0036	0.0061	0.005
Rinsate	SED-R-008	50	130	39	0.0138	0.02	0.0083	0.0025	0.018	0.0043	0.0265	0.021	0.0097
Source	SED-S-008	32	140	41	-0.0044	0.03	0.0083	0.0075	0.0067	0.0043	-0.0057	0.03	0.0077
Rinsate	SED-R-009	27	140	42	0.0102	0.015	0.0071	0.0051	0.0069	0.0036	0.0046	0.015	0.0058
Source	SED-S-009	32	130	40	0.0101	0.019	0.0077	0.0051	0.019	0.0051	0.0005	0.025	0.0071
Rinsate	SED-R-010	49	120	37	0.0036	0.0054	0.0053	0.0025	0.0067	0.0025	0.0006	0.013	0.0047

Notes:

Reporting units in picocuries per liter.

H-3 - tritium

MDC - minimum detectable concentration

TPU - total propagated uncertainty

U - uranium

ATTACHMENT 2

Boring Logs

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Project Name: SSFL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBE	Location ID ERASED01
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/17/10 / 1245	Date/Time Total Depth Reached 12/17/10 / 1345
Type of Sampling Device trowel/shovel	Samples Collected ERASED 01 1245 12/17/10 (2) 1/2 gal bags / (1) 4 oz jar		
Geologist Stephanie Leape Montrose	Checked by/Date A. Stewart with Paul 5/1/12		

Radiological Background 16	Radiological Equipment Used up R meter	PID Used Mini Rae 2000 (Background = 0.0 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Inches	Borehole Gamma Readings (CPM)
6"				18	0"-6" silty sand (dark brown 10YR 3/3) 35% silt, 65% fine to med. grained sand non plastic, loose, moist plant debris / material (roots, leaves, twigs)	SM		NA
					TD = 6"			

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID ERASED 02
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/21/10 / 0950	Date/Time Total Depth Reached 12/21/10 / 1030
Type of Sampling Device trowel/shovel	Samples Collected 12/21/10 0950 (2) 1/2 gal bag (1) 4oz jar		
Geologist Stephanie Lopez-Montoya	Checked by/Date C. Stranthal / 5/1/12		

Radiological Background 1b	Radiological Equipment Used AP R meter	PID Used Mini Rae 2000 (Background = 0.0cpm)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Inches	Borehole Gamma Readings (CPM)
6"			0.1	1b	0-6" SM silty SAND (dark brown 10YR 3/3) 35% silt, 65% fin to med. grained sand non plastic, loose, moist plant material (grass, roots)	SM		NA
					TD = 6"			

Project Name: SSFL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID EPASED 03
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/20/10 0940	Date/Time Total Depth Reached 12/20/10 1010
Type of Sampling Device trowel/shovel	Samples Collected EPASED 03 0940 (2) 1/2 gal bag / (1) 4 oz jar		
Geologist Stephane Lepinard	Checked by/Date J. Stuart Wilford 5/1/12		

Radiological Background 3	Radiological Equipment Used AP R meter	PID Used Mini Rae 2000 (background = 0.0ppm)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
6"			0.0	14	0"-6" SP SAND (brown 10YR 5/3) 15% silt, 85% fine to coarse grained sand, trace gravel (subangular + subrounded) plant material (roots, grass, leaves, twigs) key loose, non plastic, wet/saturated TD = 6" (note: water under water from rain on-off)	SP	NA

Project Name: SSFL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NB2	Location ID EPOSED 04
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/17/10 / 1130	Date/Time Total Depth Reached 12/17/10 / 1155
Type of Sampling Device trowel/shovel	Samples Collected EPOSED 04 / 1130 (2) 1/2 gal bag, (1) 4 oz. jar		
Geologist Stephanie Lepore-Nestrose	Checked by/Date J. Stewart Wilford 5/1/12		

Radiological Background 14	Radiological Equipment Used AP R meter	PID Used Mini Rae 2000 (Background = 0.0cpm)
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Depth	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Inches	Borehole Gamma Readings (CPM)
6"			0.0	14	surface = cobbles + grass 0"-6" ML sandy SILT with clay (brown 10Y2.5/3) 20% clay; 35% fine graded sand, 45% silt med. plasticity, soft, moist, plant material (roots, grass), worms TD = 6" Approx. 6" below ground surface = geofabric	ML		NA

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID EPASED05
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/20/10 / 0830	Date/Time Total Depth Reached 12/20/10 / 0900
Type of Sampling Device trowel/shovel	Samples Collected EPASED05 0830 (2) 1/2 gal bag / (1) 4oz jar		
Geologist Stephanie Lopez-Montrose	Checked by/Date [Signature] 5/1/12		

Radiological Background 14	Radiological Equipment Used APR meter	PID Used Mini Rae 2000 (Background = 0.0 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Borehole Gamma Readings (CPM)
0"	0-6"	[Diagram]	0.8	15	SM silty sand (dark brown 10YR 3/3) 10% clay, 30% silt, 60% fine to coarse grained sand, trace gravel - sub rounded & sub angular, plant material (roots, grass) low plasticity, soft, moist TD = 6"	SM	NA

Project Name: SSFL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID N32	Location ID EPASD 06
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/17/10 / 1525	Date/Time Total Depth Reached 12/17/10 / 1540
Type of Sampling Device trowel/shovel	Samples Collected EPASD 06 1525 (2) 1/2 gal bag / (1) 4oz jar		
Geologist Stephanie Lepore-Munroe	Checked by/Date Stephanie Lepore-Munroe 5/1/12		

Radiological Background 16	Radiological Equipment Used AP R meter	PID Used Mini Rae 2000 (Background = 0 oppa)
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Depth	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Borehole Gamma Readings (CPM)
6"	0'-6"	↓	0.0	16	ML sandy SILT (dark brown 10%R 3/3) 60% silt, 40% fine grained sand low plasticity, soft, moist plant material (roots, grass)	ML	NA
					TD = 6"		

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBE	Location ID EPASED 07
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/20/10 / 1330	Date/Time Total Depth Reached 12/20/10 / 1355
Type of Sampling Device trowel/shovel	Samples Collected EPASED 07 1330 (2) 1/2 gal bag / (1) 4oz jar		
Geologist Stephanie Lopez, MSHM	Checked by/Date J. Hunt / 5/1/12		

Radiological Background 10	Radiological Equipment Used MP R meter	PID Used Mini Rae 2000 (Background = 0.04cpm)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
6"			0.0	10	0-6" SP sand w/ silt (brown 10YR 5/3) 20% silt, 80% fine to coarse grained sand, trace gravel (subangular + subrounded) broken pieces of asphalt, plant material (roots, grass, twigs, leaves), non plastic, loose, wet, burnt piece of wood	SP	NA
TD = 6" Note: Rainy heavily - location wet Note: Debris in charge near sample location							

Project Name: SSFL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBE	Location ID EPASED08
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/20/10 / 1040	Date/Time Total Depth Reached 12/20/10 / 1105
Type of Sampling Device trowel/shovel	Samples Collected EPASED 08 1040 (2) 1/2 gal bags / (1) 4oz. jar		
Geologist Stephene Lopez	Checked by/Date [Signature] 5/11/12		

Radiological Background 14	Radiological Equipment Used MP R meter	PID Used Mini Rae 2000 (Background = 0.0cpm)
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Depth	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Borehole Gamma Readings <small>(CPM)</small>
6"			0.0	14	0'-6" SP SAND w/ silt (brown 10YR 4/3) 20% silt, 80% fine to coarse grained sand trace gravel (subangular & subrounded) plant material (roots, grass, twigs, leaves) very loose, non plastic, wet/saturated TD = 6" (Note: location near water from rain run-off)	SP	NA

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID EPASED09
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 1/13/11 / 0940	Date/Time Total Depth Reached 1/13/11 / 11000
Type of Sampling Device trowel/shovel	Samples Collected EPASED09 / 0940 1/2 gal bag (2) / 4 oz jar (1)		
Geologist Stephenie Lepage Montrose	Checked by/Date <i>[Signature]</i> 5/1/12		

Radiological Background 18 ^u	Radiological Equipment Used up R meter	PID Used Mini Rae 2000 (0.2 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Borehole Gamma Readings (CPM)
6"	5" 4" 3" 2" 1"	↓	0.3	20	<p>0-6" SM silty SAND (dark brown 104A 3/3) 30% silt, 70% fine to coarse ground sand plant material (grass, roots), non plastic, loose, moist</p> <p style="text-align: center;">TD = 6"</p> <p>Note: Drainage contains primarily sandstone and is on an approximately 70° slope</p>	SM	NA

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID EPA5E010
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/22/10 / 1010	Date/Time Total Depth Reached 12/22/10 / 1030
Type of Sampling Device trowel/shovel	Samples Collected EPA5E010 1010 (2) 1/2 gal bag - / (1) 4oz. jar		
Geologist Stephanie Lequin Mastroz	Checked by/Date K. Stewart Mallyat 5/1/12		

Radiological Background 18	Radiological Equipment Used RP Meter	PID Used Mini Rae 2000 (Background = 0.3ppm)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Inches	Borehole Gamma Readings (CPM)
6"			0.3	18	0" - 6" SW SAND (brown 10YR 5/3) 15% silt, 80% fine to coarse grained sand very loose, moist, non plastic, 5% gravel (sub angular & sub rounded) plant material (roots, grass, twigs, leaves) well graded TD = 6"	SW		NA

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID N3Z	Location ID EPASED L1
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/16/10 / 1420	Date/Time Total Depth Reached 12/16/10 / 1435
Type of Sampling Device trowel/shovel	Samples Collected EPASED 11 1420 (2) 1/2 gal bags / (1) 4oz jar		
Geologist Stephanie Lapaya Montano	Checked by/Date [Signature] 5/1/12		
Radiological Background 16	Radiological Equipment Used MP R meter	PID Used Mini Rae 2000 (Background = 0.0 gpm)	

Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Inches	Borehole Gamma Readings (CPM)
6"			07	15	0"-6" SM silty SAND (Dark Brown 10YR 3/3) 40% silt, 60% fine to medium grained sand low plasticity, very soft, loose, moist plant material (grass, roots, leaves)	SM		NA
					TD = 6"			

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBE	Location ID EPASED 12
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/17/10 / 1020	Date/Time Total Depth Reached 12/17/10 / 1035
Type of Sampling Device trowel/shovel	Samples Collected EPASED 12 1020 (2) 1/2 gal bags / (1) 4oz jar		
Geologist Stephanie Legume Andrade	Checked by/Date [Signature] 5/1/12		

Radiological Background 18	Radiological Equipment Used MP R meter	PID Used Mini Rae 2000 (Background = 0.0ppm)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings	
							Inches	(CPM)
6"			0.0	18	0"-6" SW SAND (brown 10YR 5/3) @ 15" 5% silt, 80% fine to coarse grained sand 5% gravel (sub angular + subrounded), plant material (roots, leaves, twigs), non plastic, loose, moist, well graded TD = 6" Note: sandstone ballus throughout drainage/run	SW	NA	

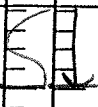
Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID EPASED 13
Drilling Company HGL	Driller	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/16/10 / 1530	Date/Time Total Depth Reached 12/16/10 / 1550
Type of Sampling Device trowel/shovel	Samples Collected EPASED 13 1530 (2) 1/2 gal bag / (1) 4oz jar		
Geologist Stephen Lepore Montrose	Checked by/Date <i>[Signature]</i> 5/1/12		

Radiological Background 15	Radiological Equipment Used AP R meter	PID Used Mini Rae 2000 (Background = 0.9 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Borehole Gamma Readings (CPM)
6"			0.9	15	0.4-6" silty SAND (brown 10YR 4/3) 40% silt, 60% fine to coarse grained sand. low plasticity, very soft, loose, moist plant material (roots, leaves, twigs)	SM	NA
					TD = 6"		

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID EPA500 14
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/17/10 / 0845	Date/Time Total Depth Reached 12/17/10 / 0855
Type of Sampling Device trowel/shovel	Samples Collected EPA500 14 0845 (2) 1/2 gal bag (W) 401 jar		
Geologist Stephenie Lynn Norton	Checked by/Date J. Stewart Wilford 5/1/12		

Radiological Background 18	Radiological Equipment Used AP R meter	PID Used Mini Rae 2000 (Background = 0.0 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Borehole Gamma Readings (CPM)
6"			0.0	18	0"-6" SM silty SAND (Brown 10YR 4/3) 25% silt, 75% fine to coarse grained sand plant material (roots, grass, leaves, twigs) non plastic, loose, moist TID = 6" (note: raining during sampling)	SM	NA

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID EPASED 15
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/21/10 / 1305	Date/Time Total Depth Reached 12/21/10 1315
Type of Sampling Device trowel/shovel	Samples Collected EPASED 15 1305 (2) 1/2 gal bag (1) 4 oz jar		
Geologist Stephanie Lapeyre Anderson	Checked by/Date St. Stewart [Signature]		

Radiological Background 18	Radiological Equipment Used MP R meter	PID Used Mini Rae 2000 (background = 0.01 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings	
							Inches	(CPM)
6"			0.1	18	0'6" SM silty sand (very dark brown 10YR 2/2) 30% silty fine to coarse grained sand plant material (roots, grass, leaves) moist, low plasticity, loose, very soft TD = 6"	SM	NA	

Project Name: SSEL Area JV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID Area 10 + NBZ	Location ID EPA5ED 16
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/15/10 / 1340	Date/Time Total Depth Reached 12/15/10 / 1405
Type of Sampling Device trowel/shovel	Samples Collected EPA5ED 16 1340 (2) 1/2 gal bags / (1) 4oz jar		
Geologist Stephanie Lepeux Portrose	Checked by/Date A. Stant [Signature] 5/1/12		

Radiological Background 15	Radiological Equipment Used RP R meter	PID Used Mini Rae 2000 (Background = 0.0 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Borehole Gamma Readings	
							Inches	(CPM)
6"			0.4	15	0"-6" SM silty sand (dark brown: 10YR 3/3) 10% clay, 35% silt, 55% fine to med. graded sand low plasticity, very soft, moist, plant debris / natural (roots, grass, leaves, twigs)	SM		NA
					TD = 6" Note: at 6" = sandstone			

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID N32	Location ID EP9038 17
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/10/10 / 1050	Date/Time Total Depth Reached 12/10/10 / 1120
Type of Sampling Device trowel/shovel	Samples Collected EP9038 17 1050 (2) 4oz gel bag / (1) 4oz jar		
Geologist Stephanie Lopez Montrose	Checked by/Date [Signature] 5/1/12		

Radiological Background 14	Radiological Equipment Used APR meter	PID Used Mini Rae 2000 (Background = 0.1 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Inches	Borehole Gamma Readings (CPM)
6"			1.0	12	0'-6" SM silty sand (dark brown 108R 3/3) 40% silt (60% fine to coarse grained sand plant material (roots), trace gravel - subangular, concrete debris, metal wire, worm low plasticity, very soft, loose, moist TD = 6" Note: Drilling contained considerable amount of debris (concrete, wires)	SM		NA

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID Area 10 + WGE	Location ID EPASED 18
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/15/10 / 1240	Date/Time Total Depth Reached 12/15/10 / 1255
Type of Sampling Device trowel/shovel	Samples Collected EPASED 18 1240 (2) 42 gal bag / (1) 4oz. jar		
Geologist Stephanie Lepage Montrose	Checked by/Date A. Stewart 5/1/12		

Radiological Background 15	Radiological Equipment Used MP R meter	PID Used Mini Rae 2000 (Background = 0.8 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Borehole Gamma Readings (CPM)
6"			0.8	15	0"-6" silt SAND SM SAND (3) 45% silt, 55% fine to medium grained sand low plasticity, very soft, moist plant material/debris (roots, leaves, twigs) TO = 6"	SM	NA

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID EPASEO 19
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/16/10 / 0935	Date/Time Total Depth Reached 12/16/10 / 0950
Type of Sampling Device trowel/shovel	Samples Collected EPASEO 19 0935 (2) 1/2 gal bag / (1) 4oz jar		
Geologist Stephane Lepym Nantua		Checked by/Date J. Howard Wilford 5/1/12	

Radiological Background 15	Radiological Equipment Used AP R meter	PID Used Mini Rae 2000 (Background = 0.07ppm)
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Depth	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Borehole Gamma Readings (CPM)
6"			0.0	15	0"-6" ^{dark yellowish} silty sand (brown 10YR 3/4) 10% clay, 35% silt, 55% fine to medium grained sand, trace coarse grained sand, plant debris (roots, twigs), worms, low plasticity, very soft, moist TD = 6"	SM	NA

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NSZ	Location ID ERASED 20
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/16/10 / 1140	Date/Time Total Depth Reached 12/16/10 / 1200
Type of Sampling Device trowel/shovel	Samples Collected ERASED 20 1140 (2) 1/2 gal bag / (1) 4 oz jar		
Geologist Stephanie Lepeya Montez	Checked by/Date [Signature] 5/2/12		

Radiological Background 14	Radiological Equipment Used up R meter	PID Used Mini Rae 2000 (Background = 0.4 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Inches	Borehole Gamma Readings (CPM)
6"			0.4	14	0"-6" SM silty sand (dark brown color = 3/3) 30% silt, 70% fine to coarse grained sand, plant material (roots, grass, leaves), non plastic, loose, moist TOC = 6" Note: sandstone outcrop approx 4 ft. down gradient in drainage	SM		NA

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NB2	Location ID EPASED 21
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/15/10 / 0930	Date/Time Total Depth Reached 12/15/10 / 0940
Type of Sampling Device trowel/shovel	Samples Collected EPASED 21 0930 (2) 1/2 gal bags / (1) 4 oz jar		
Geologist Stephanie Lepepe-Morhose	Checked by/Date <i>[Signature]</i> 5/2/12		

Radiological Background 19	Radiological Equipment Used MP R meter	PID Used Mini Rae 2000 (Background = 0.0ppm)
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Depth	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Inches	Borehole Gamma Readings (CPM)
6"			0.7	19	0"-6" SP SAND (brown 10YR 4/3) 10% silt, 90% fine to coarse grained sand, plant debris, loose, moist, plant (leaves, twigs)	SP		NA
					TD = 6" Note: Drainage/Rainie contained numerous sandstone boulders and heavy brush			

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID EPASED 22
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/14/10 / 1010	Date/Time Total Depth Reached 12/14/10 / 1030
Type of Sampling Device trowel/shovel	Samples Collected EPASED 22 1010 (2) 1/2 gal bags / (1) 4 oz jar		
Geologist Stephanie Lopez-Montez	Checked by/Date A. Howard Millipal 5/12/12		

Radiological Background 20	Radiological Equipment Used AP R meter	PID Used Mini Rae 2000 (Background = 0.0ppm)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings	
							Inches	(CPM)
6"			0.2	20	0"-6" SM silty sand (brown 10YR 3/3) 30% silt, 70% fine to coarse grained sand, plant material (leaves, roots, twigs), trace gravel subrounded & subangular, 100% moist, non plastic TD = 6" Note: drainage contained numerous sandstone boulders	SM	NA	

Project Name: SSFL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID EMSD 23
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/14/10 / 0920	Date/Time Total Depth Reached 12/14/10 / 0940
Type of Sampling Device trowel/shovel	Samples Collected EMSD 23 0920 (2) 1/2 gal bags / (1) 4 oz jar		
Geologist Stephanie Lapeyre Montrose	Checked by/Date J. Stewart Wilkford 5/2/12		

Radiological Background 22	Radiological Equipment Used APR meter	PID Used Mini Rae 2000 (Background = 0.0 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Borehole Gamma Readings	
							Inches	(CPM)
6"			0.0	21	0.16" SPK silty sand (dark brown 10YR 2/2) 35% silt, 65% fine to coarse grained sand non plastic, loose, trace gravel-subangular and sub rounded plant material (roots, grass) moist TD = 6"	SM	NA	
Note: Drainage composed of primarily sandstone								

Project Name: SSFL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID EPASED 24
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/14/10 / 1120	Date/Time Total Depth Reached 12/14/10 / 1145
Type of Sampling Device trowel/shovel	Samples Collected EPASED 24 1120 (2) 1/2 gal bags / (1) 4 oz jar		
Geologist Stephanie Lapere Montrose	Checked by/Date J. Stewart Vulliamy 5/2/12		

Radiological Background 20	Radiological Equipment Used dR meter	PID Used Mini Rae 2000 (Background = 0.7 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Inches	Borehole Gamma Readings (CPM)
6"			1.0	20	0' - 6" Silty sand (brown 10YR 3/5) 30% silty, 70% fine to coarse grained sand plant debris/material (twigs, leaves, grass, roots), loose, non plastic, moist TD = 6" Note: Drivage composed of primarily sandstone	SM		NA

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NSZ	Location ID EPASEO 25
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/14/10 / 1245	Date/Time Total Depth Reached 12/14/10 / 1310
Type of Sampling Device trowel/shovel	Samples Collected EPASEO 25 1245 (2) 1/2 gal bags / (1) 4oz. jar		
Geologist Stephanie Lepere Montrose	Checked by/Date J. Stewart Hill / 5/22/12		

Radiological Background 20	Radiological Equipment Used up R meter	PID Used Mini Rae 2000 (Background = 1.0 @ 6.0 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Inches	Borehole Gamma Readings (CPM)
6"			0.8	20	<p>0"-6" silty SAND (dark brown 10YR 2/2) 30% silt, 70% fine to coarse grained sand non plastic, loose, moist, plant debris/matter (roots, leaves, twigs)</p> <p>TD = 6"</p> <p>Drainage composed primarily of sandstone</p>	SM		NA

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID EPASED 26
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/14/10 / 1425	Date/Time Total Depth Reached 12/14/10 /
Type of Sampling Device trowel/shovel	Samples Collected EPASED 26 1525 (2) 1/2 gal bags / (1) 4oz jar		
Geologist Stephane Lepin	Checked by/Date J. Stewart Mallyard 5/2/12		

Radiological Background 18	Radiological Equipment Used up R meter	PID Used Mini Rae 2000 (Background = 0.9 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Inches	Borehole Gamma Readings (CPM)
6"			0.8	19	0"-6" ML sand, SILT (brown 10YR 4/3) 10% clay, 50% silt, 40% fine to medium grained sand, plant material (roots, grass, twigs) low plasticity, very soft, moist TD = 6"	ML		NA

Project Name: SSEL Area JV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID N02	Location ID BASED 27
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/14/10 / 1605	Date/Time Total Depth Reached 12/14/10 / 1620
Type of Sampling Device trowel/shovel	Samples Collected EPASD 27 1605 (2) 1/2 gal bags / (1) 4 oz. jar		
Geologist Stephanie Lepey Montreux	Checked by/Date J. Stewart Williford 5/14/12		

Radiological Background 20	Radiological Equipment Used up R meter	PID Used Mini Rae 2000 (Background = 1.2 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings	
							Inches	(CPM)
6"			1.2	19	0' to 6" SM silty SAND (brown 10YR 4/3) 30% silt, 70% fine to coarse grained sand, plant material (roots, twigs/grass), loose moist, non plastic, piece of white plastic TD = 6"	SM	NA	

Project Name: SSFL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID EPA5028
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 1/13/11 / 1115	Date/Time Total Depth Reached 1/13/11 / 1145
Type of Sampling Device trowel/shovel	Samples Collected EPA5028 / 1115 1/2 gal bag (2) / 4 oz jar (1)		
Geologist Stephanie Lapeyre Montrose	Checked by/Date J. Stantithill/05/2/12		

Radiological Background 19	Radiological Equipment Used AP R meter	PID Used Mini Rae 2000 (0.2 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Inches	Borehole Gamma Readings (CPM)
6"			0.2	19	0-6" SM silty SAND (very dark brown 10% 2/2) 30% silt, 70% fine to coarse grained sand plant material (grass, roots), trace gravel - sub angular wet, non-plastic, loose	SM		NA
					TD = 6" Note: pooled water still in drainage from rains, drainage primarily sandstone.			

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID N02	Location ID EPASED 29
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth (dug via trowel) 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/13/10 / 1150	Date/Time Total Depth Reached 12/13/10 / 1205
Type of Sampling Device trowel/shovel	Samples Collected EPASED 29 1150 (2) 1/2 gal bags / (1) 4oz jar		
Geologist Stephanie Lapierre Montrose	Checked by/Date J. Stewart Wilkford 5/2/12		

Radiological Background 20	Radiological Equipment Used w/ R meter	PID Used Mini Rae 2000 (Background=0.0 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Inches	Borehole Gamma Readings (CPM)
6"			0.0	20	SM silty SAND (brown 10YR 3/3) 25% silty, 70% fine to coarse grained sand plant material/debris (roots, leaves, twigs) non plastic, loose, fine 5% subangular and subrounded gravel	SM		NA
					TD = 6"			

Project Name: SSEL Area JV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID N37	Location ID EPASED 30
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/13/10 / 1110	Date/Time Total Depth Reached 12/13/10 / 1120
Type of Sampling Device trowel/shovel	Samples Collected EPASED 30 / 1110 (2) 1/2 gal bag / (1) 4 oz jar		
Geologist Stephanie Lepore Moritose	Checked by/Date J. Howard Williams 5/2/12		

Radiological Background 16	Radiological Equipment Used up R meter	PID Used Mini Rae 2000 (Background = 0.0 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Inches	Borehole
								Gamma Readings (CPM)
6"			0.0	16	0"-6" SM silty sand (Dark Brown 10YR 3/3) 10% clay; 30% silt, 60% fine to med. grained sand plant debris/material (roots) low plasticity, very soft, moist TD = 6"	SM	N/A	

Project Name: SSFL Area IV Radiological Study		Project Number EP9038.01.22.04.03	Subarea ID NB2	Location ID EPASED31				
Drilling Company HGL		Driller NA	Ground Elevation NA	Total Drilled Depth 6"				
Drilling Equipment trowel/shovel		Borehole Diameter NA	Date/Time Drilling Started 12/13/10 / 0920	Date/Time Total Depth Reached 12/13/10 / 0930				
Type of Sampling Device trowel/shovel			Samples Collected EPASED31 0930 (2) 1/2 gal bag / (1) 4oz jar					
Geologist Stephanie Lepeye Montrose			Checked by/Date M. Stuart Williford 5/2/12					
Radiological Background 19		Radiological Equipment Used APR meter		PID Used Mini Rae 2000 (background = 0.0 ppm)				
Depth	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Inches	Borehole Gamma Readings (CPM)
6"	0'-6"		0.0	15	<p>SM silty SAND (dark brown 10YR 3/3)</p> <p>30% silt, 70% fine to coarse grained sand</p> <p>trace gravel, plant material (roots), no plastic, loose</p> <p>subangular & sub rounded</p> <p style="text-align: center; font-size: 1.5em;">TO = 6"</p>	SM		NA

Project Name: SSEL Area JV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID EPASED 32
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/13/10/1450	Date/Time Total Depth Reached 1510 / 12/13/10
Type of Sampling Device trowel/shovel	Samples Collected EPASED 32 1455 2) 1/2 gal bag (1) 4 oz jar		Checked by/Date J. Stout/5/2/12
Geologist Stephanie Lapoyre Montrose		Checked by/Date	

Radiological Background ZZ	Radiological Equipment Used up R meter	PID Used Mini Rae 2000 (Background = 0.0 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Inches	Borehole Gamma Readings (CPM)
6"			0.0	21	0.6-6" SM silty SAND (dark brown 10YR 3/3) 25% silt, 75% fine to coarse grained sand, trace gravel (subangular) (subrounded) plant material/debris (roots, twigs, grass), non plastic, loose, moist TD = 6"	Sr		NA

Project Name: SSEL Area JV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID EPASED33
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/13/10 / 1540	Date/Time Total Depth Reached 12/13/10 / 1550
Type of Sampling Device trowel/shovel	Samples Collected EPASED33 1540 (2) 1/2 gal bag / (1) 4 oz jar		
Geologist Stephanie Lepere-Montrose	Checked by/Date J. Stewart with form 5/2/12		

Radiological Background 21	Radiological Equipment Used up R meter	PID Used Mini Rae 2000	Background (0.0)
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Depth	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Inches	Borehole Gamma Readings (CPM)
6"			21	21	0'-6" SW SAND (Brown to yr 4/3) 10% silt, 85% fine to coarse grained sand, 5% gravel (sub angular and sub rounded) very loose, moist TD = 6"	SW		NA

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID ERASED 34
Drilling Company HGL	Driller	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/20/10 / 1530	Date/Time Total Depth Reached 12/20/10 / 1530
Type of Sampling Device trowel/shovel	Samples Collected ERASED 34 1530 (2) 1/2 gal bags (1) 4oz jar		
Geologist Stephens Lopez	Checked by/Date E. Stuart Willford 5/2/12		

Radiological Background 16	Radiological Equipment Used up R meter	PID Used Mini Rae 2000 (background = 0.0 pp-)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings	
							Inches	(CPM)
6"				16	0'-6" SP SAND with silt (brown 10R 5/3) 20% silt, 80% fine to coarse grained sand trace gravel - subangular & subrounded, loose, saturated ^{wet/saturated} , non plastic, plant material (grass, roots, leaves) TP = 6" Note: location where water	SP	NA	

Project Name: SSFL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID N32	Location ID EPASED35
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth NA
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 5/23/2011 / 0940	Date/Time Total Depth Reached 5/23/2011 / 1520
Type of Sampling Device trowel/shovel	Samples Collected EPASED35 1320 (4) 1/2-gal. bags + (1) 8-oz. jar		
Geologist Stephanie Lapeyre Montrose	Checked by/Date <i>[Signature]</i>		

Radiological Background NA	Radiological Equipment Used NPK meter (NA)	PID Used Mini Rae 2000 (NA)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings	
							Inches	(CPM)
**			NA	NA	100% saturated, contained fine to coarse grained sediment (unable to determine percentages), very dark color, organic material, strong odor. Unable to conduct field tests to determine lithology and collect readings from PID and micro R due to saturation. ** Collected sediment from the bottom of the hole 56 excavation (also known as the "million dollar hole")			NA

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID EPASED 36
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/21/10 / 1155	Date/Time Total Depth Reached 12/21/10 / 1200
Type of Sampling Device trowel/shovel	Samples Collected EPASED 36 1155 (2) 12 gal bags 1 (1) 402 jar		
Geologist Stephanie Lapierre Minkov	Checked by/Date A. Stuart Wilford 5/2/12		

Radiological Background 14	Radiological Equipment Used M/R meter	PID Used Mini Rae 2000 (background = 0.0 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings	
							Inches	(CPM)
6"			0.4	14	0"-6" ML sandy SILT with clay (brown 10YR 5/3) 15% clay, 40% fine grained sand, 45% silt plant material (roots, grass) low plasticity; soft, moist TD = 6"	ML	NA	

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NB2/Area IV	Location ID EPASB0 37
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/20/10 / 1430	Date/Time Total Depth Reached 12/20/10 / 1450
Type of Sampling Device trowel/shovel	Samples Collected EPASB0 37 1430 (2) 1/2 gal bags / (1) 4 oz jar		
Geologist Stephanie Lopez-Munoz	Checked by/Date J. [Signature] 5/2/12		

Radiological Background No	Radiological Equipment Used M R meter	PID Used Mini Rae 2000 (Background = 0.0 ppm)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings	
							Inches	(CPM)
6"			0.0	16	0-6" SM silty sand (brown 10YR 4/3) 25% silty 75% fine to coarse grained sand trace gravel - subangular & subrounded loose, non-plastic, wet, plant material (roots, twigs, leaves, grass) TD = 6" Note: Considerable amount of debris (barbed wire, tin cans, concrete & asphalt debris) in drainage near sample location.	SM	NA	

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID EPASED 38
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6'
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/21/10 1515	Date/Time Total Depth Reached 12/21/10 1530
Type of Sampling Device trowel/shovel	Samples Collected BRASED 38 1515 (2) 1/2 gal bag / (1) 4oz jar		
Geologist Stephanie Lopez MS	Checked by/Date M. Stewart Willford 5/12		

Radiological Background 18	Radiological Equipment Used AP R meter	PID Used Mini Rae 2000 (background = 0.3ppm)
-------------------------------	---	---

Depth	Interval	Recovery	PID	Radiological	Description <small>(Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)</small>	USCS Symbol	Borehole Gamma Readings (CPM)
6"	0'-6"	[Diagram]	0.2	18	SM silty SAND (brown 10YR 4/3) 25% silt, 75% fine to coarse grained sand plant material (roots, grass, leaves) non-plastic, loose, moist TD = 6"	SM	NA

Project Name: SSEL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NBZ	Location ID ERASED 39
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/21/10 / 1055	Date/Time Total Depth Reached 12/21/10 / 1105
Type of Sampling Device trowel/shovel	Samples Collected ERASED 39 / 1055 (2) 1/2 gal bags / (1) 4 oz jar		
Geologist Stephane Lapere Montrose	Checked by/Date J. Hunt / 5/2/12		

Radiological Background 6	Radiological Equipment Used M R meter	PID Used Mini Rae 2000 (Background = 0.0cpm)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings	
							Inches	(CPM)
6"			0.1	16	0"-6" SP SAND (brown 10YR 5/3) 15% silt, 85% fine to coarse grained sand very loose, moist, non plastic plant debris (roots, leaves) TD = 6"	SP		NA

Project Name: SSFL Area IV Radiological Study	Project Number EP9038.01.22.04.03	Subarea ID NB2	Location ID EPASED 40
Drilling Company HGL	Driller NA	Ground Elevation NA	Total Drilled Depth 6"
Drilling Equipment trowel/shovel	Borehole Diameter NA	Date/Time Drilling Started 12/13/10 / 1020	Date/Time Total Depth Reached 12/13/10 / 1030
Type of Sampling Device trowel/shovel	Samples Collected EPASED 40 (2) 1/2 gal bag / (1) 4 oz jar		
Geologist Stephanie Lepeque Montrose	Checked by/Date [Signature] 5/2/12		

Radiological Background 19	Radiological Equipment Used dPR meter	PID Used Mini Rae 2000 (background = 0.0ppm)
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Depth	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Inches	Borehole Gamma Readings (CPM)
6"			0.0	19	0'-6" SM (dark brown 1042 3/3) silty sand, 30% silt, 70% fine to coarse grained sand, non plastic, loose, moist, plant material/roots TD = 6"	SM		NA

APPENDIX C

**TECHNICAL MEMORANDUM
PHASE II SEDIMENT SAMPLE RESULTS**

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TECHNICAL MEMORANDUM
PHASE II SEDIMENT SAMPLE RESULTS
SANTA SUSANA FIELD LABORATORY SITE
AREA IV RADIOLOGICAL STUDY

TO: Andrew Bain, EPA Region 9 RPM
FROM: T. Stewart Williford, P.G., HGL
THROUGH: L. Steven Vaughn, R.G., HGL Project Manager
Rene R. Rodriguez, P.E., HGL Deputy Project Manager
CC: Mary Aycock, EPA Region 9 RPM
Shiann-Jang Chern, Ph.D., P.E., EPA Region 9 RPM
Gregg Dempsey, Technical Advisor
DATE: November 16, 2012
SUBJECT: Phase II Sediment Sample Results

CONTRACT NO: EP-S7-05-05
TASK ORDER NO: 0038

1.0 INTRODUCTION

HydroGeoLogic, Inc. (HGL) is conducting a comprehensive radiological characterization study of Area IV and the Northern Buffer Zone (NBZ) at the Santa Susana Field Laboratory (SSFL) site in Ventura County, California. This work is being executed under U.S. Environmental Protection Agency (USEPA) Region 7 Architect and Engineering Services Contract EP-S7-05-05, Task Order 0038. The technical lead on the project is USEPA Region 9.

As part of the Area IV and NBZ radiological study, sediment, surface soil, and subsurface soil sampling activities were conducted in two phases: Phase I and Phase II. Phase I sediment samples were collected from locations identified from findings of the Historical Site Assessment (HSA), historical aerial photographs and direct field observations. Phase II sediment, surface soil and subsurface soil samples were collected from locations placed around Phase I locations where radionuclides were detected above project established Radiological Trigger Levels (RTL). Phase II sampling efforts were focused in the NBZ, and along the NBZ and Area IV boundary. This Technical Memorandum documents the sampling activities, analytical results, and conclusions of the Phase II sampling effort. The primary objective of the Phase II sampling effort was to further investigate potential radionuclide contamination by laterally and vertically delineating radionuclide exceedances detected in the Phase I sediment sampling activities. This objective was achieved through the collection and analysis of select sediment, surface soil and subsurface soil samples.

The approach for Phase II sampling was to identify potential sample locations from Phase I results, prepare a Final Phase II Sediment Sampling Addendum to the Final Phase I Field Sampling Plan (FSP) for Groundwater, Surface Water, and Sediment (HGL, 2012a), present

The approach for Phase II sampling was to identify potential sample locations from Phase I results, prepare a Final Phase II Sediment Sampling Addendum to the Final Phase I Field Sampling Plan (FSP) for Groundwater, Surface Water, and Sediment (HGL, 2012a), present the FSP Addendum, and review and finalize proposed locations with USEPA’s SSFL Technical Stakeholder Workgroup.

2.0 SEDIMENT SAMPLING ACTIVITIES

2.1 Sediment Sample Location Placement

A total of 34 sediment, surface soil, and subsurface soil samples were proposed in the Final Phase II Sediment Sampling Addendum (HGL, 2012a). Table 1 below summarizes the proposed samples and lists the samples actually collected. Figure 1 illustrates sample locations (proposed and collected). Deviations from the FSP Addendum are discussed in Section 2.3.

Table 1
Summary of Planned and Collected Samples by Location

Location	Sediment		Surface		Subsurface		Total	
	Planned	Collected	Planned	Collected	Planned	Collected	Planned	Collected
EPASED13	8	8	2	2	10	6	20	16
EPASED17	7	7	0	0	7	4	14	11
Totals	15	15	2	2	17	10	34	27

The proposed sampling locations were discussed during a technical review meeting held on April 18, 2012, with members of USEPA’s SSFL Technical Stakeholder Workgroup consisting of representatives of Department of Energy (DOE), the State of California Department of Toxic Substances Control (DTSC), The Boeing Company, USEPA, and the community.

After the locations were finalized with the Technical Stakeholder Workgroup, proposed sampling locations were marked in the field using a SPS 852 handheld Trimble global positioning system (GPS).

2.2 Sample Collection

Sediment and surface soil samples were collected using a stainless steel trowel or shovel. Subsurface soil samples were collected using a hand auger. Sediment samples were collected in accordance with the procedures detailed in the Final Phase I FSP for Groundwater, Surface Water, and Sediment (HGL, 2010a), and the Phase II Sediment FSP Addendum (HGL, 2012a). Surface soil and subsurface soil samples were collected in accordance with the procedures detailed in the Final FSP for Soil Sampling (HGL, 2012b). Sediment and soil samples were logged and the boring logs are provided in Attachment 2. A total of 27 sediment, surface, and subsurface soil samples were collected from May 14 through May 18, 2012.

2.3 Deviations from the Field Sampling Plan Addendum

Table 2 summarizes the deviations from the FSP Addendum and details why the planned samples were not collected. Subsurface soil samples were not collected from seven locations due to insufficient soil volume as a result of shallow refusal on bedrock.

Table 2
Summary of Subsurface Samples Not Collected

Sample Location	Sample Identification	Justification
EPASED 42	EPASED 42	Refusal at 1.33 feet bgs on bedrock.
EPASED 47	EPASED 47	Refusal at 1.00 feet bgs on bedrock.
EPASED 50	EPASED 50	Refusal at 0.33 feet bgs on bedrock.
EPASED 54	EPASED 54	Refusal at 0.33 feet bgs on bedrock.
EPASED 55	EPASED 55	Refusal at 0.83 feet bgs on bedrock.
EPASED 56	EPASED 56	Refusal at 0.75 feet bgs on bedrock.
EPASED 57	EPASED 57	Refusal at 0.67 feet bgs on bedrock.

Note:

bgs – below ground surface

2.4 Soil Boring Summary

A total of 17 subsurface borings were attempted, of which one boring was advanced to the proposed depth of 10 feet below ground surface (bgs) (HGL, 2012a). Refusal was encountered in 16 of the borings due to shallow bedrock. Of the borings that were not completed to the proposed depth, seven borings could not be advanced further than 16 inches bgs, six borings could only be advanced to a depth less than 5.0 feet bgs, and three could only be advanced to a depth greater than or equal to 5.0 but less than 10.0 feet bgs.

Sediment samples were classified and described in the same manner as soils, in accordance with the Final FSP for Soil Sampling (HGL, 2012b). The most common soil types observed were sand, silty sand, and silt. A summary of the boring log information is presented in Table A.1 and the boring logs are provided in Attachment 2.

3.0 PHASE II SEDIMENT ANALYTICAL RESULTS

Analyses of sediment samples were conducted in accordance with the Quality Assurance Project Plan (QAPP) for Groundwater, Surface Water, and Sediment (HGL, 2010b). All samples were analyzed for strontium (Sr)-90 and the gamma spectroscopy (gamma spec) default suite of analytes, which were presented in Table 2.1 of the FSP for Soil Sampling (HGL, 2012b). In addition, samples collected downgradient of Outfall 3 were also analyzed for the site-specific analytes tritium (H-3), and the uranium (U) default suite in accordance with the rationale presented in Table 1 of the Final Phase II FSP Addendum (HGL, 2012a).

3.1 Analytical Results

Phase II sediment and soil sampling locations were determined based on RTL exceedances detected in Phase I sediment samples. The Phase II samples were tested for those analytes that were detected above the RTL in Phase I samples and analytes detected during previous investigations. It is not within the scope of the SSFL Area IV Radiological Study to conduct Phase III sampling activities; therefore, no additional step-out locations are planned and the Phase II results will not be compared to RTLs.

The Phase II analytical results are documented in this technical memorandum but results are not screened using a reference soil concentration. The Phase I and II analytical results will be evaluated using Field Action Level (FAL) established specifically for the SSFL Area IV Radiological Study. The results of the evaluation will be present in the final surface water and sediment report.

Figure 1 presents the location of all sediment and soil samples collected during the Phase I and Phase II sampling events. Figures 2 and 3 present the Phase II step-out sample locations. A summary of the analytical results is provided in Table A.2.

4.0 QUALITY ASSURANCE/QUALITY CONTROL SAMPLES

In addition to the environmental samples collected, quality control samples were collected as described in the Final QAPP (HGL, 2010b). The results of the quality control samples collected and their affect on data usability are described in the following subsections.

4.1 Field Duplicates

Field duplicate soil samples were collected at a frequency of 1 per 20 samples (5 percent). Two field duplicate samples were collected during the Phase II sampling event. The field duplicate evaluation criterion includes an additional 1σ uncertainty factor of 10 percent to allow for heterogeneity of co-located, but non-homogenized, field samples.

The comparability of a field duplicate result to that of the original sample is assessed by evaluating the duplicate Z-score comparison (Z_{DUP}). The Z-score is a statistical test that indicates how many standard deviations an observation is from the expected value. The Z-score is defined in the Final QAPP (HGL, 2010b), and the Z_{DUP} is calculated as follows:

$$Z_{DUP} = \frac{|X_s - X_d|}{\sqrt{u_s^2 + u_d^2}}$$

where:

- X_s = activity of the sample
- X_d = activity of the duplicate
- u_s = combined standard (1σ) uncertainty of the sample
- u_d = combined standard (1σ) uncertainty of the duplicate

Higher Z_{DUP} scores indicate greater disparity between the sample and the duplicate results. A Z_{DUP} score of 2.0, for example, indicates that the duplicate result differs from the sample result by twice the overall uncertainty of the two results. Hence, a Z_{DUP} score of 1.96 (the warning level) indicates that the two results are statistically equivalent, at the 95 percent confidence interval. A Z_{DUP} score of 2.58 (the exceedance level) indicates that the two results are statistically equivalent, at the 99 percent confidence interval.

A Z_{DUP} evaluation is performed on each paired set of analytes for which parent and duplicate data are reported. This quality assurance/quality control assessment is performed on the validated laboratory results approved and accepted by the project, and recorded in the project database as of August 21, 2012. Subsequent modifications to the approved data or the project database may not be reflected in this assessment.

Phase II field duplicate sample data includes 130 results from two sample/duplicate pairs. Those results included several analytes which were subsequently removed from consideration, and thus were not evaluated. In addition, any results that were rejected by data validation were removed from consideration. Finally, analytes that are simply inferred from previously reported results, such as yttrium-90, which is inferred from the reported Sr-90 results, are considered redundant and have also been removed from consideration.

The Z_{DUP} evaluation of the remaining 54 qualified pairs follows:

- 52 Z_{DUP} evaluation results (96.3 percent) were within the expected 95 percent confidence interval for this evaluation, with Z_{DUP} less than 1.96;
- Zero Z_{DUP} evaluation results (0.0 percent) were between the 95 percent and 99 percent confidence interval with Z_{DUP} at or above 1.96, but below 2.58;
- 2 Z_{DUP} evaluation results (3.7 percent) exceeded the 99 percent confidence interval, with Z_{DUP} values at or above 2.58.

The Z_{DUP} statistical test predicts that, in a homogeneous sample/duplicate pairing, 4 percent of reported Z_{DUP} scores (approximately two Z_{DUP} evaluation results in this Z_{DUP} set) will be in the warning range between 1.96 and 2.58. In addition, 1 percent (approximately one result in this Z_{DUP} set) are expected to exceed a Z_{DUP} score of 2.58.

The two exceedances are found in the U-233/234 and the U-238 results in the same sample/duplicate pair EPASED46B/SED-DUP-004, and the Z_{DUP} scores are 2.76 and 3.55, respectively. A review of the laboratory data, including the alpha particle emission spectra, does not indicate significant data quality issues and the excursion may be due to additional heterogeneity in the co-located but non-homogenized field samples, in excess of the 10 percent estimate described above. The data is considered to be acceptable for its intended purpose.

A summary of the parent and associated duplicate sample results is provided Table A.3.

4.2 Equipment Rinsate and Source Water Blanks

Equipment rinsate blanks were collected at a frequency of one per day, for each type of sampling equipment used per field team. Equipment rinsate blanks were collected in accordance with the Final FSP for Soil Sampling (HGL, 2012b) and the Final QAPP (HGL, 2010c). A total of seven rinsate samples and one source water sample were collected during the Phase II sampling event. Each sample was tested for isotopic U, as a surrogate indicator of cross-contamination. Any results that were rejected for laboratory quality reasons would have been removed from consideration, as in the evaluation of field duplicate samples, above. In this dataset, however, no sample results were rejected. Tritium analyses were also performed on the rinsate and source water samples, in cases where H-3 analysis was expected to be performed on the associated field samples. Those H-3 results are evaluated and included in this report. This equipment rinsate assessment is performed on the validated laboratory results approved and accepted by the project, and recorded in the project database as of September 4, 2012. Subsequent modifications to the approved data or the project database may not be reflected in this assessment.

In all cases, the samples were analyzed by the laboratory “as-received” and the Total activity is reported.

Phase II rinsate and source water samples include 24 total results, from which 21 data pairs were evaluated by Z-score duplicate comparison. The Z_{DUP} scores are summarized below.

- 25 Z_{DUP} evaluation results (96.2 percent) were within the expected 95 percent confidence interval for this evaluation, with Z_{DUP} less than 1.96;
- One Z_{DUP} evaluation result (3.8 percent) was between the 95 percent and 99 percent confidence interval with Z_{DUP} at or above 1.96, but below 2.58;
- Zero Z_{DUP} evaluation results (0.0 percent) exceeded the 99 percent confidence interval, with the Z_{DUP} value at or above 2.58.

As with the field duplicates, the Z_{DUP} statistical test predicts that approximately 4 percent of reported Z_{DUP} scores (approximately one result in this data set) will be in the range between 1.96 and 2.58 and approximately one percent of the reported results (less than one result) will exceed 2.58. In a small sample set such as this one, the distribution of Z-scores approximates the expected frequency.

The evaluation of equipment blank results and associated laboratory data indicates that the decontamination of the field sampling equipment is acceptable and that there is no evidence of sample cross-contamination from the sampling equipment that would adversely affect the quality or usability of the reported field sample data.

A summary of the rinsate and source water blank analytical results are provided in Table A.4.

5.0 CONCLUSIONS

The Phase II analytical results are documented in this technical memorandum; however, the analytical results have not been screened using the RTLs. Radiological trigger levels were reference sediment and soil concentrations designed to be used as a decision making tool to guide the placement of Phase II step-out sampling locations. No additional step-out sampling will be conducted as part of the USEPA's SSFL Area IV Study; therefore, there is no technical reason to compare the data to RTLs.

The Phase I and II analytical results will be evaluated using FALs established specifically for the SSFL Area IV Radiological Study. The results of the evaluation will be present in the final surface water and sediment report.

6.0 REFERENCES

HydroGeoLogic, Inc., 2010a. Final Phase I FSP for Groundwater, Surface Water, and Sediment, Area IV Radiological Study, Santa Susana Field Laboratory Ventura County, California. July.

HydroGeoLogic, Inc., 2010b. Quality Assurance Project Plan for Groundwater, Surface Water, and Sediment, Area IV Radiological Study, Santa Susana Field Laboratory, Ventura County, California. August.

HydroGeoLogic, Inc., 2012a. Final Phase II Sediment Sampling Addendum to the Final Phase I FSP for Groundwater, Surface Water, and Sediment, Area IV Radiological Study, Santa Susana Field Laboratory Ventura County, California. May.

HydroGeoLogic, Inc., 2012b. Final Field Sampling Plan for Soil Sampling, Area IV Radiological Study, Santa Susana Field Laboratory Ventura County, California. March.

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Figure 2	Phase II Step-out Locations EPASED-13 Downgradient of Outfall 3
Figure 3	Phase II Step-out Locations EPASED-17 Downgradient of Outfall 4

LIST OF ATTACHMENTS

Attachment 1	Tables
Attachment 2	Boring Logs

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FIGURES

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Figure 1
Phase I & II Radiological
Sediment Sampling Locations
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

Sample Locations

- Phase I
- Phase II
- Outfall Location
- Drainage Pathways
- - - Intermittent Streams
- Subareas
- Figure Insets

● EPASED40 Phase I Sediment Sample Location ID

■ 4 Outfall Location ID

Notes:
ID - Identification
RTL - Radiological trigger level

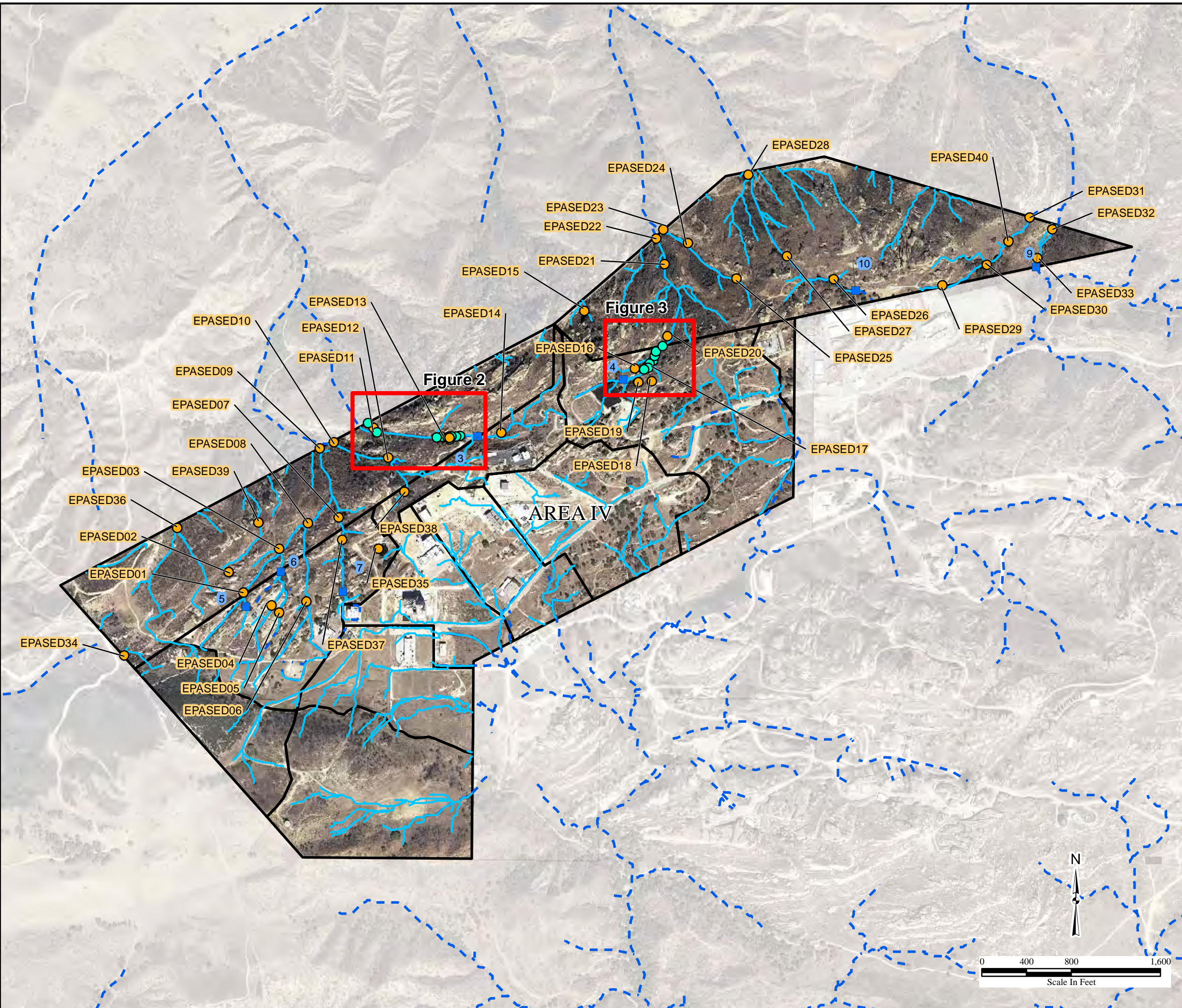


Figure 2
Phase II Step-out Locations
EPASED-13 Downgradient of Outfall 3
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

Phase I Sediment Sample Locations

Sediment

Phase II Sediment Sample Locations

Sediment Subsurface

Surface Subsurface

Outfall Location

Area IV/ NBZ Boundary Line

Drainage Pathways

EPASED48 Sediment Sample Location ID

Outfall 3 Outfall Location ID

Notes:
ID - identification
All units reported in picocuries per gram



Y:\Santa_Susana\EP9038\GW_SW_Sediment_FSP\SED_R2_TM\
Fig2_SED13_Stepout_Results.mxd
Project: EP9038
Source: Boeing 2009, CIRGIS 2007, HGL 2010
11/14/2012 pbillcock



Figure 3
Phase II Step-out Locations
EPASED-17 Downgradient of Outfall 4
Santa Susana Field Laboratory

U.S. EPA Region 9



Legend

Phase I Sediment Sample Location

Sediment

Phase II Sediment Sample Location

Sediment Subsurface

Outfall Location

Subareas

Drainage Pathways

EPASED55 Sediment Sample Location ID

Outfall 4 Outfall Location ID

Notes:
ID - identification
All units reported in picocuries per gram



ATTACHMENT 1

Tables

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Table A.1	Boring Log Summary
Table A.2	Analytical Results Summary
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HGL—Technical Memorandum, Phase II Sediment Sample Results, SSFL—Ventura County, California

Table A.1
Boring Log Summary
Phase II Sediment Sampling

Sample Location	Surface Sample Interval (feet bgs)	Subsurface Sample Interval (feet bgs)	Soil Description	Refusal Depth (feet bgs)	Total Depth (feet bgs)	Northing ¹	Easting ¹
EPASED 41	0 - 0.5	1 - 2.5	ML/SM	2.58	2.58	1,908,475.40	6,346,423.60
EPASED 42	0 - 0.5	NA	ML/SP	1.33	1.33	1,908,470.18	6,346,388.60
EPASED 43	0 - 0.5	1 - 2.5	SP/SM	2.42	2.42	1,908,470.59	6,346,347.79
EPASED 44	0 - 0.5	1 - 3.58	SM/SP	3.58	3.58	1,908,468.54	6,346,330.12
EPASED 45	0 - 0.5	2 - 6	SM/SP	7.5	7.5	1,908,444.68	6,346,331.46
EPASED 46	0 - 0.5	1 - 3	SP	3	3	1,908,462.12	6,346,310.98
EPASED 47	0 - 0.5	NA	SM/SP	1	1	1,908,465.82	6,346,261.78
EPASED 48	0 - 0.5	1 - 5	ML/SM/SP	5.25	5.25	1,908,460.41	6,346,213.67
EPASED 49	0 - 0.5	1.5 - 2.58	SP	2.58	2.58	1,909,068.69	6,348,075.14
EPASED 50	0 - 0.33	NA	SW	0.33	0.33	1,909,081.36	6,348,110.13
EPASED 51	0 - 0.5	1.5 - 1.83	SC/SM	1.83	1.83	1,909,119.25	6,348,123.68
EPASED 52	0 - 0.5	3 - 5.25	SM/ML/CL/SP	5.25	5.25	1,909,144.70	6,348,155.48
EPASED 53	0 - 0.5	2 - 6	SW/SM/SP	10	10	1,909,189.22	6,348,169.02
EPASED 54	0 - 0.33	NA	SM	0.33	0.33	1,909,228.15	6,348,178.45
EPASED 55	0 - 0.5	NA	SM	0.83	0.83	1,909,277.75	6,348,239.75
EPASED 56	0 - 0.5	NA	SM	0.75	0.75	1,908,506.28	6,345,680.07
EPASED 57	0 - 0.5	NA	SM	0.67	0.67	1,908,588.58	6,345,598.65

Notes:

¹Northing and easting measured using NAD83 SPZ5 US Feet.

bgs - below ground surface

SC - clayey sand

CL - clay

SM - silty sand

ML - silt

SP - poorly graded sand

NA - not applicable

SW - well graded sand

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 41B	Ac-227	-0.107 U J	0.263	0.0829	0.217
EPASED 41B	Bi-212	1.12	0.197	0.103	2.15
EPASED 41B	Bi-214	1.2	0.0451	0.0616	1.59
EPASED 41B	Cd-113m	66.9 U	181	55.2	3030
EPASED 41B	Co-60	0.0206 J	0.0295	0.0094	0.028
EPASED 41B	Cs-134	0.0008 U	0.0223	0.0075	0.0864
EPASED 41B	Cs-137	0.0242 J	0.0284	0.0107	0.207
EPASED 41B	Eu-152	-0.0517 U J	0.0668	0.0248	0.0566
EPASED 41B	Eu-154	-0.0118 U	0.151	0.0438	0.15
EPASED 41B	Eu-155	0.0591 JSK	0.0888	0.0301	0.231
EPASED 41B	H-3	1.5 U	5.47	1.6	11.9
EPASED 41B	Ho-166m	-0.0015 U	0.0404	0.012	0.0432
EPASED 41B	K-40	20.7	0.22	1.2	32.4
EPASED 41B	Na-22	0.0083 U	0.0318	0.0093	0.037
EPASED 41B	Nb-94	0.0007 U	0.0241	0.0071	0.0214
EPASED 41B	Np-236	0.002 U	0.0473	0.0145	0.047
EPASED 41B	Np-239	0.0425 U	0.177	0.0527	0.139
EPASED 41B	Pa-231	-0.345 U	1.09	0.339	0.936
EPASED 41B	Pb-212	1.75	0.0431	0.103	2.69
EPASED 41B	Pb-214	1.27	0.0506	0.0627	1.7
EPASED 41B	Sb-125	-0.0163 U	0.0608	0.0191	0.354
EPASED 41B	Sn-126	-0.0004 U	0.0272	0.0081	0.0237
EPASED 41B	Sr-90	-0.0238 U	0.268	0.0708	0.485
EPASED 41B	Th-234	2.01	0.372	0.198	3.19
EPASED 41B	Tl-208	0.562	0.0252	0.0336	0.937
EPASED 41B	Tm-171	0.0393 U	15.4	5.13	72.4
EPASED 41B	U-233/234	1.62	0.0836	0.171	2.02
EPASED 41B	U-235/236	0.0962	0.0632	0.0352	0.151
EPASED 41B	U-238	1.35	0.0704	0.149	1.8
EPASED 41S	Ac-227	-0.0986 U J	0.222	0.0712	0.217

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 41S	Bi-212	0.948	0.149	0.0866	2.15
EPASED 41S	Bi-214	0.947	0.0377	0.0488	1.59
EPASED 41S	Cd-113m	-25.1 U	152	46.1	3030
EPASED 41S	Co-60	-0.0046 U	0.0196	0.006	0.028
EPASED 41S	Cs-134	0.0048 U	0.0185	0.0063	0.0864
EPASED 41S	Cs-137	0.159	0.0202	0.0132	0.207
EPASED 41S	Eu-152	0.0047 U	0.0553	0.0191	0.0566
EPASED 41S	Eu-154	-0.0124 U	0.115	0.0336	0.15
EPASED 41S	Eu-155	0.0743 SK	0.0747	0.0302	0.231
EPASED 41S	H-3	2.85	5.36	1.65	11.9
EPASED 41S	Ho-166m	-0.0024 U	0.031	0.0093	0.0432
EPASED 41S	K-40	20	0.152	1.1	32.4
EPASED 41S	Na-22	-0.0011 U	0.0242	0.0071	0.037
EPASED 41S	Nb-94	0.0119 JSK	0.0188	0.0061	0.0214
EPASED 41S	Np-236	0.0037 U	0.0423	0.0131	0.047
EPASED 41S	Np-239	0.0172 U	0.15	0.0447	0.139
EPASED 41S	Pa-231	-0.532 U	0.892	0.301	0.936
EPASED 41S	Pb-212	1.34	0.0368	0.081	2.69
EPASED 41S	Pb-214	1.15	0.0397	0.0557	1.7
EPASED 41S	Sb-125	0.0297 JSK	0.0542	0.0175	0.354
EPASED 41S	Sn-126	0.0062 U	0.0198	0.0059	0.0237
EPASED 41S	Sr-90	0.35	0.335	0.115	0.485
EPASED 41S	Th-234	1.48 J	0.414	0.384	3.19
EPASED 41S	Tl-208	0.429	0.0192	0.027	0.937
EPASED 41S	Tm-171	6.79 U	17	5.37	72.4
EPASED 41S	U-233/234	0.93	0.0708	0.0995	2.02
EPASED 41S	U-235/236	0.0749	0.0203	0.0242	0.151
EPASED 41S	U-238	1.02	0.0548	0.105	1.8
EPASED 42S	Ac-227	0.133 J	0.243	0.0766	0.217
EPASED 42S	Bi-212	0.976	0.158	0.0885	2.15

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 42S	Bi-214	1.12	0.035	0.0541	1.59
EPASED 42S	Cd-113m	17.8 U	162	52.2	3030
EPASED 42S	Co-60	0.0031 U	0.0201	0.0059	0.028
EPASED 42S	Cs-134	0.0395 SK	0.0168	0.0081	0.0864
EPASED 42S	Cs-137	0.0993	0.0232	0.0111	0.207
EPASED 42S	Eu-152	-0.0395 U	0.0575	0.0223	0.0566
EPASED 42S	Eu-154	-0.0196 U	0.114	0.0342	0.15
EPASED 42S	Eu-155	0.0499 JSK	0.0896	0.0292	0.231
EPASED 42S	H-3	1.92 U	5.44	1.61	11.9
EPASED 42S	Ho-166m	0.0021 U	0.0317	0.0092	0.0432
EPASED 42S	K-40	19.2	0.15	1.06	32.4
EPASED 42S	Na-22	-0.0041 U	0.0224	0.0068	0.037
EPASED 42S	Nb-94	0.0039 U	0.0185	0.0054	0.0214
EPASED 42S	Np-236	0.0017 U	0.048	0.0145	0.047
EPASED 42S	Np-239	-0.0184 U	0.161	0.0473	0.139
EPASED 42S	Pa-231	-0.401 U	0.994	0.328	0.936
EPASED 42S	Pb-212	1.5	0.0406	0.0877	2.69
EPASED 42S	Pb-214	1.26	0.0415	0.0605	1.7
EPASED 42S	Sb-125	0.0175 U	0.0545	0.0165	0.354
EPASED 42S	Sn-126	0.0021 U	0.0208	0.006	0.0237
EPASED 42S	Sr-90	0.0684 U	0.197	0.0582	0.485
EPASED 42S	Th-234	2.1	0.406	0.21	3.19
EPASED 42S	Tl-208	0.461	0.0198	0.0278	0.937
EPASED 42S	Tm-171	-13.7 U	19.8	7.62	72.4
EPASED 42S	U-233/234	1.26	0.144	0.154	2.02
EPASED 42S	U-235/236	0.091	0.0352	0.0351	0.151
EPASED 42S	U-238	1.35	0.0952	0.159	1.8
EPASED 43B	Ac-227	-0.0843 U J	0.205	0.0647	0.217
EPASED 43B	Bi-212	0.881	0.131	0.0734	2.15
EPASED 43B	Bi-214	1.06	0.0314	0.0495	1.59

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 43B	Cd-113m	32.8 U	138	44.3	3030
EPASED 43B	Co-60	-0.0091 U	0.0161	0.0054	0.028
EPASED 43B	Cs-134	0.0023 U	0.015	0.005	0.0864
EPASED 43B	Cs-137	0.0105 J	0.0184	0.0065	0.207
EPASED 43B	Eu-152	-0.0121 U	0.0481	0.0169	0.0566
EPASED 43B	Eu-154	0.011 U	0.0963	0.0333	0.15
EPASED 43B	Eu-155	0.0795 SK	0.0721	0.0301	0.231
EPASED 43B	H-3	3.07	5.63	1.73	11.9
EPASED 43B	Ho-166m	-0.012 U	0.0259	0.0083	0.0432
EPASED 43B	K-40	20.5	0.136	1.2	32.4
EPASED 43B	Na-22	-0.0099 U	0.021	0.0067	0.037
EPASED 43B	Nb-94	0.0068 U	0.0161	0.0049	0.0214
EPASED 43B	Np-236	-0.0141 U	0.0394	0.0126	0.047
EPASED 43B	Np-239	0.0697 J	0.139	0.0435	0.139
EPASED 43B	Pa-231	0.336 U	0.884	0.271	0.936
EPASED 43B	Pb-212	1.53	0.0344	0.102	2.69
EPASED 43B	Pb-214	1.21	0.0354	0.0592	1.7
EPASED 43B	Sb-125	0.0332 JSK	0.0455	0.0154	0.354
EPASED 43B	Sn-126	-0.0044 U	0.0168	0.0051	0.0237
EPASED 43B	Sr-90	0.0158 U	0.218	0.0588	0.485
EPASED 43B	Th-234	1.76	0.319	0.187	3.19
EPASED 43B	Tl-208	0.452	0.0166	0.025	0.937
EPASED 43B	Tm-171	-2.64 U	16.4	5.55	72.4
EPASED 43B	U-233/234	0.909	0.0812	0.106	2.02
EPASED 43B	U-235/236	0.107	0.0517	0.0333	0.151
EPASED 43B	U-238	1.06	0.0203	0.116	1.8
EPASED 43S	Ac-227	-0.0981 U J	0.199	0.0642	0.217
EPASED 43S	Bi-212	0.814	0.136	0.0778	2.15
EPASED 43S	Bi-214	0.906	0.0305	0.044	1.59
EPASED 43S	Cd-113m	-25.8 U	135	42	3030

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 43S	Co-60	0.0026 U	0.0185	0.0053	0.028
EPASED 43S	Cs-134	-0.001 U	0.0147	0.005	0.0864
EPASED 43S	Cs-137	0.0994	0.0184	0.0107	0.207
EPASED 43S	Eu-152	-0.0171 U	0.0493	0.0176	0.0566
EPASED 43S	Eu-154	-0.0732 U	0.104	0.0371	0.15
EPASED 43S	Eu-155	0.0844 SK	0.0711	0.0298	0.231
EPASED 43S	H-3	-1.1 U	5.43	1.43	11.9
EPASED 43S	Ho-166m	-0.0072 U	0.0264	0.0081	0.0432
EPASED 43S	K-40	23.3	0.133	1.36	32.4
EPASED 43S	Na-22	0.0068 U	0.0222	0.0075	0.037
EPASED 43S	Nb-94	0.0082 JSK	0.016	0.005	0.0214
EPASED 43S	Np-236	-0.0052 U	0.0391	0.0121	0.047
EPASED 43S	Np-239	0.0276 U	0.137	0.0406	0.139
EPASED 43S	Pa-231	-0.177 U	0.851	0.266	0.936
EPASED 43S	Pb-212	1.29	0.0351	0.0863	2.69
EPASED 43S	Pb-214	1.07	0.0353	0.0537	1.7
EPASED 43S	Sb-125	0.0073 U	0.0458	0.0138	0.354
EPASED 43S	Sn-126	-0.0064 U	0.0169	0.0053	0.0237
EPASED 43S	Sr-90	0.308	0.221	0.0859	0.485
EPASED 43S	Th-234	1.7	0.307	0.187	3.19
EPASED 43S	Tl-208	0.398	0.0159	0.0237	0.937
EPASED 43S	Tm-171	0.336 U	16.4	5.51	72.4
EPASED 43S	U-233/234	1.02	0.0756	0.111	2.02
EPASED 43S	U-235/236	0.105	0.0546	0.0324	0.151
EPASED 43S	U-238	1.09	0.0628	0.116	1.8
EPASED 44B	Ac-227	-0.0056 U J	0.238	0.071	0.217
EPASED 44B	Bi-212	0.767	0.153	0.0788	2.15
EPASED 44B	Bi-214	1.35	0.0349	0.0647	1.59
EPASED 44B	Cd-113m	-14.8 U	155	46.4	3030
EPASED 44B	Co-60	0.0009 U	0.0214	0.0063	0.028

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 44B	Cs-134	0.0096 JSK	0.0179	0.0063	0.0864
EPASED 44B	Cs-137	0.0054 U	0.0202	0.0069	0.207
EPASED 44B	Eu-152	-0.0133 U	0.056	0.0188	0.0566
EPASED 44B	Eu-154	-0.0888 U J	0.111	0.0401	0.15
EPASED 44B	Eu-155	0.0662 JSK	0.0866	0.0305	0.231
EPASED 44B	H-3	0.861 U	5.46	1.56	11.9
EPASED 44B	Ho-166m	0.0117 U	0.0326	0.0099	0.0432
EPASED 44B	K-40	21.5	0.165	1.18	32.4
EPASED 44B	Na-22	-0.0237 U J	0.0237	0.0094	0.037
EPASED 44B	Nb-94	0.0144 JSK	0.0186	0.0063	0.0214
EPASED 44B	Np-236	-0.0046 U	0.0459	0.0142	0.047
EPASED 44B	Np-239	-0.0063 U	0.156	0.0464	0.139
EPASED 44B	Pa-231	0.03 U	0.975	0.302	0.936
EPASED 44B	Pb-212	1.43	0.0383	0.0871	2.69
EPASED 44B	Pb-214	1.52	0.0407	0.0719	1.7
EPASED 44B	Sb-125	-0.015 U	0.0529	0.0168	0.354
EPASED 44B	Sn-126	0.0011 U	0.0199	0.0059	0.0237
EPASED 44B	Sr-90	0.0322 U	0.3	0.0846	0.485
EPASED 44B	Th-234	1.66	0.367	0.189	3.19
EPASED 44B	Tl-208	0.446	0.0191	0.0277	0.937
EPASED 44B	Tm-171	-12.6 U	18.9	7.17	72.4
EPASED 44B	U-233/234	1.26	0.0827	0.139	2.02
EPASED 44B	U-235/236	0.105	0.071	0.0364	0.151
EPASED 44B	U-238	1.29	0.0652	0.14	1.8
EPASED 44S	Ac-227	-0.0047 U J	0.201	0.0616	0.217
EPASED 44S	Bi-212	0.956	0.134	0.089	2.15
EPASED 44S	Bi-214	1.33	0.0327	0.0604	1.59
EPASED 44S	Cd-113m	-31.9 U	132	45	3030
EPASED 44S	Co-60	-0.0038 U	0.0175	0.0052	0.028
EPASED 44S	Cs-134	0.0095 JSK	0.0159	0.0058	0.0864

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 44S	Cs-137	0.12	0.0168	0.0095	0.207
EPASED 44S	Eu-152	-0.0051 U	0.0498	0.0193	0.0566
EPASED 44S	Eu-154	-0.0505 U	0.101	0.033	0.15
EPASED 44S	Eu-155	0.0293 U	0.0684	0.0212	0.231
EPASED 44S	H-3	2.1 U	5.4	1.62	11.9
EPASED 44S	Ho-166m	0.0051 U	0.0276	0.0084	0.0432
EPASED 44S	K-40	23.4	0.122	1.4	32.4
EPASED 44S	Na-22	-0.007 U	0.0213	0.0068	0.037
EPASED 44S	Nb-94	0.0064 U	0.0164	0.0051	0.0214
EPASED 44S	Np-236	0.0019 U	0.038	0.0113	0.047
EPASED 44S	Np-239	0.0303 U	0.136	0.042	0.139
EPASED 44S	Pa-231	-0.116 U	0.824	0.256	0.936
EPASED 44S	Pb-212	1.4	0.0336	0.0861	2.69
EPASED 44S	Pb-214	1.45	0.0348	0.0704	1.7
EPASED 44S	Sb-125	0.0114 U	0.0465	0.0139	0.354
EPASED 44S	Sn-126	0.0018 U	0.0178	0.0054	0.0237
EPASED 44S	Sr-90	0.0694 U	0.203	0.06	0.485
EPASED 44S	Th-234	1.63	0.289	0.147	3.19
EPASED 44S	Tl-208	0.427	0.0164	0.0245	0.937
EPASED 44S	Tm-171	-6.51 U	11.7	4.21	72.4
EPASED 44S	U-233/234	1.07	0.0584	0.117	2.02
EPASED 44S	U-235/236	0.0549	0.0248	0.0228	0.151
EPASED 44S	U-238	1.22	0.0584	0.128	1.8
EPASED 45B	Ac-227	-0.0441 U J	0.197	0.0593	0.217
EPASED 45B	Bi-212	1	0.138	0.0875	2.15
EPASED 45B	Bi-214	1.28	0.0324	0.059	1.59
EPASED 45B	Cd-113m	-32.7 U	128	40.2	3030
EPASED 45B	Co-60	-0.0006 U	0.0189	0.0055	0.028
EPASED 45B	Cs-134	-0.0084 U	0.0155	0.0058	0.0864
EPASED 45B	Cs-137	0.0062 U	0.0189	0.0064	0.207

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 45B	Eu-152	-0.0229 U	0.0493	0.0165	0.0566
EPASED 45B	Eu-154	-0.0456 U	0.105	0.0379	0.15
EPASED 45B	Eu-155	0.0526 JSK	0.0702	0.0243	0.231
EPASED 45B	H-3	0.0692 U	5.47	1.52	11.9
EPASED 45B	Ho-166m	0.0017 U	0.0292	0.0086	0.0432
EPASED 45B	K-40	21.9	0.151	1.19	32.4
EPASED 45B	Na-22	-0.0054 U	0.0226	0.0069	0.037
EPASED 45B	Nb-94	0.004 U	0.0171	0.0051	0.0214
EPASED 45B	Np-236	-0.0101 U	0.0375	0.0117	0.047
EPASED 45B	Np-239	0.0033 U	0.131	0.0383	0.139
EPASED 45B	Pa-231	-0.314 U	0.806	0.253	0.936
EPASED 45B	Pb-212	1.42	0.0329	0.0821	2.69
EPASED 45B	Pb-214	1.37	0.0344	0.0643	1.7
EPASED 45B	Sb-125	0.0318 JSK	0.0482	0.016	0.354
EPASED 45B	Sn-126	-0.0024 U	0.0188	0.0056	0.0237
EPASED 45B	Sr-90	0.0963 U	0.265	0.0789	0.485
EPASED 45B	Th-234	2.27	0.312	0.172	3.19
EPASED 45B	Tl-208	0.464	0.0175	0.0265	0.937
EPASED 45B	Tm-171	4.16 U	11.9	4.03	72.4
EPASED 45B	U-233/234	2.09	0.109	0.211	2.02
EPASED 45B	U-235/236	0.155	0.0322	0.0444	0.151
EPASED 45B	U-238	1.89	0.0738	0.195	1.8
EPASED 45S	Ac-227	-0.0175 U J	0.15	0.0445	0.217
EPASED 45S	Bi-212	0.675	0.101	0.0691	2.15
EPASED 45S	Bi-214	0.803	0.0239	0.0385	1.59
EPASED 45S	Cd-113m	-3.12 U	101	33.6	3030
EPASED 45S	Co-60	0.0006 U	0.0131	0.0038	0.028
EPASED 45S	Cs-134	0.0019 U	0.012	0.004	0.0864
EPASED 45S	Cs-137	0.155	0.0138	0.011	0.207
EPASED 45S	Eu-152	0.0134 U	0.038	0.013	0.0566

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 45S	Eu-154	-0.0241 U	0.0778	0.0243	0.15
EPASED 45S	Eu-155	0.0463 SK	0.0515	0.0193	0.231
EPASED 45S	H-3	2.97	5.36	1.65	11.9
EPASED 45S	Ho-166m	0.0085 U	0.0213	0.0064	0.0432
EPASED 45S	K-40	20.5	0.0998	1.12	32.4
EPASED 45S	Na-22	0.0039 U	0.0166	0.0048	0.037
EPASED 45S	Nb-94	0.0069 JSK	0.0123	0.0038	0.0214
EPASED 45S	Np-236	-0.0069 U	0.0287	0.009	0.047
EPASED 45S	Np-239	-0.017 U	0.102	0.0301	0.139
EPASED 45S	Pa-231	-0.0741 U	0.628	0.187	0.936
EPASED 45S	Pb-212	1.14	0.0252	0.0615	2.69
EPASED 45S	Pb-214	0.857	0.0268	0.0398	1.7
EPASED 45S	Sb-125	0.0125 U	0.0355	0.0109	0.354
EPASED 45S	Sn-126	-0.0052 U	0.013	0.0041	0.0237
EPASED 45S	Sr-90	-0.0398 U	0.289	0.0779	0.485
EPASED 45S	Th-234	1.18	0.217	0.117	3.19
EPASED 45S	Tl-208	0.348	0.0134	0.0197	0.937
EPASED 45S	Tm-171	-3.05 U	8.46	2.96	72.4
EPASED 45S	U-233/234	0.854	0.0617	0.0938	2.02
EPASED 45S	U-235/236	0.0684	0.0206	0.0233	0.151
EPASED 45S	U-238	0.813	0.0392	0.09	1.8
EPASED 46B	Ac-227	-0.0022 U J	0.2	0.0604	0.217
EPASED 46B	Bi-212	1.02	0.132	0.0855	2.15
EPASED 46B	Bi-214	1.22	0.0314	0.0565	1.59
EPASED 46B	Cd-113m	-39.5 U	130	42.1	3030
EPASED 46B	Co-60	0.002 U	0.0177	0.0052	0.028
EPASED 46B	Cs-134	-0.0039 U	0.0148	0.0052	0.0864
EPASED 46B	Cs-137	0.0438	0.0194	0.0076	0.207
EPASED 46B	Eu-152	-0.0175 U	0.0489	0.0179	0.0566
EPASED 46B	Eu-154	-0.0456 U	0.0987	0.0314	0.15

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 46B	Eu-155	0.0794 SK	0.0701	0.0246	0.231
EPASED 46B	H-3	0.722 U	5.57	1.58	11.9
EPASED 46B	Ho-166m	0.0045 U	0.0286	0.0085	0.0432
EPASED 46B	K-40	19.6	0.14	1.06	32.4
EPASED 46B	Na-22	-0.0053 U	0.0193	0.0069	0.037
EPASED 46B	Nb-94	0.0093 JSK	0.0163	0.0052	0.0214
EPASED 46B	Np-236	-0.0026 U	0.0386	0.0118	0.047
EPASED 46B	Np-239	-0.0033 U	0.132	0.0396	0.139
EPASED 46B	Pa-231	-0.346 U	0.821	0.274	0.936
EPASED 46B	Pb-212	1.5	0.0328	0.0847	2.69
EPASED 46B	Pb-214	1.31	0.035	0.0609	1.7
EPASED 46B	Sb-125	0.0082 U	0.0469	0.0137	0.354
EPASED 46B	Sn-126	0.0026 U	0.0177	0.0053	0.0237
EPASED 46B	Sr-90	0.145 U	0.257	0.0807	0.485
EPASED 46B	Th-234	2.63	0.31	0.208	3.19
EPASED 46B	Tl-208	0.479	0.0169	0.0272	0.937
EPASED 46B	Tm-171	-5.61 U	13	4.78	72.4
EPASED 46B	U-233/234	1.58	0.0822	0.166	2.02
EPASED 46B	U-235/236	0.0389	0.0622	0.0232	0.151
EPASED 46B	U-238	1.43	0.0822	0.155	1.8
EPASED 46S	Ac-227	0.0436 U J	0.193	0.0594	0.217
EPASED 46S	Bi-212	0.711	0.119	0.0718	2.15
EPASED 46S	Bi-214	0.825	0.029	0.0407	1.59
EPASED 46S	Cd-113m	-0.33 U	126	41.7	3030
EPASED 46S	Co-60	-0.0071 U	0.0154	0.005	0.028
EPASED 46S	Cs-134	0 U	0.0143	0.0049	0.0864
EPASED 46S	Cs-137	0.0751	0.0162	0.0094	0.207
EPASED 46S	Eu-152	-0.0173 U	0.0445	0.0157	0.0566
EPASED 46S	Eu-154	-0.0843 U J	0.086	0.0336	0.15
EPASED 46S	Eu-155	0.0641 JSK	0.0718	0.0259	0.231

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 46S	H-3	1.43 U	5.56	1.62	11.9
EPASED 46S	Ho-166m	-0.0026 U	0.0248	0.0075	0.0432
EPASED 46S	K-40	22.3	0.139	1.24	32.4
EPASED 46S	Na-22	-0.0036 U	0.0191	0.0058	0.037
EPASED 46S	Nb-94	0.002 U	0.0142	0.0043	0.0214
EPASED 46S	Np-236	-0.0076 U	0.0381	0.0115	0.047
EPASED 46S	Np-239	0.0436 U	0.131	0.0409	0.139
EPASED 46S	Pa-231	-0.367 U	0.788	0.269	0.936
EPASED 46S	Pb-212	1.19	0.0326	0.0712	2.69
EPASED 46S	Pb-214	0.953	0.0325	0.0465	1.7
EPASED 46S	Sb-125	-0.0019 U	0.0428	0.0126	0.354
EPASED 46S	Sn-126	0.0007 U	0.0153	0.0046	0.0237
EPASED 46S	Sr-90	0.0916 U	0.235	0.0708	0.485
EPASED 46S	Th-234	1.66	0.31	0.172	3.19
EPASED 46S	Tl-208	0.355	0.0152	0.0208	0.937
EPASED 46S	Tm-171	0.0262 U	14.7	4.87	72.4
EPASED 46S	U-233/234	0.894	0.1	0.107	2.02
EPASED 46S	U-235/236	0.0243 U	0.0748	0.0214	0.151
EPASED 46S	U-238	0.757	0.0896	0.0955	1.8
EPASED 47S	Ac-227	-0.118 U J	0.175	0.0595	0.217
EPASED 47S	Bi-212	0.736	0.123	0.0686	2.15
EPASED 47S	Bi-214	0.904	0.0264	0.0438	1.59
EPASED 47S	Cd-113m	19.3 U	119	36.2	3030
EPASED 47S	Co-60	-0.0048 U	0.0158	0.005	0.028
EPASED 47S	Cs-134	0.0012 U	0.0131	0.0045	0.0864
EPASED 47S	Cs-137	0.0973	0.0148	0.0088	0.207
EPASED 47S	Eu-152	-0.0146 U	0.042	0.0131	0.0566
EPASED 47S	Eu-154	-0.0539 U	0.0861	0.0294	0.15
EPASED 47S	Eu-155	0.0816 SK	0.0597	0.0224	0.231
EPASED 47S	H-3	0.957 U	5.67	1.62	11.9

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 47S	Ho-166m	0.0097 U	0.0233	0.0078	0.0432
EPASED 47S	K-40	22	0.115	1.23	32.4
EPASED 47S	Na-22	-0.0024 U	0.0186	0.0057	0.037
EPASED 47S	Nb-94	0.0124 JSK	0.0149	0.0055	0.0214
EPASED 47S	Np-236	-0.0109 U	0.0328	0.0105	0.047
EPASED 47S	Np-239	0.0083 U	0.12	0.035	0.139
EPASED 47S	Pa-231	0.183 U	0.73	0.233	0.936
EPASED 47S	Pb-212	1.22	0.0284	0.0721	2.69
EPASED 47S	Pb-214	1.02	0.0298	0.0484	1.7
EPASED 47S	Sb-125	0.0078 U	0.0405	0.0121	0.354
EPASED 47S	Sn-126	-0.0032 U	0.0152	0.0045	0.0237
EPASED 47S	Sr-90	0.886	0.293	0.149	0.485
EPASED 47S	Th-234	1.65	0.264	0.164	3.19
EPASED 47S	Tl-208	0.375	0.0143	0.0215	0.937
EPASED 47S	Tm-171	3.33 U	11.3	3.86	72.4
EPASED 47S	U-233/234	0.989	0.0649	0.11	2.02
EPASED 47S	U-235/236	0.0886	0.024	0.0287	0.151
EPASED 47S	U-238	0.958	0.0566	0.107	1.8
EPASED 48B	Ac-227	0.0217 U J	0.202	0.0618	0.217
EPASED 48B	Bi-212	1.04	0.166	0.0969	2.15
EPASED 48B	Bi-214	1.12	0.0365	0.0548	1.59
EPASED 48B	Cd-113m	20.6 U	135	41.4	3030
EPASED 48B	Co-60	-0.0083 U	0.0223	0.0069	0.028
EPASED 48B	Cs-134	0.0038 U	0.0182	0.0062	0.0864
EPASED 48B	Cs-137	0.019 J	0.0226	0.0085	0.207
EPASED 48B	Eu-152	-0.0193 U	0.0524	0.0166	0.0566
EPASED 48B	Eu-154	-0.0139 U	0.127	0.0378	0.15
EPASED 48B	Eu-155	0.147 SK	0.0553	0.0316	0.231
EPASED 48B	H-3	0.506 U	5.58	1.57	11.9
EPASED 48B	Ho-166m	-0.0001 U	0.0347	0.01	0.0432

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 48B	K-40	21.2	0.16	1.17	32.4
EPASED 48B	Na-22	-0.002 U	0.0271	0.0078	0.037
EPASED 48B	Nb-94	0.014 JSK	0.0209	0.0067	0.0214
EPASED 48B	Np-236	-0.0199 U	0.0322	0.0107	0.047
EPASED 48B	Np-239	-0.0049 U	0.13	0.0396	0.139
EPASED 48B	Pa-231	-0.434 U	0.823	0.279	0.936
EPASED 48B	Pb-212	1.54	0.0327	0.0867	2.69
EPASED 48B	Pb-214	1.22	0.0377	0.0567	1.7
EPASED 48B	Sb-125	0.0095 U	0.0516	0.0152	0.354
EPASED 48B	Sn-126	0.0205 J	0.0237	0.0081	0.0237
EPASED 48B	Sr-90	0.0323 U	0.172	0.0474	0.485
EPASED 48B	Th-234	1.89	0.254	0.144	3.19
EPASED 48B	Tl-208	0.516	0.02	0.031	0.937
EPASED 48B	Tm-171	1.86 U	7.32	2.54	72.4
EPASED 48B	U-233/234	1.25	0.0889	0.142	2.02
EPASED 48B	U-235/236	0.102	0.0306	0.0347	0.151
EPASED 48B	U-238	1.55	0.0701	0.165	1.8
EPASED 48S	Ac-227	-0.0786 U J	0.223	0.0722	0.217
EPASED 48S	Bi-212	0.817	0.148	0.075	2.15
EPASED 48S	Bi-214	1.02	0.0336	0.0482	1.59
EPASED 48S	Cd-113m	-104 U	146	54	3030
EPASED 48S	Co-60	-0.0074 U	0.0186	0.0059	0.028
EPASED 48S	Cs-134	0.0256 SK	0.0162	0.0055	0.0864
EPASED 48S	Cs-137	0.0932	0.0188	0.0099	0.207
EPASED 48S	Eu-152	-0.0229 U	0.0531	0.0192	0.0566
EPASED 48S	Eu-154	0.0571 J	0.115	0.036	0.15
EPASED 48S	Eu-155	0.0664 SK	0.0786	0.0277	0.231
EPASED 48S	H-3	1.36 U	5.47	1.59	11.9
EPASED 48S	Ho-166m	-0.0082 U	0.0291	0.0089	0.0432
EPASED 48S	K-40	19.3	0.152	1.21	32.4

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 48S	Na-22	0.0068 U	0.0233	0.0079	0.037
EPASED 48S	Nb-94	-0.0037 U	0.0168	0.005	0.0214
EPASED 48S	Np-236	-0.0121 U	0.044	0.0145	0.047
EPASED 48S	Np-239	0.0401 U	0.149	0.0463	0.139
EPASED 48S	Pa-231	-0.568 U	0.908	0.319	0.936
EPASED 48S	Pb-212	1.4	0.0374	0.0931	2.69
EPASED 48S	Pb-214	1.16	0.0387	0.0592	1.7
EPASED 48S	Sb-125	0.0311 JSK	0.0521	0.0168	0.354
EPASED 48S	Sn-126	-0.008 U	0.0185	0.0059	0.0237
EPASED 48S	Sr-90	0.0272 U	0.261	0.0733	0.485
EPASED 48S	Th-234	2.2	0.377	0.208	3.19
EPASED 48S	Tl-208	0.431	0.0173	0.0256	0.937
EPASED 48S	Tm-171	-15.7 U	21.3	8.13	72.4
EPASED 48S	U-233/234	1.7	0.0831	0.157	2.02
EPASED 48S	U-235/236	0.0887	0.0501	0.0285	0.151
EPASED 48S	U-238	1.6	0.0172	0.148	1.8
EPASED 49B	Ac-227	-0.088 U	0.208	0.066	0.217
EPASED 49B	Bi-212	0.671 J	0.206	0.18	2.15
EPASED 49B	Bi-214	0.732	0.0332	0.0402	1.59
EPASED 49B	Cd-113m	17.5 U	140	44.8	3030
EPASED 49B	Co-60	0.0035 U	0.02	0.0058	0.028
EPASED 49B	Cs-134	0.0046 U	0.0161	0.0054	0.0864
EPASED 49B	Cs-137	-0.0037 U	0.018	0.0054	0.207
EPASED 49B	Eu-152	-0.0022 U	0.0511	0.0159	0.0566
EPASED 49B	Eu-154	0.017 U	0.109	0.0325	0.15
EPASED 49B	Eu-155	0.115 JSK	0.0788	0.0361	0.231
EPASED 49B	Ho-166m	0.0072 U	0.0283	0.0083	0.0432
EPASED 49B	K-40	17	0.223	1	32.4
EPASED 49B	Na-22	-0.0072 U	0.022	0.0067	0.037
EPASED 49B	Nb-94	-0.0014 U	0.0162	0.0048	0.0214

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 49B	Np-236	0.009 U	0.0416	0.013	0.047
EPASED 49B	Np-239	0.0301 U	0.144	0.0429	0.139
EPASED 49B	Pa-231	-0.0102 U	0.883	0.263	0.936
EPASED 49B	Pb-212	1.11	0.0366	0.0776	2.69
EPASED 49B	Pb-214	0.883	0.0366	0.0468	1.7
EPASED 49B	Sb-125	0.0144 U	0.0478	0.0146	0.354
EPASED 49B	Sn-126	-0.0115 U	0.0171	0.0059	0.0237
EPASED 49B	Sr-90	-0.0341 U	0.293	0.0795	0.485
EPASED 49B	Th-234	1.42 J	0.414	0.38	3.19
EPASED 49B	Tl-208	0.347	0.019	0.0224	0.937
EPASED 49B	Tm-171	-7.35 U	20.3	6.5	72.4
EPASED 49S	Ac-227	-0.0294 U	0.177	0.0529	0.217
EPASED 49S	Bi-212	0.81 J	0.201	0.206	2.15
EPASED 49S	Bi-214	0.997	0.0296	0.0476	1.59
EPASED 49S	Cd-113m	-65.4 U	114	40.2	3030
EPASED 49S	Co-60	0.0051 U	0.018	0.0053	0.028
EPASED 49S	Cs-134	0.0059 U	0.015	0.0051	0.0864
EPASED 49S	Cs-137	0.069	0.0162	0.0093	0.207
EPASED 49S	Eu-152	-0.0233 U	0.0428	0.0142	0.0566
EPASED 49S	Eu-154	-0.0088 U	0.0983	0.0286	0.15
EPASED 49S	Eu-155	0.0447 JSK	0.062	0.0213	0.231
EPASED 49S	Ho-166m	-0.0038 U	0.0263	0.0079	0.0432
EPASED 49S	K-40	21	0.125	1.14	32.4
EPASED 49S	Na-22	-0.0015 U	0.0205	0.0061	0.037
EPASED 49S	Nb-94	0.0014 U	0.0149	0.0044	0.0214
EPASED 49S	Np-236	0.003 U	0.0336	0.0102	0.047
EPASED 49S	Np-239	-0.0362 U	0.117	0.0355	0.139
EPASED 49S	Pa-231	0.352 U	0.756	0.235	0.936
EPASED 49S	Pb-212	1.27	0.0302	0.0736	2.69
EPASED 49S	Pb-214	1.1	0.0315	0.053	1.7

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 49S	Sb-125	0.0064 U	0.0423	0.0128	0.354
EPASED 49S	Sn-126	-0.0024 U	0.0165	0.0049	0.0237
EPASED 49S	Sr-90	0.0251 U	0.153	0.0439	0.485
EPASED 49S	Th-234	1.63	0.249	0.153	3.19
EPASED 49S	Tl-208	0.39	0.0158	0.0233	0.937
EPASED 49S	Tm-171	-1.64 U	10.5	3.53	72.4
EPASED 50S	Ac-227	0.038 U	0.222	0.0652	0.217
EPASED 50S	Bi-212	0.85	0.145	0.0833	2.15
EPASED 50S	Bi-214	0.868	0.0331	0.0433	1.59
EPASED 50S	Cd-113m	-120 U J	145	56	3030
EPASED 50S	Co-60	-0.0071 U	0.0189	0.006	0.028
EPASED 50S	Cs-134	0.0248 JSK	0.0197	0.0087	0.0864
EPASED 50S	Cs-137	0.096	0.0187	0.0128	0.207
EPASED 50S	Eu-152	-0.0058 U	0.0526	0.027	0.0566
EPASED 50S	Eu-154	-0.0422 U	0.0997	0.0318	0.15
EPASED 50S	Eu-155	0.0485 JSK	0.0828	0.0273	0.231
EPASED 50S	Ho-166m	-0.0128 U	0.0284	0.009	0.0432
EPASED 50S	K-40	21.6	0.137	1.18	32.4
EPASED 50S	Na-22	-0.0029 U	0.0221	0.0078	0.037
EPASED 50S	Nb-94	0.0046 U	0.0169	0.005	0.0214
EPASED 50S	Np-236	0.0026 U	0.044	0.0133	0.047
EPASED 50S	Np-239	-0.0703 U	0.146	0.0462	0.139
EPASED 50S	Pa-231	0.0797 U	0.914	0.295	0.936
EPASED 50S	Pb-212	1.34	0.0369	0.0784	2.69
EPASED 50S	Pb-214	0.955	0.0378	0.0468	1.7
EPASED 50S	Sb-125	-0.004 U	0.0495	0.0148	0.354
EPASED 50S	Sn-126	-0.0055 U	0.0178	0.0054	0.0237
EPASED 50S	Sr-90	0.109 U	0.315	0.0943	0.485
EPASED 50S	Th-234	1.62	0.36	0.197	3.19
EPASED 50S	Tl-208	0.419	0.0183	0.0255	0.937

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 50S	Tm-171	-13.1 U	18	6.99	72.4
EPASED 51B	Ac-227	-0.0277 U	0.17	0.0532	0.217
EPASED 51B	Bi-212	0.807	0.115	0.0693	2.15
EPASED 51B	Bi-214	0.873	0.0279	0.0421	1.59
EPASED 51B	Cd-113m	118 J	118	44.9	3030
EPASED 51B	Co-60	0.0051 U	0.0158	0.0045	0.028
EPASED 51B	Cs-134	0.0057 U	0.0136	0.0047	0.0864
EPASED 51B	Cs-137	0.233	0.0142	0.0146	0.207
EPASED 51B	Eu-152	0.0297 J	0.0426	0.0143	0.0566
EPASED 51B	Eu-154	0.0089 U	0.0855	0.0288	0.15
EPASED 51B	Eu-155	0.0393 SK	0.0579	0.0203	0.231
EPASED 51B	Ho-166m	-0.0043 U	0.0228	0.0067	0.0432
EPASED 51B	K-40	20.1	0.12	1.08	32.4
EPASED 51B	Na-22	-0.0014 U	0.0182	0.0053	0.037
EPASED 51B	Nb-94	0.0105 JSK	0.0142	0.0047	0.0214
EPASED 51B	Np-236	-0.0206 U	0.0313	0.0106	0.047
EPASED 51B	Np-239	0.0456 U	0.115	0.0366	0.139
EPASED 51B	Pa-231	0.0087 U	0.71	0.205	0.936
EPASED 51B	Pb-212	1.17	0.0295	0.0672	2.69
EPASED 51B	Pb-214	0.982	0.0287	0.0464	1.7
EPASED 51B	Sb-125	0.0119 U	0.0406	0.0121	0.354
EPASED 51B	Sn-126	0.0037 U	0.0148	0.0043	0.0237
EPASED 51B	Sr-90	0.113 U	0.217	0.0672	0.485
EPASED 51B	Th-234	1.44	0.253	0.143	3.19
EPASED 51B	Tl-208	0.367	0.0145	0.0216	0.937
EPASED 51B	Tm-171	-7.78 U	11.4	4.17	72.4
EPASED 51S	Ac-227	-0.0378 U	0.19	0.0583	0.217
EPASED 51S	Bi-212	0.845	0.131	0.0782	2.15
EPASED 51S	Bi-214	1.08	0.0291	0.051	1.59
EPASED 51S	Cd-113m	2.59 U	125	39.2	3030

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 51S	Co-60	0.0003 U	0.0177	0.0052	0.028
EPASED 51S	Cs-134	0.0118 JSK	0.0159	0.0059	0.0864
EPASED 51S	Cs-137	0.112	0.0181	0.0107	0.207
EPASED 51S	Eu-152	-0.0321 U	0.0459	0.0183	0.0566
EPASED 51S	Eu-154	-0.0452 U	0.0945	0.0302	0.15
EPASED 51S	Eu-155	0.0547 JSK	0.0677	0.0234	0.231
EPASED 51S	Ho-166m	0.0042 U	0.0265	0.0079	0.0432
EPASED 51S	K-40	20	0.132	1.08	32.4
EPASED 51S	Na-22	0.0035 U	0.0206	0.006	0.037
EPASED 51S	Nb-94	0.0059 U	0.0157	0.0048	0.0214
EPASED 51S	Np-236	0.0036 U	0.0365	0.0107	0.047
EPASED 51S	Np-239	0.0653 J	0.131	0.0418	0.139
EPASED 51S	Pa-231	-0.532 U	0.794	0.296	0.936
EPASED 51S	Pb-212	1.27	0.0329	0.0725	2.69
EPASED 51S	Pb-214	1.17	0.0351	0.0548	1.7
EPASED 51S	Sb-125	0.0198 U	0.0462	0.014	0.354
EPASED 51S	Sn-126	0.0015 U	0.0168	0.005	0.0237
EPASED 51S	Sr-90	0.24	0.251	0.0845	0.485
EPASED 51S	Th-234	1.28	0.282	0.141	3.19
EPASED 51S	Tl-208	0.393	0.0172	0.0233	0.937
EPASED 51S	Tm-171	-4.98 U	12.3	4.51	72.4
EPASED 52B	Ac-227	0.146 J	0.217	0.0716	0.217
EPASED 52B	Bi-212	0.85	0.133	0.0793	2.15
EPASED 52B	Bi-214	1.09	0.0312	0.052	1.59
EPASED 52B	Cd-113m	14.2 U	144	46.4	3030
EPASED 52B	Co-60	0.0049 U	0.0178	0.0053	0.028
EPASED 52B	Cs-134	0.0052 U	0.0155	0.0055	0.0864
EPASED 52B	Cs-137	0.0052 U	0.0183	0.0065	0.207
EPASED 52B	Eu-152	0.0176 U	0.0527	0.0206	0.0566
EPASED 52B	Eu-154	0.0086 U	0.0993	0.0292	0.15

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 52B	Eu-155	0.0682 JSK	0.0833	0.0296	0.231
EPASED 52B	Ho-166m	-0.0003 U	0.0283	0.0082	0.0432
EPASED 52B	K-40	19.6	0.133	1.07	32.4
EPASED 52B	Na-22	-0.0044 U	0.021	0.0064	0.037
EPASED 52B	Nb-94	0.0038 U	0.0158	0.0046	0.0214
EPASED 52B	Np-236	-0.0075 U	0.0442	0.0136	0.047
EPASED 52B	Np-239	-0.0549 U	0.147	0.0453	0.139
EPASED 52B	Pa-231	-0.473 U	0.89	0.314	0.936
EPASED 52B	Pb-212	1.57	0.0366	0.0909	2.69
EPASED 52B	Pb-214	1.17	0.0375	0.055	1.7
EPASED 52B	Sb-125	0.0087 U	0.0477	0.0142	0.354
EPASED 52B	Sn-126	-0.0112 U	0.0172	0.0058	0.0237
EPASED 52B	Sr-90	0.698	0.344	0.142	0.485
EPASED 52B	Th-234	2.12	0.357	0.202	3.19
EPASED 52B	Tl-208	0.475	0.0176	0.0277	0.937
EPASED 52B	Tm-171	-3.27 U	18.3	6.31	72.4
EPASED 52S	Ac-227	-0.0746 U J	0.164	0.052	0.217
EPASED 52S	Bi-212	0.672	0.117	0.0798	2.15
EPASED 52S	Bi-214	0.827	0.0286	0.0397	1.59
EPASED 52S	Cd-113m	16.1 U	113	34.4	3030
EPASED 52S	Co-60	0.0104 J	0.0179	0.0056	0.028
EPASED 52S	Cs-134	0.0219 SK	0.0139	0.0047	0.0864
EPASED 52S	Cs-137	0.0884	0.0157	0.0082	0.207
EPASED 52S	Eu-152	-0.0072 U	0.0406	0.0151	0.0566
EPASED 52S	Eu-154	-0.0067 U	0.0951	0.0276	0.15
EPASED 52S	Eu-155	0.0317 JSK	0.0589	0.0191	0.231
EPASED 52S	Ho-166m	0.0013 U	0.0252	0.0074	0.0432
EPASED 52S	K-40	21	0.136	1.14	32.4
EPASED 52S	Na-22	-0.0106 U	0.0196	0.0065	0.037
EPASED 52S	Nb-94	-0.0013 U	0.0142	0.0042	0.0214

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 52S	Np-236	0.0007 U	0.0323	0.0098	0.047
EPASED 52S	Np-239	0.0121 U	0.113	0.0332	0.139
EPASED 52S	Pa-231	0.0728 U	0.702	0.215	0.936
EPASED 52S	Pb-212	1.07	0.0281	0.0619	2.69
EPASED 52S	Pb-214	0.908	0.0299	0.0442	1.7
EPASED 52S	Sb-125	0.0028 U	0.0408	0.0123	0.354
EPASED 52S	Sn-126	0.0053 U	0.0164	0.0049	0.0237
EPASED 52S	Sr-90	0.0609 U	0.215	0.0625	0.485
EPASED 52S	Th-234	1.24	0.252	0.129	3.19
EPASED 52S	Tl-208	0.355	0.0151	0.0213	0.937
EPASED 52S	Tm-171	-3.87 U	9.81	3.42	72.4
EPASED 53B	Ac-227	-0.12 U	0.177	0.0616	0.217
EPASED 53B	Bi-212	0.841	0.112	0.0725	2.15
EPASED 53B	Bi-214	0.993	0.0254	0.0467	1.59
EPASED 53B	Cd-113m	-11 U	118	37.1	3030
EPASED 53B	Co-60	-0.0015 U	0.0149	0.0044	0.028
EPASED 53B	Cs-134	0.009 JSK	0.0128	0.0046	0.0864
EPASED 53B	Cs-137	0.0073 U	0.0154	0.0053	0.207
EPASED 53B	Eu-152	-0.0424 U J	0.0408	0.019	0.0566
EPASED 53B	Eu-154	-0.0752 U J	0.0791	0.0312	0.15
EPASED 53B	Eu-155	0.0894 SK	0.0596	0.0235	0.231
EPASED 53B	Ho-166m	-0.0001 U	0.0224	0.0066	0.0432
EPASED 53B	K-40	18.7	0.114	1.01	32.4
EPASED 53B	Na-22	-0.0132 U J	0.0163	0.0059	0.037
EPASED 53B	Nb-94	0.0062 U	0.0133	0.0041	0.0214
EPASED 53B	Np-236	-0.0062 U	0.0326	0.01	0.047
EPASED 53B	Np-239	-0.0051 U	0.117	0.0352	0.139
EPASED 53B	Pa-231	-0.223 U	0.715	0.232	0.936
EPASED 53B	Pb-212	1.33	0.0294	0.085	2.69
EPASED 53B	Pb-214	1.13	0.0293	0.0557	1.7

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 53B	Sb-125	0.0132 U	0.0392	0.0122	0.354
EPASED 53B	Sn-126	0.0062 U	0.0149	0.0045	0.0237
EPASED 53B	Sr-90	0.0673 U	0.25	0.0736	0.485
EPASED 53B	Th-234	1.68	0.252	0.156	3.19
EPASED 53B	Tl-208	0.387	0.0146	0.0228	0.937
EPASED 53B	Tm-171	-7.89 U	10.3	4.14	72.4
EPASED 53S	Ac-227	-0.0224 U	0.158	0.0489	0.217
EPASED 53S	Bi-212	0.642	0.139	0.0717	2.15
EPASED 53S	Bi-214	0.75	0.0304	0.0389	1.59
EPASED 53S	Cd-113m	-27.5 U	103	32.4	3030
EPASED 53S	Co-60	0.0066 U	0.0194	0.0055	0.028
EPASED 53S	Cs-134	0.0037 U	0.0151	0.0052	0.0864
EPASED 53S	Cs-137	0.0461	0.0179	0.009	0.207
EPASED 53S	Eu-152	-0.0123 U	0.0423	0.0132	0.0566
EPASED 53S	Eu-154	-0.0567 U	0.103	0.0343	0.15
EPASED 53S	Eu-155	0.0474 JSK	0.0508	0.0183	0.231
EPASED 53S	Ho-166m	-0.0189 U J	0.026	0.009	0.0432
EPASED 53S	K-40	20.1	0.145	1.1	32.4
EPASED 53S	Na-22	-0.0009 U	0.0219	0.0066	0.037
EPASED 53S	Nb-94	0.0043 U	0.0166	0.005	0.0214
EPASED 53S	Np-236	-0.0099 U	0.0268	0.0083	0.047
EPASED 53S	Np-239	-0.0141 U	0.105	0.0324	0.139
EPASED 53S	Pa-231	-0.31 U	0.68	0.226	0.936
EPASED 53S	Pb-212	0.95	0.0275	0.0536	2.69
EPASED 53S	Pb-214	0.843	0.0297	0.0402	1.7
EPASED 53S	Sb-125	-0.0014 U	0.0417	0.0122	0.354
EPASED 53S	Sn-126	-0.0004 U	0.0175	0.0053	0.0237
EPASED 53S	Sr-90	0.0942 U	0.248	0.0747	0.485
EPASED 53S	Th-234	1.06	0.201	0.102	3.19
EPASED 53S	Tl-208	0.298	0.0165	0.0191	0.937

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 53S	Tm-171	-1.7 U	6.03	2.14	72.4
EPASED 54S	Ac-227	0.0234 U	0.195	0.0597	0.217
EPASED 54S	Bi-212	0.705	0.153	0.0819	2.15
EPASED 54S	Bi-214	1.09	0.0336	0.0527	1.59
EPASED 54S	Cd-113m	-37.3 U	127	40.4	3030
EPASED 54S	Co-60	0.0069 U	0.0221	0.0063	0.028
EPASED 54S	Cs-134	0.0441 JSK	0.0207	0.0119	0.0864
EPASED 54S	Cs-137	0.187	0.0199	0.0135	0.207
EPASED 54S	Eu-152	-0.0135 U	0.0495	0.0149	0.0566
EPASED 54S	Eu-154	-0.08 U	0.115	0.0403	0.15
EPASED 54S	Eu-155	0.0609 SK	0.0564	0.0228	0.231
EPASED 54S	Ho-166m	0.0003 U	0.0311	0.0089	0.0432
EPASED 54S	K-40	18.8	0.17	1.03	32.4
EPASED 54S	Na-22	-0.0064 U	0.0249	0.0078	0.037
EPASED 54S	Nb-94	0.0011 U	0.0179	0.0054	0.0214
EPASED 54S	Np-236	0.0006 U	0.0318	0.0093	0.047
EPASED 54S	Np-239	-0.0441 U	0.126	0.0401	0.139
EPASED 54S	Pa-231	-0.529 U	0.796	0.282	0.936
EPASED 54S	Pb-212	1.25	0.0321	0.0699	2.69
EPASED 54S	Pb-214	1.18	0.0365	0.0548	1.7
EPASED 54S	Sb-125	0.0087 U	0.0497	0.0145	0.354
EPASED 54S	Sn-126	0.0043 U	0.0208	0.0063	0.0237
EPASED 54S	Sr-90	-0.0105 U	0.23	0.0636	0.485
EPASED 54S	Th-234	1.63	0.233	0.135	3.19
EPASED 54S	Tl-208	0.401	0.0195	0.0254	0.937
EPASED 54S	Tm-171	-3.36 U	7.09	2.61	72.4
EPASED 55S	Ac-227	-0.0458 U	0.218	0.0659	0.217
EPASED 55S	Bi-212	0.405 J	0.229	0.132	2.15
EPASED 55S	Bi-214	0.834	0.0415	0.0452	1.59
EPASED 55S	Cd-113m	-16.9 U	144	43	3030

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 55S	Co-60	0.0005 U	0.0245	0.0071	0.028
EPASED 55S	Cs-134	0.0115 JSK	0.021	0.0073	0.0864
EPASED 55S	Cs-137	0.0806	0.0236	0.0108	0.207
EPASED 55S	Eu-152	-0.0218 U	0.055	0.0236	0.0566
EPASED 55S	Eu-154	0.0139 U	0.137	0.0393	0.15
EPASED 55S	Eu-155	0.0547 JSK	0.0722	0.0251	0.231
EPASED 55S	Ho-166m	-0.0009 U	0.0362	0.0107	0.0432
EPASED 55S	K-40	20.5	0.18	1.18	32.4
EPASED 55S	Na-22	0.0019 U	0.0289	0.0084	0.037
EPASED 55S	Nb-94	-0.0015 U	0.0204	0.0061	0.0214
EPASED 55S	Np-236	-0.0104 U	0.0385	0.0121	0.047
EPASED 55S	Np-239	-0.0052 U	0.146	0.0429	0.139
EPASED 55S	Pa-231	-0.282 U	0.916	0.293	0.936
EPASED 55S	Pb-212	0.94	0.0428	0.0581	2.69
EPASED 55S	Pb-214	0.844	0.0393	0.0451	1.7
EPASED 55S	Sb-125	0.0047 U	0.0562	0.017	0.354
EPASED 55S	Sn-126	0.0027 U	0.0229	0.0067	0.0237
EPASED 55S	Sr-90	0.0164 U	0.201	0.056	0.485
EPASED 55S	Th-234	1.19	0.305	0.149	3.19
EPASED 55S	Tl-208	0.336	0.0215	0.0224	0.937
EPASED 55S	Tm-171	6.83 J	13	4.56	72.4
EPASED 56S	Ac-227	0.0017 U J	0.165	0.0483	0.217
EPASED 56S	Bi-212	0.69	0.106	0.0654	2.15
EPASED 56S	Bi-214	0.851	0.0251	0.0403	1.59
EPASED 56S	Cd-113m	-27.7 U	108	33.6	3030
EPASED 56S	Co-60	0.0007 U	0.0155	0.0046	0.028
EPASED 56S	Cs-134	0.0158 SK	0.0121	0.0045	0.0864
EPASED 56S	Cs-137	0.0453	0.0165	0.0068	0.207
EPASED 56S	Eu-152	-0.0036 U	0.0395	0.0134	0.0566
EPASED 56S	Eu-154	-0.0441 U	0.0879	0.0288	0.15

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 56S	Eu-155	0.0496 SK	0.057	0.0212	0.231
EPASED 56S	H-3	0.292 U	5.52	1.54	11.9
EPASED 56S	Ho-166m	0.0121 JSK	0.0225	0.0069	0.0432
EPASED 56S	K-40	23.3	0.0982	1.3	32.4
EPASED 56S	Na-22	0.0031 U	0.0183	0.006	0.037
EPASED 56S	Nb-94	-0.0011 U	0.0126	0.0037	0.0214
EPASED 56S	Np-236	-0.0114 U	0.0313	0.0101	0.047
EPASED 56S	Np-239	0.0089 U	0.112	0.0326	0.139
EPASED 56S	Pa-231	0.156 U	0.695	0.206	0.936
EPASED 56S	Pb-212	1.11	0.0272	0.0653	2.69
EPASED 56S	Pb-214	0.9	0.0283	0.043	1.7
EPASED 56S	Sb-125	0.0368 JSK	0.0387	0.014	0.354
EPASED 56S	Sn-126	-0.0027 U	0.0143	0.0042	0.0237
EPASED 56S	Sr-90	0.0032 U	0.307	0.0822	0.485
EPASED 56S	Th-234	1.21	0.244	0.144	3.19
EPASED 56S	Tl-208	0.347	0.0142	0.0201	0.937
EPASED 56S	Tm-171	0.366 U	10.4	3.51	72.4
EPASED 56S	U-233/234	0.692	0.0376	0.0795	2.02
EPASED 56S	U-235/236	0.0459	0.0465	0.0203	0.151
EPASED 56S	U-238	0.863	0.016	0.0923	1.8
EPASED 57S	Ac-227	-0.071 U J	0.187	0.0607	0.217
EPASED 57S	Bi-212	0.571	0.128	0.06	2.15
EPASED 57S	Bi-214	0.749	0.0284	0.0379	1.59
EPASED 57S	Cd-113m	-87.7 U	126	44	3030
EPASED 57S	Co-60	0.003 U	0.0175	0.0051	0.028
EPASED 57S	Cs-134	0.001 U	0.0137	0.0046	0.0864
EPASED 57S	Cs-137	0.0681	0.0169	0.0083	0.207
EPASED 57S	Eu-152	-0.0007 U	0.0463	0.0157	0.0566
EPASED 57S	Eu-154	0.0346 U	0.104	0.0364	0.15
EPASED 57S	Eu-155	0.0778 SK	0.0679	0.0265	0.231

Table A.2
Analytical Results Summary
Phase II Sediment

Sample Identification	Analyte Name	Activity	MDC	TPU	RTL
EPASED 57S	H-3	0.585 U	5.47	1.55	11.9
EPASED 57S	Ho-166m	-0.0121 U	0.0256	0.0082	0.0432
EPASED 57S	K-40	20.9	0.118	1.3	32.4
EPASED 57S	Na-22	0.0021 U	0.0213	0.0062	0.037
EPASED 57S	Nb-94	-0.0019 U	0.0141	0.0042	0.0214
EPASED 57S	Np-236	-0.0119 U	0.0372	0.0124	0.047
EPASED 57S	Np-239	0.0393 U	0.129	0.0402	0.139
EPASED 57S	Pa-231	-0.221 U	0.78	0.25	0.936
EPASED 57S	Pb-212	0.979	0.0322	0.0656	2.69
EPASED 57S	Pb-214	0.831	0.0334	0.0435	1.7
EPASED 57S	Sb-125	0 U	0.0423	0.0126	0.354
EPASED 57S	Sn-126	0.0006 U	0.0162	0.0047	0.0237
EPASED 57S	Sr-90	0.188	0.234	0.0779	0.485
EPASED 57S	Th-234	1.32 J	0.384	0.342	3.19
EPASED 57S	Tl-208	0.32	0.0159	0.019	0.937
EPASED 57S	Tm-171	-6.86 U	17.9	5.52	72.4
EPASED 57S	U-233/234	0.909	0.0792	0.119	2.02
EPASED 57S	U-235/236	0.051	0.0345	0.0258	0.151
EPASED 57S	U-238	0.732	0.0698	0.104	1.8

Notes:

Refer to Table 2.1 of the Final Field Sampling Plan for Soil Sampling (HGL, 2012b) for a definition of radionuclide symbols.

Reporting units in picocuries per gram.

MDC - minimum detectable concentration

RTL - radiological trigger level

TPU - total propagated uncertainty

J - The analyte was detected at the reported concentration; the quantitation is an estimate.

K - Analyte present. Reported value may be biased high. Actual value is expected to be lower.

S - Analyte result is subject to spectral interference. Unless otherwise qualified, the data is believed to be consistent with the background study results and may be used for its intended purpose.

U - Not considered detected. The associated number is the reported concentration.

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Table A.3
Parent and Field Duplicate Results Summary
Phase II Sediment

Sample Location	Parent Sample					Field Duplicate Sample				
	Sample ID	Analyte Name	Activity	MDC	TPU	Sample ID	Analyte Name	Activity	MDC	TPU
EPASED 46	EPASED 46B	Sb-125	0.00815 U	0.0469	0.0137	SED-DUP-004	Sb-125	-0.0145 U	0.039	0.0122
EPASED 46	EPASED 46B	Sn-126	0.00261 U	0.0177	0.00526	SED-DUP-004	Sn-126	-0.0016 U	0.0161	0.0047
EPASED 46	EPASED 46B	Sr-90	0.145 U	0.257	0.0807	SED-DUP-004	Sr-90	0.0186 U	0.235	0.0643
EPASED 46	EPASED 46B	Tl-208	0.479	0.0169	0.0272	SED-DUP-004	Tl-208	0.461	0.0148	0.0256
EPASED 46	EPASED 46B	Tm-171	-5.61 U	13	4.78	SED-DUP-004	Tm-171	0.324 U	12.4	4.01
EPASED 46	EPASED 46B	U-233/234	1.58	0.0822	0.166	SED-DUP-004	U-233/234	2.45	0.0832	0.234
EPASED 46	EPASED 46B	U-235/236	0.0389	0.0622	0.0232	SED-DUP-004	U-235/236	0.0845	0.0629	0.033
EPASED 46	EPASED 46B	U-238	1.43	0.0822	0.155	SED-DUP-004	U-238	2.55	0.0509	0.241
EPASED 53	EPASED 53B	Ac-227	-0.12 U	0.177	0.0616	SED-DUP-003	Ac-227	0.0586 U	0.190	0.0584
EPASED 53	EPASED 53B	Ac-228	1.1	0.0791	0.0585	SED-DUP-003	Ac-228	1.25	0.099	0.0641
EPASED 53	EPASED 53B	Bi-212	0.841	0.112	0.0725	SED-DUP-003	Bi-212	0.951	0.127	0.0851
EPASED 53	EPASED 53B	Bi-214	0.993	0.0254	0.0467	SED-DUP-003	Bi-214	0.904	0.0289	0.0451
EPASED 53	EPASED 53B	Cd-113m	-11 U	118	37.1	SED-DUP-003	Cd-113m	-39.4 U	127	41.1
EPASED 53	EPASED 53B	Co-60	-0.00152 U	0.0149	0.00437	SED-DUP-003	Co-60	0.006 U	0.0178	0.00524
EPASED 53	EPASED 53B	Cs-134	0.00897 JSK	0.0128	0.00462	SED-DUP-003	Cs-134	0.00715 U	0.0151	0.00525
EPASED 53	EPASED 53B	Cs-137	0.00733 U	0.0154	0.00533	SED-DUP-003	Cs-137	-0.0028 U	0.0177	0.00534
EPASED 53	EPASED 53B	Eu-152	-0.0424 U J	0.0408	0.019	SED-DUP-003	Eu-152	-0.0254 U	0.0464	0.0162
EPASED 53	EPASED 53B	Eu-154	-0.0752 U J	0.0791	0.0312	SED-DUP-003	Eu-154	-0.0304 U	0.101	0.0305
EPASED 53	EPASED 53B	Eu-155	0.0894 SK	0.0596	0.0235	SED-DUP-003	Eu-155	0.0501 JSK	0.069	0.0232
EPASED 53	EPASED 53B	Ho-166m	-0.000124 U	0.0224	0.0066	SED-DUP-003	Ho-166m	0.0103 U	0.0278	0.00843
EPASED 53	EPASED 53B	K-40	18.7	0.114	1.01	SED-DUP-003	K-40	20.4	0.137	1.10

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Table A.3
Parent and Field Duplicate Results Summary
Phase II Sediment

Sample Location	Parent Sample					Field Duplicate Sample				
	Sample ID	Analyte Name	Activity	MDC	TPU	Sample ID	Analyte Name	Activity	MDC	TPU
EPASED 53	EPASED 53B	Na-22	-0.0132 U J	0.0163	0.0059	SED-DUP-003	Na-22	-0.00581 U	0.0207	0.00634
EPASED 53	EPASED 53B	Nb-94	0.0062 U	0.0133	0.00408	SED-DUP-003	Nb-94	0.00555 U	0.0156	0.00473
EPASED 53	EPASED 53B	Np-236	-0.00617 U	0.0326	0.01	SED-DUP-003	Np-236	-0.00734 U	0.0369	0.011
EPASED 53	EPASED 53B	Np-239	-0.00512 U	0.117	0.0352	SED-DUP-003	Np-239	-0.022 U	0.128	0.0389
EPASED 53	EPASED 53B	Pa-231	-0.223 U	0.715	0.232	SED-DUP-003	Pa-231	-0.371 U	0.792	0.294
EPASED 53	EPASED 53B	Pb-212	1.33	0.0294	0.085	SED-DUP-003	Pb-212	1.42	0.0321	0.0807
EPASED 53	EPASED 53B	Pb-214	1.13	0.0293	0.0557	SED-DUP-003	Pb-214	0.982	0.0333	0.0469
EPASED 53	EPASED 53B	Sb-125	0.0132 U	0.0392	0.0122	SED-DUP-003	Sb-125	-0.0113 U	0.0439	0.0132
EPASED 53	EPASED 53B	Sn-126	0.0062 U	0.0149	0.00454	SED-DUP-003	Sn-126	0.00797 U	0.0178	0.00549
EPASED 53	EPASED 53B	Sr-90	0.0673 U	0.25	0.0736	SED-DUP-003	Sr-90	-0.0945 U	0.295	0.0768
EPASED 53	EPASED 53B	Tl-208	0.387	0.0146	0.0228	SED-DUP-003	Tl-208	0.438	0.0166	0.026
EPASED 53	EPASED 53B	Tm-171	-7.89 U	10.3	4.14	SED-DUP-003	Tm-171	-6.82 U	12.7	4.78

Notes:

Refer to Table 2.1 of the Final Field Sampling Plan for Soil Sampling (HGL, 2012a) for a definition of radionuclide symbols.

Reporting units in picocuries per gram.

ID - identification

MDC - minimum detectable concentration

TPU - total propagated uncertainty

J - The analyte was detected at the reported concentration; the quantitation is an estimate.

K - Analyte present. Reported value may be biased high. Actual value is expected to be lower.

S - Analyte result is subject to spectral interference. Unless otherwise qualified, the data is believed to be consistent with the background study results and may be used for its intended purpose.

U - Not considered detected. The associated number is the reported concentration.

Table A.4
Rinsate and Source Comparison Summary
Phase II Sediment

Sample Type	Sample ID	H-3			U-233/U-234			U-235/U-236			U-238		
		Activity	MDC	TPU	Activity	MDC	TPU	Activity	MDC	TPU	Activity	MDC	TPU
Rinsate	SED-R-011	--	--	--	-0.0371 U	0.0297	0.15	0.0182 U	0.0226	0.0906	-0.00184 U	0.0217	0.104
Source	S0280	--	--	--	-0.0214 U	0.0718	0.0125	0 J	0.0221	0.00816	-0.00475 U	0.042	0.00813
Rinsate	SED-R-012	--	--	--	-0.00846 U	0.0322	0.145	-0.00673 U	0.0219	0.121	-0.00198 U	0.0234	0.112
Source	S0280	--	--	--	-0.0214 U	0.0718	0.0125	0 J	0.0221	0.00816	-0.00475 U	0.042	0.00813
Rinsate	SED-R-013	189 U	404	124	-0.0265 U	0.0148	0.0854	-0.00398 U	0.0129	0.0713	-0.00643 U	0.0148	0.0733
Source	S0280	-71.7 U	322	92.4	-0.0214 U	0.0718	0.0125	0 J	0.0221	0.00816	-0.00475 U	0.042	0.00813
Rinsate	SED-R-014B	155 U	402	122	0.015 U	0.0183	0.0706	0.0221	0.0157	0.03	-0.00394 U	0.0128	0.0706
Source	S0280	-71.7 U	322	92.4	-0.0214 U	0.0718	0.0125	0 J	0.0221	0.00816	-0.00475 U	0.042	0.00813
Rinsate	SED-R-014S	245	408	128	-0.0233 U	0.0217	0.0971	0.0041 U	0.0128	0.0577	0.00923 U	0.0119	0.0467
Source	S0280	-71.7 U	322	92.4	-0.0214 U	0.0718	0.0125	0 J	0.0221	0.00816	-0.00475 U	0.042	0.00813
Rinsate	SED-R-015B	131 U	406	122	-0.00629 U	0.0198	0.0841	-0.0064 U	0.0147	0.073	-0.00942 U	0.0126	0.0641
Source	S0280	-71.7 U	322	92.4	-0.0214 U	0.0718	0.0125	0 J	0.0221	0.00816	-0.00475 U	0.042	0.00813
Rinsate	SED-R-015S	-41 U	412	117	0.0211 U	0.0225	0.0798	-0.00497 U	0.00852	0.044	0.0112	0.00793	0.0151
Source	S0280	-71.7 U	322	92.4	-0.0214 U	0.0718	0.0125	0 J	0.0221	0.00816	-0.00475 U	0.042	0.00813

Notes:

Refer to Table 2.1 of the Final Field Sampling Plan for Soil Sampling (HGL, 2012b) for a definition of radionuclide symbols.

Reporting units in picocuries per liter.

ID - identification

MDC - minimum detectable concentration

TPU - total propagated uncertainty

J - The analyte was detected at the reported concentration; the quantitation is an estimate.

U - Not considered detected. The associated number is the reported concentration.

ATTACHMENT 2

Boring Logs

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Project Name: SSFL Area IV Radiological Drilling Company: HGL	Project Number: EP038.01.22.04.06	Subarea: NBZ	Location ID: EPASED 41 (surface)
Drilling Equipment: trowel	Driller: S. Lapeyre-Montrose	Ground Elevation: NA	Total Depth Drilled: 0.5' ft bgs.
Type of Sampling Device: trowel	Borehole Diameter: NA inches	Date/Time Drilling Started: 5/18/12 1038	Date/Time Total Depth Reached: 5/18/12 1045
Geologist: L. Robbins	Samples Collected: 1 jar - 500g. One 1/2 Gallon Bag (Approx. 8 lbs.)		EPASED 41S (1045)
Radiological Background: 3722 / 66		Checked By / Date: <i>[Signature]</i> 9/10/12	

Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000	Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			0.0	96	Surface = 3" organic litter sandy silt silty sand w/ clay: dark yellowish brown (10YR 3/4)	SM	3804
0.5			0.0	84	70% silt, 20% fine sand, 10% clay, low plasticity loose, dry, no odor or staining, abundant leaf litter, including bark, tea twigs, small charcoal flakes, mica	ML	4108
1.0					Surface sediment sample 0-0.5' bgs no GW encountered		
3.0							
4.0							
5.0							
6.0							

Project Name: SSFL Area IV Radiological Drilling Company: HGL		Project Number: EP038.01.22.04.06		Subarea: NBZ		Location ID: EPASED 41 (subsurface)	
Drilling Equipment: handauger		Driller: Matt Birney		Ground Elevation: NA		Total Depth Drilled: 2.5 ft bgs.	
Type of Sampling Device: handauger		Borehole Diameter: 3 inches		Date/Time Drilling Started: 5/15/12 10:45		Date/Time Total Depth Reached: 5/18/12 11:15	
Geologist: L Robbins		Samples Collected: One 1/2 Gallon Bag (Approx 8 lbs.)		Checked By / Date: [Signature] 9/10/12		EPASED 41 B (1115)	
Radiological Background: 3722/66		Radiological Equipment Used: Micro R / Downhole / Pancake Meters		PID Used: 3000		Mini Rae 2000 - Background: 0.0 ppm	

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. +0.5 = 3627 (CPM)
0.0			96		Sandy silt		
0.5			84		Silty sand w/clay: dark yellowish brown (10YR 3/4), 70% silt, 20% fine sand, 10% clay, low plasticity, loose dry, no odor or staining, abundant leaf litter, including bark, twigs, small charcoal flakes, mica	SM ML	3760 3925
1.0			60				4846
			72				5797
			36		Silty sand: dark yellowish brown (10YR 3/4), 80% fine to med sand, 20% silt, trace clay, low plasticity, loose, dry, no odor or staining, mica flakes	SM	6067
			78		refined on sandstone no GW encountered TD = 2.5' bgs no anomalies	Bed-rock	5981
3.0							
4.0							
5.0							
6.0							

Project Name: SSFL Area IV Radiological Drilling Company: HGL		Project Number: EP038.01.22.04.06		Subarea: NBZ		Location ID: EPASED42 (surface)	
Drilling Equipment: Trowel		Driller: S. Lapeyre-Montrose		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Type of Sampling Device: Trowel		Borehole Diameter: n/a inches		Date/Time Drilling Started: 5/18/12 0945		Date/Time Total Depth Reached: 5/18/12 1000	
Geologist: L Robbins				Samples Collected: One 1/2 Gallon Bag (Approx 8 lbs.) Checked By / Date: [Signature] 9/10/12			
Radiological Background: 4098/55		Radiological Equipment Used: Micro R / Downhole / Pancake Meters		PID Used: 3000		Mini Rae 2000 - Background: 0.0 ppm	

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			0.0	84	<p><u>Silty sand</u></p> <p>Sand w/ silt: dark yellowish brown (10YR 3/4), 70% silt, 30% fine to med. sand, trace clay, abundant organic material: rootlets, leaf + bark litter, no odor or staining, low plasticity, loose, dry, small tin foil pieces, trace charcoal flakes, mica</p> <p>TD = 0.5' bgs no GW encountered</p>	<p>ML</p>	4028
0.5			0.0	36			
1.0							
3.0							
4.0							
5.0							
6.0							

Project Name: SFL Area IV Radiological Drilling Company: HGL	Project Number: EP038.01.22.04.06	Subarea: NBZ	Location ID: EPA SED42 (Subsurface)
Drilling Equipment: hand auger	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 16" # bgs.
Type of Sampling Device: hand auger	Borehole Diameter: 3 inches	Date/Time Drilling Started: 5/18/12 0945	Date/Time Total Depth Reached: 5/18/12 1008
Geologist: L. Robbins	Samples Collected: One 1/2 Gallon Bag (Approx 8 lbs.)		5 EPA SED42B (N/A)
Radiological Background: 4098/55		Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: 3000 Mini Rae 2000- Background: 0.0 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			84		sandy silt	(LP)	4072
0.5			84		silty sand: dark yellowish brown (10YR 3/4), 70% silt, 30% fine to med. sand, trace clay, abundant organic material: rootlets, leaf & bark litter, no odor or staining, low plasticity, loose, dry, small tin foil piece, trace charcoal flakes, mica	SM ML	4322
1.0			78		sand (weathered bedrock); light olive brown (2.5Y 5/6), moist, med. grained, mica flakes, mechanically weathered to SP	SP	4912
1.5					refusal on sandstone		-5682
2.0					TD = 16" bgs		
3.0					no GW encountered		
4.0					no sample collected due to shallow refusal		
5.0							
6.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological	Project Number: EP038.01.22.04.06	Subarea: NBZ	Location ID: EPASED 43 (subsurface)
Drilling Company: HGL	Driller: M. Biomey	Ground Elevation: NA	Total Depth Drilled: 2' 5" ft bgs.
Drilling Equipment: Handauger	Borehole Diameter: 3' inches	Date/Time Drilling Started: 5/18/12 0845	Date/Time Total Depth Reached: 5/18/12 0920
Type of Sampling Device: Handauger	Samples Collected: (1) 8-oz/5/12 jar One 1/2 Gallon Bag (Approx 8/lbs.) EPASED 43B (0920)		
Geologist: L Robbins	Checked By / Date: [Signature] 9/10/12		

Radiological Background: 63/4297	Radiological Equipment Used: Micro R7 Downhole / Pancake Meters	PID Used: 3000 Mini Rae 2000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			0.0	66	Sand w/ silt: dark yellowish brown (10YR 4/6), 90% sand, 10% silt, trace clay, trace subangular	SP	4404
0.5			0.0	77	Subrounded sandstone gravel, no odor or staining, nonplastic, dry, loose, rootlets		4558
1.0			0.0	78	leaf & twigs in trace amount, small granite pieces (gravel sized)		5007 5199
1.5			0.0	78	silty sand: olive brown (2.5Y 4/4), 75% fine to coarse grained sand, 25% silt, trace clay & subrounded gravel, no odor or staining	SM	5199 5358 (LR)
2.0			0.0	90	Slightly moist, loose, rootlets		5358
2.5			0.0	66	Sandstone (weathered bedrock), light olive brown (2.5Y 5/6), moist, med grained w/ mica, mechanically weathered to SP	SP Bedrock	5679
3.0					TD=2'5" no OW encountered refusal on sandstone		
4.0							
5.0							
6.0							

Project Name: FEL Area IV Radiological	Project Number: EP038.01.22.04.06	Subarea: NBZ	Location ID: EPA SED 44 (subsurface)
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 3.5 ft bgs.
Drilling Equipment: Handauger	Borehole Diameter: 3 inches	Date/Time Drilling Started: 5/17/12 1048	Date/Time Total Depth Reached: 5/17/12 1122
Type of Sampling Device: Handauger	Samples Collected: (1) 8oz. jar (5) 1/2 Gallon Bag (Approx 8 lbs.)		EPA SED 44 B(1125)
Geologist: L. Robbins	Checked By / Date: [Signature] 9/10/12		

Radiological Background: 15/3844/62	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: 3000 Mini Rae 2000- (LR)	Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			0.0	90	Sand w/ silt: Silty sand: brown (10YR 4/3), 75% fine sand, 15% silt, 10% clay, dry, loose, nonplastic, rootlets, trace charcoal + leaves	SM	4123
0.5			0.0	54			5105
1.0			0.0	66	silty sand: 80% fine to med. (gradational contact) sand, 20% silt, trace clay, slightly moist, loose, nonplastic, trace rootlets, trace charcoal, large roots observed @ 1' bgs, mica flecks, trace opaques + silicia. (2.5Y 4/4), olive brown	SM	5674
1.5			0.0	84			5898
2.0			0.0	60	- 2': large roots		5880
2.5			0.0	72			5689
3.0			319	68 (LR)	- PID hit due to organic material (tree roots)		5979
3.2	3.2'-3.5'		90	90	silty sand: 90% fine to med. grained sand, 10% silt, trace clay, (10YR 5/6), slightly moist, loose, nonplastic, trace mica + opaques no odor or staining	SP SM (LR)	5780 5780 (LR)
4.0					weathered sandstone bedrock (2.5Y 6/3), very dense, no odor or staining, sandstone is med. grained.	SP	
5.0					TD: 3.5' bgs no GW encountered refusal on sandstone no anomalies		
6.0							

Project Name: FL Area IV Radiological	Project Number: EP038.01.22.04.06	Subarea: NBZ	Location ID: EPASED 45 (surface)
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: Trowel	Borehole Diameter: N/A inches	Date/Time Drilling Started: 5/17/12 0836	Date/Time Total Depth Reached: 5/17/12 0845
Type of Sampling Device: Trowel	Samples Collected: One 1/2 Gallon Bag (Approx. 8 lbs.)	EPASED 45 S (0845)	
Geologist: L Robbins	Checked By / Date: [Signature] 9/10/12		

Radiological Background: 15/3448/58	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: 3000	Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5			0.0	15/60	← <i>up/pancake</i> silty sand: brown (10 yr 4/3), 65% fine to med. sand, 25% silt, 10% clay, low plasticity, low ^{UP} dense, no odor or staining, rootlets, trace leaves, trace sandstone gravel, dry, loose	SM		3500
			0.0	15/77				3775
1.0								
3.0								
4.0								
5.0								
6.0								

TD = 0.5' bgs
no GW encountered

Project Name: SFL Area IV Radiological	Project Number: EP038.01.22.04.06	Subarea: NBZ	Location ID: EPASED 45 (subsurface)
Drilling Company: HGL	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 7.5 ft bgs.
Drilling Equipment: Handauger	Borehole Diameter: 3 inches	Date/Time Drilling Started: 5/17/12 0845	Date/Time Total Depth Reached: 5/17/12 0958
Type of Sampling Device: Handauger	Samples Collected: 1/8oz jar One 1/2 Gallon Bag (Approx 8 lbs.) EPASED 45B (1000)		
Geologist: L Robbins	Checked By / Date: [Signature] 9/10/12		

Radiological Background: 15/3448/58	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: 3602	Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings
							Feet bgs. +0.5=3635 (CPM)
0.0			60		Silty sand: brown (104R 4/3), 65% fine to med. sand, 25% silt, 10% clay, low plasticity, no odor or staining, rootlets, trace leaves, trace sandstone gravel, dry, loose, large root	SM	3870
0.5			77				4619
1.0			72		--- (gradational contact)		5300
1.5			77		Silty sand w/ clay: dark yellowish brown (104R 3/4), 55% fine sand, 25% silt, 20% clay, low plasticity, no odor or staining, trace rootlets + bark, slightly moist, trace opaques + charcoal	SM	5545
2.0			84		- 2.0-3.0': same as above, note color change: olive brown (2.5Y 4/4)		5794
3.0			72				5774
3.5			60				5720
4.0			30				5024
4.5			36		Silty sand: olive brown (2.5Y 4/4), 70% fine sand, 30% silt, trace clay, slightly moist, low plasticity, no odor or staining, low dense, trace rootlets	SM	5899
5.0			84				6226
5.5			108				6242
6.0			72		Silty sand: 75% fine to med. sand, 25% silt, trace clay, slightly moist, low plasticity, no odor or staining, loose, mottled yellowish brown (104R 5/6)	SM	6110
6.5			60				6121
6.5			72		continued next page		

(LR)

④

Project Name: SSFL Area IV Radiological Study		Project Number: EP038.01.22.04.06	Subarea: NBZ	Location ID: EPA SED 54 45			
Radiological Background: 15/3448/58		Radiological Equipment Used: Micro R / Downhole / Pancake Meters		PID Used: Mini Rae 2000 - Background: 0.0 ppm			
Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
6.0			0.0	72	Unit continued from above: Silty Sand ← pancake	SM	6121
			0.0	72			6196
7.0			0.0	84			6126
			0.0	132			5891
8.0					Weathered sandstone bedrock: yellowish brown (10YR 5/6), moist, loose, no odor or staining.	SP	
					no GW encountered refusal on sandstone total depth = 7.5' bgs no anomalies sampled from 2'-6' bgs		
9.0							
10.0							
11.0							
12.0							
13.0							

SSFL BORING LOG

Project Name: SSFL Area IV Radiological Drilling Company: HGL	Project Number: EP038.01.22.04.06	Subarea: NBZ	Location ID: <u>(LP)</u> EPASED 56 EPA SED 46 (surface)
Drilling Equipment: handauger	Driller: S. Lopez-Montase	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.
Type of Sampling Device: handauger	Borehole Diameter: NA inches	Date/Time Drilling Started: 9/7/12 1351	Date/Time Total Depth Reached: 5/7/12 1400
Geologist: L Robbins	Samples Collected: One 1/2 Gallon Bag (Approx. 8 lbs.) EPASED 46 S (1400)		Checked By / Date: <u>[Signature]</u> 9/10/12

Radiological Background: 16/3776/58	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: 3000	Mini Rae 2000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.0			0.0	16/94	Surface: leaf litter	(LP)	3995
0.5			0.0	16/102	silt ^(LP) sand: dark yellowish brown (10YR 3/6) 90% fine to med sand, 10% silt, dry, loose, nonplastic, no odor or staining, mica flakes, trace opagnes, trace sandstone gravel	SP	4120
1.0							
3.0							
4.0							
5.0							
6.0							

TD = 0.5' bgs
No GW encountered

Project Name: SFL Area IV Radiological Drilling Company: HGL	Project Number: EP038.01.22.04.06	Subarea: NBZ	Location ID: EPASED 46 (subsurface)
Drilling Equipment: handauger	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 3.0 ft bgs.
Type of Sampling Device: handauger	Borehole Diameter: 3 inches	Date/Time Drilling Started: 5/17/12 1351	Date/Time Total Depth Reached: 5/17/12 1440
Geologist: LRobbins	Samples Collected: One 1/2 Gallon Bag (Approx 8 lbs.)		EPASED46B (1440)
Radiological Background: 16/3776/58		Checked By / Date: <i>[Signature]</i> 9/10/12	

Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: 3000	Mini Rae 2000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. 10.5' = 3963 (CPM)
0.0			94	(LP)	Silty sands, dark yellowish brown (10YR 3/6), 90% fine to med. sand, 10% silt, dry, loose, nonplastic, no odor or staining, mica flakes, trace opaques, trace sandstone gravel, rootlets	SM	4060
0.5			102			SP	5097
1.0			66	(LP)	poorly graded sand w/ silt, dry, loose, nonplastic, no odor or staining, light olive brown (2.5Y 5/4), 90% fine to med sand, 10% sandstone gravel, trace silt + clay, rootlets	SP	5550
			72				5640
0			84				5716
			102				5879
3.0			120		Weathered bedrock (sandstone): light olive brown (2.5Y 5/3), very dense, dry, no odor or staining, mechanically weathered to SP, slightly mottled	SP	5936
					TD = 3', refusal on sandstone		
					No GW encountered		
					no anomalies		

SSFL BORING LOG

Project Name: L Area IV Radiological Drilling Company: HGL		Project Number: EP038.01.22.04.06		Subarea: NBZ		Location ID: EPASED 47 (Surface)	
Drilling Equipment: crowder		Borehole Diameter: n/a inches		Ground Elevation: NA		Total Depth Drilled: 0.5 ft bgs.	
Type of Sampling Device: crowder		Date/Time Drilling Started: 5/17/12 1500		Date/Time Total Depth Reached: 5/17/12 1520		Samples Collected: One 1/2 Gallon Bag (Approx 8 lbs.) EPASED 47 S (1522)	
Geologist: L Robbins		Checked By / Date: [Signature] 9/10/12		Radiological Background: 15/4098/68		Radiological Equipment Used: Micro R / Downhole / Pancake Meters	
PID Used: 3000		Mini Rae 2000 - Background: 0.0 ppm		Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)		USCS Symbol	
Depth (ft bgs)		Interval		Recovery		Borehole Gamma Readings (CPM)	
0.5		0.0		0.0		4100	
1.0		0.0		0.0		4454	
3.0						4098 (LR)	
4.0							
5.0							
6.0							

Handwritten notes:
 - no pancake (with arrow pointing to Radiological column)
 - Silty sand: dark yellowish brown (10YR 3/4)
 - 80% fine to med. sand, 20% silt, trace clay, low plasticity, loose, trace rootlets, leaves + bark, mica flakes
 - no GW encountered
 - TD = 0.5' bgs

Project Name: SFL Area IV Radiological Drilling Company: HGL	Project Number: EP038.01.22.04.06	Subarea: NBZ	Location ID: EPASED 47 (subsurface)
Drilling Equipment: hand auger	Driller: S. Lapierre-Monthoux	Ground Elevation: NA	Total Depth Drilled: 1.0 ft bgs.
Type of Sampling Device: hand auger	Borehole Diameter: 3 inches	Date/Time Drilling Started: 5/7/12 1510	Date/Time Total Depth Reached: 5/7/12 1533
Geologist: L Robbins	Samples Collected: One 1/2 Gallon Bag (Approx 8 lbs.)		EPASED 47 B (n/g)
Radiological Background: 15/4098/68		Checked By / Date: LP [Signature] 9/10/12	

Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: 3000	Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings Feet bgs. +0.5 = 4110 (CPM)
0.0			96		silty sand: dark yellowish brown (10YR 3/4) 80% fine to med. sand, 20% silt, trace clay, low plasticity, loose, trace rootlets, leaves + bark, mica flakes, piece of blue wire found (~8" long). weathered sandstone: dark yellowish brown (10YR 3/4), very dense, mechanically weathered to SP	SM	4100
0.5		90		4454			
1.0		56		5299			
0					Bedrock (SP)		
2							
3							
4							
5							
6							

TD = 1.0' bgs
 no GW encountered
 no anomalies
 no sample collected due
 to shallow refusal

SSFL BORING LOG

Project Name: FL Area IV Radiological Drilling Company: HGL	Project Number: EP038.01.22.04.06	Subarea: NBZ	Location ID: EPASED 48 (surface)
Drilling Equipment: trowel	Driller: S. Lapeyre-Montes	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.
Type of Sampling Device: trowel	Borehole Diameter: NA inches	Date/Time Drilling Started: 5/17/12 15P	Date/Time Total Depth Reached: 5/17/12 1555
Geologist: L Robbins	Samples Collected: One 1/2 Gallon Bag (Approx 8 lbs.)		EPASED 48 S (1555)
Radiological Background: 15 / 3542 / 66		Checked By / Date: [Signature] 9/10/12	

Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 3000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.0	16		0.0	16	<p>← MR / pancake</p> <p>sandy silt w/ clay: dark yellowish brown (10YR 3/4), 70% silt, 20% sand (fine grained) 10% clay, very soft, med. plasticity, dry, no odor or staining, rootlets, trace wooden twigs + leaves, trace sandstone gravel</p> <p>TB 0.5' bgs no GW encountered</p>	ML	2818 (LA)	
0.5	72		0.0	84			3998	
1.0							4467	
3.0								
4.0								
5.0								
6.0								

Project Name: SFL Area IV Radiological Drilling Company: HGL	Project Number: EP038.01.22.04.06	Subarea: NBZ	Location ID: EPASED 48 (sub surface)
Drilling Equipment: handauger	Driller: M. Birney	Ground Elevation: NA	Total Depth Drilled: 5.25' ft bgs.
Type of Sampling Device: handauger	Borehole Diameter: inches	Date/Time Drilling Started: 5/17/12 1500	Date/Time Total Depth Reached: 5/17/12 1650
Geologist: LRobbins	Samples Collected: One 1/2 Gallon Bag (Approx 8 lbs.)		EPASED48B (1650)
Radiological Background: 15/3842/66		Checked By / Date: <i>[Signature]</i> 9/10/12	

Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: 3000	Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.5			0.0	72	Sandy silt w/ clay: dark yellowish brown (10YR 3/4), 70% silt, 20% sand (fine grained), 10% clay, very soft, med plasticity, dry, no odor or staining, rootlets, trace wooden twigs + leaves, trace sandstone gravel	ML	3998
			0.0	84			4467
1.0			0.0	72		SM	5298
			0.0	84	Silty sand: dark olive brown (2.5Y 3/3); 80% fine to coarse grained sand, 20% silt, moist, low dense, rootlets, trace sandstone gravel (subangular/subrounded)		5729
			0.0	90			5818
			0.0	66			6168
3.0			0.0	78			4572
			0.0	120			6550
4.0			0.0	90			6067
			0.0	120			5593
5.0			0.0	114			5521
5.13'					Sand (weathered bedrock): light olive brown (2.5Y 5/4), moist, med dense, mechanically weathered to SP	SP	
6.0					refused @ 5'13" on bedrock		

no GW encountered

SSFL BORING LOG

Project Name: SFL Area IV Radiological Drilling Company: HGL	Project Number: EP038.01.22.04.06	Subarea: NBZ	Location ID: EPASED 50
Drilling Equipment: trowel / hand auger	Borehole Diameter: 3 inches	Date/Time Drilling Started: 5/14/12 / 1055	Date/Time Total Depth Reached: 5/14/12 / 1055
Type of Sampling Device: trowel / hand auger	Ground Elevation: NA	Samples Collected: 5 EPASED 50 S / no subsurface sample	Checked By / Date: V. Howard [signature] 9/11/12
Geologist: Stephanie Lapeyre-Montrose	One 1/2 Gallon Bag (Approx 8 lbs.)	Checked By / Date:	

Radiological Background: 15 / 3689 / 60	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: 3005	Background: 0.1 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings +0.6 = 3650 (CPM)
0.5			0.1	78	Surface; Micro R = 15		3675
4"			0.7	102	SW SAND (yellowish brown 10YR 5/4) 90% fine-coarse grained sand, 5% silt, 5% clay metal debris, concrete debris, asphalt debris, trace gravel (subrounded), dry loose, non plastic	SW	4" = 3950
1.0					TD = 4" (Micro R = 17) @ 4"		
					Refusal on sandstone		
					no subsurface sample collected		
					no GW encountered		
					no odor or staining		

Project Name: FL Area IV Radiological Drilling Company: HGL	Project Number: EP038.01.22.04.06	Subarea: NB2	Location ID: EPASED 51
Drilling Equipment: trowel / hand auger	Borehole Diameter: 3 inches	Ground Elevation: NA	Total Depth Drilled: 22" inches \oplus ft bgs.
Type of Sampling Device: trowel / hand auger	Samples Collected: (each) 5 \oplus	Date/Time Drilling Started: 5/14/12 / 1121	Date/Time Total Depth Reached: 5/14/12 / 1145
Geologist: Stephanie Lapeyre Montrose	Checked By / Date: [Signature] 9/11/12	Samples Collected: (each) 5 \oplus EPASED 51 S / EPASED 51 B One 1/2 Gallon Bag (Approx. 8 lbs.) 1130 / 1150	

Radiological Background: 14 / 3202 / 68	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: 3000	Background: 0.1 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings +0.5 = 3334 (CPM)
0.5			0.1	72/14	SC sand with clay (dark yellowish brown 10YR 4/4) 15% clay, 10% silt, 75% fine-med. grained sand, concrete debris, asphalt debris, rubber material (black) debris, med. dense, low plasticity, soft, dry	SC	3402
1.0			0.1	78/15	same as above - less debris	SC	3693
1.5			0.1	60	same as above - less debris	SC	4315
2.0			0.0	90	@ 16" layer of rubbery material @ 18" SM silty sand (brown 10YR 4/3) 10% clay, 20% silt, 70% fine to coarse grained sand, low plasticity, soft, dense, dry trace sandstone gravel (subangular)	SM	4305 22" = 4619
3.0					TD = 22" (refusal on sandstone) No GW encountered No anomalies No odor or staining		
4.0							
5.0							
6.0							

SSFL BORING LOG

Project Name: SFL Area IV Radiological	Project Number: EP038.01.22.04.06	Subarea: NBZ	Location ID: EPASED 52
Drilling Company: HGL	Driller: L Robbins	Ground Elevation: NA	Total Depth Drilled: 5' 3 ft bgs.
Drilling Equipment: travel / auger	Borehole Diameter: 3 inches	Date/Time Drilling Started: 5-14-22 1452	Date/Time Total Depth Reached: 5-14-22 1600
Type of Sampling Device: Travel / hand auger	Samples Collected: One 1/2 Gallon Bag (Approx 8 lbs.) EPASED 52A (1515) / EPASED 52B (1625)		
Geologist: M Birney	Checked By / Date: [Signature] 9/10/12		

Radiological Background: 15 / 313 / 46	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 2000 - Background: 0.1 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, minerology, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings + 0.5' 3345 (CPM)
		53%			pancake/micro			
			0.1	96/15	Surface: grasses, currant bush, poison oak			
0.5			0.1	72/15	silty sand, 15% silt, 5% clay, 80% fine to coarse sand (trace coarse grains)	SM		3680
1.0			0.1	90	non plasticity, dry, loose, no odor, trace angular granitic gravel, dark brown (7.5gr 3/3)			4657
			0.1	72				5038
			0.1	48	sandy silt, w/clay 20% clay 30% silt, 50% fine sand, plasticity low to med, semi moist, no odor, med soft, very dark brown (7.5gr 2.5/3)	ML		5245
			0.1	70				5475
3.0			0.1	72	sandy clay w/silt 30% clay 25% silt, 45% fine sand, strong brown (7.5gr 4/6)	CL		5702
			0.0	102	semi moist, low to med plasticity, cohesive, med soft, no odor, no staining			5843
4.0			0.0	66				5872
			0.0	60				5696
5.0			0.0	96				5513
			0.0	96				5319
6.0					TD = 5' 3" refusal on bedrock no GW light olive brown (2.5gr 5/6)			

SP weather bedrock

Project Name: FL Area IV Radiological Drilling Company: HGL	Project Number: EP038.01.22.04.06	Subarea: NBZ	Location ID: EPASED 53
Drilling Equipment: trowel / hand auger	Driller: Matt Binney	Ground Elevation: NA	Total Depth Drilled: 10 ft bgs.
Type of Sampling Device: trowel / hand auger	Borehole Diameter: 3 inches	Date/Time Drilling Started: 5/15/12 / 0845	Date/Time Total Depth Reached: 5/15/12 / 0952
Geologist: Stephanie Lepeyre Montrose	Samples Collected: One 1/2 Gallon Bag (Approx. 8 lbs.)	Checked By / Date: C [Signature] 9/11/12	EPASED 53S / EPASED 53B / Field DWP / SED-DWP-3 / 05122012 / SED-DWP-003
Radiological Background: 15 / 1876 / 57	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: 3000	Mini Rae 2000 - Background: 0.1 ppm

Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Borehole Gamma Readings (CPM)
0.1			108/15		Surface: vegetation (poison oak)		+0.5 = 3701
0.5			72/15		SW SAND 100% fine to coarse grained sand (brown 10YR 4/3) pieces of tile, trace silt, trace clay, trace sandstone gravel subrounded, rootlets non plastic, loose, dry no odor or staining	SW	3653
1.0			72/15		SM silty SAND 5% clay, 20% silt, (dark yellowish brown 10YR 3/4) 75% fine to coarse grained sand (predominantly fine to med. grained), trace gravel sandstone subrounded, low plasticity, soft, dense, dry, no odor or staining	SM	4938
			66				5163
			102		SP SAND (dark yellowish brown 10YR 3/4) 10% clay, 10% silt, 80% fine to coarse grained sand trace gravel - subrounded, mica, low plasticity, very soft, dense, dry, no odor or staining	SP	5159
			84		@ 2.5' dark staining - organic material same as above		5251
3.0			205		34" - rubber material (pink - like an eraser) 3' color change to 10YR 4/6 dark yellowish brown same as above	SP	5243
			60		piece of concrete debris same as above	SP	5307
4.0			72		SP SAND 5% clay, 10% silt (yellowish brown 10YR 5/4) 85% fine to medium grained sand (trace coarse grained), low plasticity, very soft, loose - dense, micaceous, dry no odor or staining	SP	5151
			84				4984
5.0			44		SP SAND (yellowish brown 10YR 5/4) 10% clay, 10% silt 80% fine to medium grained sand (trace coarse grained sand), low plasticity, very soft, loose - dense, micaceous, dry no odor or staining	SP	5290
			84				5395
6.0			48		same as above (yellowish brown 10YR 5/6)		5214

Project Name: FL Area IV Radiological Drilling Company: HGL	Project Number: EP038.01.22.04.06	Subarea: NBZ	Location ID: EPASED 54
Drilling Equipment: trowel / hand auger	Borehole Diameter: 3 inches	Ground Elevation: NA	Total Depth Drilled: 4" inches ft bgs.
Type of Sampling Device: trowel / hand auger	Date/Time Drilling Started: 5/14/12	Date/Time Total Depth Reached: 5/14/12 / 1230	Samples Collected: EPASED 54 S 1225
Geologist: Stephanie Lapeyre Montrose	Checked By / Date: [Signature] 9/11/12	One 1/2 Gallon Bag (Approx 8 lbs.) NO subsurface sample collected	

Radiological Background: 16/3853/71	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: 2000	Background: 0.1 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.5			0.1	66	(Mow R = 16) SM silty sand 5% clay, 30% silt, 65% fine to coarse grained sand, trace sandstone gravel - subangular low plasticity silt, loose, dry ash layer under sediment, on top of sandstone pieces of charcoal no odor or staining TD = 4" Refusal on Sandstone	SM		3925 4" = 3750
1.0			0.1	84 (micro = 16)				
3.0								
4.0								
5.0								
6.0								

Note: location on sandstone outcrop
(sandstone outcrop exposed in drainage
for approximately 25')
NO GW encountered

Project Name: SFL Area IV Radiological	Project Number: EP038.01.22.04.06	Subarea: NBZ	Location ID: EPA SED 57
Drilling Company: HGL	Driller: S. Lapeyre-Montrose	Ground Elevation: NA	Total Depth Drilled: 0.5 ft bgs.
Drilling Equipment: trowel	Borehole Diameter: inches	Date/Time Drilling Started: 5/16/12 1005	Date/Time Total Depth Reached: 5/16/12 1015
Type of Sampling Device: trowel	Samples Collected: One 1/2 Gallon Bag (Approx 8 lbs.)		
Geologist: LRobbins	Checked By / Date: _____ 9/10/12		

no subsurface sample

Radiological Background: 20.5/500/91	Radiological Equipment Used: Micro R / Downhole / Pancake Meters	PID Used: Mini Rae 2000 - Background: 0.0 ppm
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Depth (ft bgs)	Interval	Recovery	PID	Radiological	Description (Include lithology, grain size, sorting, angularity, Munsell color name & notation, mineralogy, bedding, plasticity, density, consistency, etc., as applicable)	USCS Symbol	Feet bgs.	Borehole Gamma Readings (CPM)
0.0			0.0	20 102	surface: leaf litter			
0.5			0.0	21 88	sandy silty sand: dark yellowish brown (10YR 4/4), 80% fine to coarse grained sand, 20% silt, trace subangular/sub-rounded gravel, nonplastic, low dense dry, no odor or staining, rat poop, acorns	SM		5225 5150
1.0								
2.0								
3.0								
4.0								
5.0								
6.0								

TD = 0.5' bgs
no GW encountered
refusal on sandstone

APPENDIX D

**DEVELOPMENT AND USE OF RADIONUCLIDE REFERENCE
CONCENTRATIONS**

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DEVELOPMENT AND USE OF RADIONUCLIDE REFERENCE CONCENTRATIONS

1.0 INTRODUCTION

The term radiological trigger level (RTL) was used in previous technical memoranda, documents, and presentations associated with the Santa Susana Field Laboratory (SSFL) Area IV Radiological Study. Radiological trigger levels were used as a decision level (DL) value against which laboratory results may be compared to determine whether a predetermined action level (AL), which is the expected limit of background activity, is likely to have been exceeded in a soil sample collected from the Area IV Study Area. The Area IV Study Area is defined as Area IV and the Northern Buffer Zone.

The RTLs were derived from a limited set of available analytical laboratory sampling results (primarily from Subareas 5C and 6) and were used to determine whether specific locations in the study area required additional sampling, called “step-out” sampling. The step-out sample locations were sampled to further characterize and more accurately delineate areas of potential contamination. Actual contamination will be identified by the State of California’s Department of Toxic Substances Control (DTSC) after it develops Look-up Table (LUT) values. These values will be derived from data provided by their radiochemical laboratory contractor.

After completion of the step-out sampling and review of the associated radioanalytical results, the RTLs were not used for any other purpose. However, a typographical error of an equation used to calculate the RTLs was discovered after all soil samples had been collected, analyzed, and evaluated, and this memorandum describes the error. Correcting the RTLs had no negative impact on the project.

To provide the most defensible and technically sound advice to project stakeholders, in particular the DTSC, radionuclide reference concentrations (RRC) were developed from the entire Round 1 and Round 2 dataset of soil and sediment sample analytical results after data validation was completed. These RRCs were developed in a similar methodology as the RTLs but with enhancements to provide valuable qualitative and quantitative parameters for guiding the future development of decision-making criteria (LUT values) related to the procurement of analytical services for future assessments, remediation, and closure phases of the SSFL. Radionuclide reference concentrations are not DL values or ALs and should not be used as such. This document presents the RRCs and describes the development, appropriate uses, and limitations of the RRCs and the associated calculation parameters.

1.1 ADMINISTRATIVE ORDER ON CONSENT

An agreement (Docket No. HSA-CO 10/11-037) between the Department of Energy (DOE) and the DTSC promulgated an Administrative Order on Consent (AOC) for Remedial Action, dated December 6, 2010 (DTSC, 2010). Although the AOC does not explicitly guide the development of RTLs or RRCs, it does provide specific direction related to the development of

LUT values for the assessment of radiological contamination in the soil of the Area IV Study Area. The methodology used to develop RTLs and RRCs is the same as that recommended by HGL to develop LUT values. Consequently, the RRCs may serve as a basis for comparison or evaluation in the development of certain components of the LUT values, as discussed later in this paper. However, it is not appropriate to apply either RTLs or RRCs directly for use as LUT values in future phases of radiological assessments, remediation, or closure at the SSFL.

1.2 DEVELOPMENT OF BACKGROUND THRESHOLD VALUES

Background threshold values (BTV) were determined during the U.S. Environmental Protection Agency's (USEPA) SSFL Radiological Background Study. Background threshold values are radioactivity concentrations in soil that were determined to represent an upper limit of background activity for each radionuclide of concern in the study, above which remedial action is expected to be taken, based on the AOC. The BTVs, therefore, represent the basis of ALs for the Area IV Radiological Study.

A detailed analysis of the development of the BTVs is included in the Final Radiological Background Study Report (HGL, 2011). The selection process of the final BTV for each radionuclide of concern is summarized in the Radiological Characterization of Soils report.

1.3 USE OF THE MINIMUM DETECTABLE CONCENTRATION AS AN ALTERNATE ACTION LEVEL

In cases where the quality of the radioanalytical data received from a laboratory does not support the use of the BTV as the AL in the decision-making process, an alternate AL must be selected. The AOC states that in cases where a laboratory's minimum detectable concentration (MDC) is greater than the BTV, the MDC shall become the AL. The selection of the MDC as an alternate AL, when the MDC is greater than the BTV, was also employed in the determination of RTLs and RRCs.

2.0 DEVELOPMENT OF RADIOLOGICAL TRIGGER LEVELS

The RTL was the DL value against which laboratory results from the Area IV Radiological Study Round 1 soil sampling event were compared to determine whether the AL was likely to have been exceeded. The RTLs were calculated and evaluated only during the Round 1 sampling event, and their use was limited to determining whether step-out sampling (Round 2) was warranted at specific locations.

Decisions regarding the possible exceedance of an AL should take into account the overall uncertainty of the analytical method, as well as the data user's tolerance for making decision errors. These parameters influence the likelihood that a particular laboratory result is consistent with the true sample concentration in excess of the AL. Radiological trigger levels were calculated as follows (USEPA, 2004):

$$\text{RTL} = \text{AL} + 1.645 * U_M$$

Where:

AL	=	the greater of the BTV or the laboratory's method MDC
U_M	=	the laboratory's method uncertainty for results at the AL
1.645	=	the normal distribution quantile consistent with a 5 percent decision error rate

There were two laboratories involved in the analysis of samples collected for the Area IV Radiological Study, and each laboratory provided different MDC and method of uncertainty (U_M) values for each radionuclide of concern. Therefore, laboratory-specific RTLs were calculated independently for each laboratory and the higher of the two values was used as the project RTL for the sole purpose of determining the need for step-out sampling (Round 2). These RTLs are named "Original RTLs" and are summarized in Attachment A.

2.1 ESTIMATION OF METHOD UNCERTAINTY

For each laboratory, U_M was determined, wherever feasible, by a power regression of the relative uncertainty versus the sample activity. Although a robust dataset was desired, this regression was performed for each radionuclide on a relatively small ($n < 60$) initial set of validated samples, which were available at the time the RTLs were needed for evaluation of Round 1 samples. The resulting regression equation was used to identify the activity level, which is called the Laboratory Action Level (LAL), for each radionuclide at which the project-required 10 percent maximum relative uncertainty was achieved. Per the analytical statement of work, results above the LAL were required to have a maximum relative uncertainty of 10 percent and results below the LAL were required to have a maximum relative uncertainty of 10 percent of the LAL. For each radionuclide, the AL (greater of the BTV or MDC) was compared to the LAL to determine U_M (HGL, 2012).

In cases where the methodology described above was not feasible, generally a result of insufficient data or a lack of adequately predicting the LAL from the derived regression equation, an estimate of the LAL was made based on a technical review of the individual analytical method. For all methods, a multiplication factor was determined that, when applied to the average MDC for that method, provided a reasonable estimate of the LAL, which in turn enabled calculation of U_M .

2.2 ESTIMATION OF METHOD MINIMUM DETECTABLE CONCENTRATION

Minimum detectable concentrations are calculated by the laboratory for each sample result. Minimum detectable concentrations are determined, in part, by routine analytical parameters such as count time and sample size, but are also influenced by sample-specific issues such as matrix interference, chemical yield, and other factors. The mean and standard deviation of the achieved sample-specific MDCs were calculated from the entire dataset for each laboratory. Where necessary, the mean MDC was used in the estimation of the LAL, as described above. For all radionuclides, the mean MDC plus twice the standard deviation of the mean MDCs were used as a reliable estimate of the *method* MDC; that is, an MDC value that could be expected to be achieved by the laboratory approximately 97.7 percent of the time. This

method MDC was then compared to the BTV for each radionuclide to determine the appropriate AL.

2.3 ERROR IN THE CALCULATION OF RADIOLOGICAL TRIGGER LEVELS

After the RTLs were developed and used in the selection of Round 2 step-out sample locations, a typographical error in an equation was discovered in the RTL calculation in which the value for U_M was consistently underestimated. The consequence of this error was an underestimation of most RTLs and overestimation of a few RTLs used to determine Round 2 step-out sample locations. As a result, there may have been step-out samples that were collected unnecessarily. There were no cases, however, where step-out sampling was not performed when it otherwise should have been. Disclosure of the error was made to USEPA on August 21, 2012, and the calculation error was corrected. The corrected RTLs were not used for any purpose other than to determine if any additional step-out sample would have been warranted, which was not the case. These RTLs are named “corrected RTLs” and are summarized in Attachment A.

3.0 CALCULATION AND USE OF RADIONUCLIDE REFERENCE CONCENTRATIONS

At the time of the discovery and disclosure of the calculational error described in Section 2.3, all step-out sampling had been completed and the majority of project data had been validated. After the remaining project data were validated, RRCs were derived in the same manner as the corrected RTLs. The only exception to this statement is that independent RCCs were calculated for each of the two laboratories used during the Area IV study, and the entire set of Round 1 and Round 2 sample data from each laboratory was used. Radionuclide reference concentrations are included in Attachment B of this paper.

The comparison of study sample results to the RRCs is not an appropriate basis for assessment, remediation, or closure decisions in future phases of this project; that is, RRCs should not be used as LUT values. Those issues are addressed in the LUT technical memorandum and are outside the scope of this paper. The appropriate use of the RRCs and the associated method MDCs are discussed below.

3.1 APPROPRIATE USE OF RADIONUCLIDE REFERENCE CONCENTRATIONS

The Area IV Radiological Study sample data may be compared to the RRCs to determine which radionuclides are *likely* to be associated with actual LUT exceedances in future phases of radiological assessments, remediation, or closure at the SSFL.

The delineation of specific areas that might be considered contaminated in future phases is dependent on the measurement quality objectives (MQO) obtained during the future procurement of laboratory services. However, USEPA believes that the qualitative assessment of which radionuclides represent site-related contamination is not likely to significantly change. It may be useful, therefore, to consider radionuclides that currently exceed the RRCs to represent a priority group of analytes on which future phases might concentrate and focus resources. The list of Priority One Radionuclides for which any Round 1 or Round 2 sample

result exceeded the RRCs is shown in Section I of Table 1 in Attachment B. Unlike the RTLs, all sample results from each laboratory contracted during the Area IV Radiological Study were compared to the respective laboratory's calculated RRCs; that is, the greater of the two RRCs was not selected for comparison to the sample results.

3.2 APPROPRIATE USE OF METHOD MINIMUM DETECTABLE CONCENTRATIONS

In the determination of input parameters for RRCs, method MDCs were calculated as the two sigma (that is, 97.7 percent confidence level of the standard normal cumulative probability) upper confidence limit of the laboratory-specific and analyte-specific MDCs achieved by the laboratories during the Area IV Radiological Study. As such, the method MDCs represent a reliable estimate of laboratory MDCs that, at a minimum, should be technologically and practically feasible to achieve during future phases of radiological assessments or remediation at the SSFL.

The method MDCs are considered to be established, reasonably achievable MQOs, available from existing contract radioanalytical laboratories. The lesser of the values between the two laboratories used during the Area IV Radiological Study should be considered one of several critical MQOs for future procurement of laboratory analytical services. These method MDCs are provided in Attachment B.

4.0 REFERENCES

- California Department of Toxic Substances Control (DTSC), 2010. Administrative Order On Consent For Remedial Action, Santa Susana Field Laboratory, Simi Hills, Ventura County, California. December.
- HydroGeoLogic, Inc. (HGL), 2011. Final Radiological Background Study Report, Santa Susana Field Laboratory, Ventura County, California. October.
- HGL, 2012, Final Quality Assurance Project Plan for Soil Sampling, Area IV Radiological Study, Santa Susana Field Laboratory, Ventura County, California, Revision 01. March.
- U.S. Environmental Protection Agency (USEPA), 2004. Multi-Agency Radiological Laboratory Analytical Protocols Manual (MARLAP). July.

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ATTACHMENT A

TABLE OF ORIGINAL AND CORRECTED RADIOLOGICAL TRIGGER LEVELS

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Attachment A
Original and Corrected Radiological Trigger Levels

Radionuclides	Symbol	Original RTL	Corrected RTL
Actinium-227	Ac-227	0.217	0.287
Actinium-228	Ac-228	2.40	2.68
Americium-241	Am-241	0.0454	0.108
Americium-243	Am-243	0.0401	0.0256
Antimony-125	Sb-125	0.354	0.374
Bismuth-212	Bi-212	2.15	2.38
Bismuth-214	Bi-214	1.59	1.83
Cadmium-113m	Cd-113m	3030	3440
Carbon-14	C-14	2.96	3.25
Cesium-134	Cs-134	0.0864	0.107
Cesium-137	Cs-137	0.207	0.225
Cobalt-60	Co-60	0.0280	0.0363
Curium-243/244	Cm-243/44	0.0443	0.107
Curium-245/246	Cm-245/246	0.0306	0.0695
Curium-248	Cm-248	0.0333	0.0761
Europium-152	Eu-152	0.0566	0.0740
Europium-154	Eu-154	0.150	0.195
Europium-155	Eu-155	0.231	0.237
Holmium-166m	Ho-166m	0.0432	0.0556
Iodine-129	I-129	1.56 (1)	1.92
Lead-212	Pb-212	2.69	3.11
Lead-214	Pb-214	1.70	1.96
Neptunium-236	Np-236	0.0470	0.0606
Neptunium-237	Np-237	0.0401	0.153
Neptunium-239	Np-239	0.139	0.189
Nickel-59	Ni-59	8.39 (2)	8.09
Nickel-63	Ni-63	4.92	2.95
Niobium-94	Nb-94	0.0214	0.0279
Plutonium-236	Pu-236	0.0448 (2)	0.133
Plutonium-238	Pu-238	0.0415	0.123
Plutonium-239/240	Pu-239/240	0.0404	0.0950
Plutonium-241	Pu-241	10.4	6.04
Plutonium-244	Pu-244	0.0313	0.0588
Potassium-40	K-40	32.4	35.5
Promethium-147	Pm-147	17.5	13.8
Protactinium-231	Pa-231	0.936	1.25
Radium-226	Ra-226	2.03	NDC

Attachment A
Original and Corrected Radiological Trigger Levels

Radionuclides	Symbol	Original RTL	Corrected RTL
Sodium-22	Na-22	0.0370	0.0472
Strontium-90/Yttrium-90	Sr-90/Y-90	0.485	0.645
Technetium-99	Tc-99	1.63	2.42
Thallium-208	Tl-208	0.937	1.07
Thorium-228	Th-228	3.98	4.27
Thorium-229	Th-229	0.145	0.371
Thorium-230	Th-230	2.20	2.38
Thorium-232	Th-232	3.10	3.44
Thorium-234	Th-234	3.19	3.54
Thulium-171	Tm-171	72.4	76.7
Tin-126	Sn-126	0.0237	0.0309
Tritium	H-3	11.9	16.7
Uranium-233/234	U-233/234	2.02	2.18
Uranium-235/236	U-235/236	0.151	0.233
Uranium-238	U-238	1.80	1.96

Notes:

All values in picocuries per gram.

(1) - The original RTL for I-129 was developed after the RTL Technical Memorandum was completed.

(2) - The values shown were derived after the RTL Technical Memorandum was completed and were used as a comparison for round 1 soil sample results.

NDC - No data collected at the time the corrected RTLs were calculated, thus the value could not be calculated.

pCi/g - picocuries per gram

RTL - radiological trigger levels

ATTACHMENT B

**TABLE OF RADIONUCLIDE REFERENCE CONCENTRATIONS AND MINIMUM
DETECTABLE CONCENTRATIONS**

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Attachment B
Radiological Reference Concentrations

Radionuclides	Symbol	GEL Two Sigma UCL MDC	TAL Two Sigma UCL MDC	GEL RRC	TAL RRC
Section I: Priority One Radionuclides					
Actinium-228	Ac-228	0.135	0.108	2.68	2.68
Bismuth-212	Bi-212	0.220	0.163	2.38	2.38
Bismuth-214	Bi-214	0.0419	0.0315	1.83	1.83
Cesium-137	Cs-137	0.0251	0.0198	0.225	0.225
Cobalt-60	Co-60	0.0252	0.0228	0.0400	0.0363
Europium-152	Eu-152	0.0670	0.0459	0.105	0.0739
Lead-212	Pb-212	0.0497	0.0319	3.11	3.11
Lead-214	Pb-214	0.0479	0.0317	1.96	1.96
Nickel-59	Ni-59	7.24	0.648	10.9	0.875
Plutonium-239/240	Pu-239/240	0.0369	0.00664	0.115	0.0230
Strontium-90/Yttrium-90	Sr-90/Y-90	0.387	0.0677	1.02	0.117
Thallium-208	Tl-208	0.0255	0.0213	1.07	1.07
Thorium-230	Th-230	0.123	0.0156	2.38	2.38
Thorium-234	Th-234	0.426	0.222	3.54	3.54
Uranium-233/234	U-233/234	0.0997	0.0172	2.18	2.18
Uranium-235/236	U-235/236	0.0751	0.0149	0.249	0.152
Uranium-238	U-238	0.0718	0.0143	1.96	1.96
Section II: Priority Two Radionuclides					
Actinium-227	Ac-227	0.267	0.169	0.422	0.205
Americium-241	Am-241	0.0410	0.0141	0.0815	0.0386
Americium-243	Am-243	0.0372	0.00686	0.105	0.0252 ⁽¹⁾
Antimony-125	Sb-125	0.0695	0.0502	0.374	0.374
Cadmium-113m	Cd-113m	178	47.5	3440	3440
Carbon-14	C-14	0.998	0.0983	3.19	2.96
Cesium-134	Cs-134	0.0231	0.0688	0.0431	0.0801
Curium-243/244	Cm-243/244	0.0466	0.0162	0.123	0.0396
Curium-245/246	Cm-245/246	No data	0.0123	No data	0.0346
Curium-248	Cm-248	No data	0.0110	No data	0.0398
Europium-154	Eu-154	0.136	0.125	0.217	0.198
Europium-155	Eu-155	0.0949	0.0438	0.253	0.231
Holmium-166m	Ho-166m	0.0362	0.0302	0.0581	0.0514
Iodine-129	I-129	0.525	No data	2.42	No data
Neptunium-236	Np-236	0.0495	0.0368	0.0784	0.0599
Neptunium-237	Np-237	0.0542	No data	0.147	No data

**Attachment B
Radiological Reference Concentrations**

Radionuclides	Symbol	GEL Two Sigma UCL MDC	TAL Two Sigma UCL MDC	GEL RRC	TAL RRC
Section II: Priority Two Radionuclides (Continued)					
Neptunium-239	Np-239	0.177	0.102	0.280	0.167
Nickel-63	Ni-63	1.78	0.843	2.80	1.34
Niobium-94	Nb-94	0.0213	0.0172	0.0339	0.0274
Plutonium-236	Pu-236	0.0510	0.0107	0.137	0.0349
Plutonium-238	Pu-238	0.0480	0.00921	0.122	0.0254
Plutonium-241	Pu-241	3.73	No data	6.04 ⁽¹⁾	No data
Plutonium-244	Pu-244	0.0259	0.00526	0.0666	0.0135
Potassium-40	K-40	0.213	0.186	35.5	35.5
Promethium-147	Pm-147	8.62	No data	14.5	No data
Protactinium-231	Pa-231	1.11	0.693	1.75	1.22
Radium-226	Ra-226	0.151	No data	2.19 ⁽²⁾	No data
Sodium-22	Na-22	0.0306	0.0295	0.0485	0.0468
Technetium-99	Tc-99	1.75	0.387	2.76	0.619
Thorium-228	Th-228	0.183	0.0300	4.27	4.27
Thorium-229	Th-229	0.135	0.0165	0.381	0.0741
Thorium-232	Th-232	0.0877	0.0139	3.44	3.44
Thulium-171	Tm-171	23.0	7.63	77.1	76.7
Tin-126	Sn-126	0.0233	0.0195	0.0372	0.0309
Tritium	H-3	9.99	0.284	16.2	8.59

Notes:

All values in picocuries per gram.

⁽¹⁾Less than 50 results were used in the calculation of the RRC, thus caution is warranted in the use of this value.

⁽²⁾Only five results were available to calculate this value, thus comparison of data against the resulting RRC may be subject to uncertainty significantly above the design parameters described in the project QAPP.

GEL - GEL Laboratory, LLC

MDC - minimum detectable concentration

No data - no samples were analyzed thus value is not determined.

RRC - radionuclide reference concentration

TAL - TestAmerica Laboratories, Inc.

Two Sigma UCL MDC - two sigma (97.7 percent confidence level of the standard normal cumulative probability) UCL MDC.

UCL - upper confidence limit

APPENDIX E

BACKGROUND THRESHOLD VALUES AND RADIONUCLIDE SELECTION RATIONALE

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BACKGROUND THRESHOLD VALUE AND RADIONUCLIDE SELECTION RATIONALE SANTA SUSANA FIELD LABORATORY AREA IV RADIOLOGICAL STUDY

The background threshold values (BTV) for radionuclides included in the investigation of Area IV and the Northern Buffer Zone (NBZ) at the Santa Susana Field Laboratory (SSFL) were determined in the SSFL Background Study Report (HGL, 2011). Background threshold values were based on data from soil samples collected from three unaffected locations outside the SSFL represented by the radiological background reference areas (RBRA).

1.0 FINALIZATION AND REDUCTION OF RADIONUCLIDE LIST FOR BACKGROUND STUDY

At the beginning of the project, there were multiple discussions and meetings with the Background Study Technical Group to determine the radionuclides to include in the Radiological Background Study. These meetings narrowed the list to a total of 70 radionuclides.

During the background study, an additional six radionuclides were removed from the analytical suite, thus reducing the list to 64 radionuclides. The radionuclides removed were as follows:

- Chlorine-36 and selenium-79: removed from consideration during the background study as a result of the lack of approved, validated methods in the laboratory and the low likelihood of use at SSFL (HGL, 2010).
- Barium-133, californium-249, silver-108, and silver-108m: gamma spectrometry results were rejected because of inconsistent and unpredictable spectral interference from naturally occurring radionuclides (HGL, 2011).

It was unlikely that any of these radionuclides would be of concern in the soil samples collected at SSFL based on former investigations and site history. Therefore, no BTVs were calculated for these six radionuclides.

2.0 CALCULATING BACKGROUND THRESHOLD VALUES FOR EACH RADIONUCLIDE

Background threshold values were calculated for the 64 radionuclides. Based on analytical results and to establish limits that would include the majority of background activity levels, the 95 percent Upper Simultaneous Limit (USL95) was the statistic used as the BTV (HGL, 2011), except where datasets were too small to statically evaluate, as noted below. All BTVs are summarized in Attachment A.

2.1 Radionuclides with Fewer than Five Detections

Eleven radionuclides analyzed exhibited fewer than five detections. Based on an overall evaluation of these 11 radionuclides, it was determined that these radionuclides were not present at background locations. However, a value was needed to compare to on-site sample results. Therefore, the maximum nondetect value for each radionuclide was presented as the BTV, rather than the USL95 (HGL, 2011). These results are presented in Attachment A.

2.2 Radionuclides with Five or More Detections

Fifty-three radionuclides analyzed for the SSFL Background Study exhibited five or more detections. Five detections were determined to be a sufficient dataset to conduct a defensible statistical analysis, and BTVs were calculated for these radionuclides using the USL95.

For the 53 radionuclides, each of the following six datasets was statistically compared to the others to determine if they were similar enough to be merged:

- Lang Ranch RBRA Surface Soils (Chatsworth Formation)
- Lang Ranch RBRA Subsurface Soils (Chatsworth Formation)
- Rocky Peak RBRA Surface Soils (Chatsworth Formation)
- Rocky Peak RBRA Subsurface Soils (Chatsworth Formation)
- Bridle Path RBRA Surface Soils (Santa Susana Formation)
- Bridle Path RBRA Subsurface Soils (Santa Susana Formation)

After these comparisons, the radionuclide BTV calculations fell into the following five main categories:

Radionuclides with one BTV for all results: this group included 19 radionuclides exhibiting analytical results that were statistically similar among all datasets. In these instances, all the analytical data was combined to calculate one recommended BTV (Attachment A).

Radionuclides with statistically different surface and subsurface soil BTVs: this group included seven radionuclides with separate BTVs calculated for surface and subsurface soils. The analytical results for these radionuclides did not exhibit statistically significant differences between geologic formations or RBRAs (Attachment A). However, because of the soil disturbances that have occurred at the SSFL (such as construction, demolition, remediation, and similar changes), it would be difficult to distinguish surface from subsurface soil on site. As an example, these soil disturbances may have caused surface soil affected by fallout radionuclides (that is, cesium-137 and strontium-90) to be reworked into the subsurface soils (HGL, 2011).

Per Section 9.2 of the SSFL Radiological Background Study Report (HGL, 2011), it was recommended “to select the higher value between the surface soil BTV and the subsurface soil BTV as a Clean-Up Value.”

The analytical results for five radionuclides exhibited a higher surface soil BTV. This value was consistent with fallout radionuclides (HGL, 2011).

In the case of iodine (I)-129 and tritium (H-3), the observation that the subsurface BTV was the higher of the two is consistent with the physical properties of iodine and hydrogen. Specifically, both are volatile at relatively low temperatures in their common chemical forms. That volatility would result in the depletion of those vaporous analytes in the surface soils and the retention of the same analytes in the subsurface soils (HGL, 2011).

In the original calculation of radiological trigger levels, the BTV selected in the calculation of I-129 radionuclide reference concentration was the surface BTV of 1.60 picocuries per gram (pCi/g). The subsurface value of 2.08 pCi/g should have been selected.

Radionuclides with statistically different BTVs based on geologic formations: this group included 10 radionuclides with separate BTVs calculated for the Chatsworth Formation and Santa Susana Formation soils. The analytical results for these radionuclides did not exhibit statistically significant differences between RBRAs or sample depth (Attachment A). In addition to calculating separate BTVs for the Chatsworth Formation and the Santa Susana Formation, a BTV also was calculated using all results.

U.S. Environmental Protection Agency (USEPA) recommended using the BTV calculated using all the results. This recommendation was based on the difficulty in determining whether specific soil sample locations in Area IV and the NBZ were in the Chatsworth or Santa Susanna Formations, for reasons such as the mixing of soils and import of non-native soils at SSFL (HGL, 2011).

Radionuclides with statistically different BTVs for RBRAs: this group included 14 radionuclides, with separate BTVs calculated for each of the three RBRAs. The analytical results for these radionuclides did not exhibit statistically significant differences between geologic formations or sample depth. In addition to calculating separate BTVs for each RBRA, a BTV was calculated using all the results (Attachment A). During the investigation it was not possible to correlate Area IV and NBZ samples to a specific RBRA. USEPA recommended the use of the BTV calculated from the combined results (HGL, 2011).

Radionuclides with statistically different BTVs for datasets: this group included three radionuclides, and separate BTVs were calculated for each dataset. In addition, a BTV was calculated using all the results. As with the radionuclides with statistically different BTVs for RBRAs, it was not possible to correlate Area IV and NBZ sample locations to the specific datasets. Based on the groupings shown in Attachment A, USEPA recommended the use of the BTV calculated from the combined results (HGL, 2011).

3.0 RADIONUCLIDES REMOVED FROM THE ANALYTICAL SUITE AFTER BACKGROUND THRESHOLD VALUES WERE DETERMINED

Twelve radionuclides analyzed during the Radiological Background Study were not included in the default or site-specific analytical suites for the SSFL investigation. These radionuclides were removed at various times during the development of the Look-up Table. Some radionuclides were assumed to be in a state of secular equilibrium with other radionuclides that were also reported and evaluated. The activity concentrations of these radionuclides are calculated directly from the reported parent or progeny activity and any additional assessment is redundant. Other radionuclides were removed for reasons such as low likelihood of use or production at SSFL or short radioactive half-life. The following is a list of the radionuclides that were removed from the analytical suites and the reason for their removal:

- Barium-137m was removed during the development of the Field Sampling Plan (FSP) for soil sampling (HGL, 2012) because it is assumed to be in a state of secular equilibrium with cesium-137 and results are redundant.
- Iron-55 was removed during the September 23, 2010, stakeholder meeting. Iron-55 is an activation product with a 2.7 year half-life. It was not expected to be present in significant quantities in soil because of radioactive decay and low water solubility (HGL, 2010).
- Lead-210 and polonium-210 were removed during the September 23, 2010, stakeholder meeting. Lead-210 and its progeny polonium-210 are naturally occurring radionuclides that are part of the uranium decay series. Naturally occurring concentrations of lead-210 and polonium-210 are found in secular equilibrium with their gamma-emitting lead-214 and bismuth-214 precursors, both of which are reported and evaluated separately. As a result of the low likelihood of observing unsupported lead-210 at SSFL, lead-210 and its polonium-210 progeny were removed from consideration (HGL, 2010).
- Plutonium-242 was removed because it was used as a tracer radionuclide by both laboratories for quality control of the alpha spectroscopy data. Thus, a separate analysis would be required to determine the concentrations of plutonium-242. Additionally plutonium-242 had a low likelihood of use at SSFL.
- Radium-228 was removed during the September 23, 2010, stakeholder meeting, because it is assumed to be in a state of secular equilibrium with actinium-228, and results are redundant (HGL, 2010).
- Radon-220 was removed during the development of the FSP for soil sampling (HGL, 2012) because it is assumed to be in a state of secular equilibrium with lead-212 and bismuth-212, and results are redundant.
- Radon-222 was removed during the development of the FSP for Soil Sampling (HGL, 2012) because it is assumed to be in a state of secular equilibrium with lead-214 and bismuth-214, and results are redundant.
- Tellurium-125m was removed during the development of the FSP for Soil Sampling (HGL, 2012), because it is assumed to be in a state of secular equilibrium with antimony-125, and results are redundant.

- Thorium-231 was removed during the September 23, 2010, stakeholder meeting because it is assumed to be in a state of secular equilibrium with uranium-235, and results are redundant (HGL, 2010).
- Uranium-232 was removed during the September 23, 2010, stakeholder meeting because it was not used in reactor fuels and there was no known use of it at SSFL (HGL, 2010).
- Uranium-240 was removed during the September 23, 2010, stakeholder meeting because it is assumed to be in a state of secular equilibrium with plutonium-244, and results are redundant (HGL, 2010).

4.0 REFERENCES

HydroGeoLogic, Inc. (HGL), 2010. Santa Susana Field Laboratory Site; Area IV and NBZ Radiological Characterization Study, 9-23-2010 Technical Stakeholder Meeting Notes/Action Items. September.

HGL, 2011. Final Radiological Background Study Report Santa Susana Field Laboratory, Ventura County, California. October.

HGL, 2012. Final Field Sampling Plan for Soil Sampling, Area IV Radiological Study, Santa Susana Field Laboratory Site, Ventura County, California. March.

ATTACHMENT LIST

Attachment A Summary of Calculated and Selected Background Threshold Values

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ATTACHMENT A

Summary of Calculated and Selected Background Threshold Values

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Attachment A
Summary of Calculated and Selected Background Threshold Values

Radionuclides	Symbol	Selected BTV (pCi/g)	Less than Five Detections (pCi/g)	One BTV for all data (pCi/g)	Surface and Subsurface Soil BTVs (pCi/g)			Geologic Formations with Different BTVs (pCi/g)			RBRA with Different BTVs (pCi/g)				Individual Datasets with Different BTVs (pCi/g)						
					Surface	Subsurface	All Data	Formation		All Data	Bridal Path RBRA	Lang Ranch RBRA	Rocky Peak RBRA	All Data	Bridal Path RBRA		Lang Ranch RBRA ¹		Rocky Peak RBRA ¹		All Data
								Santa Susana	Chatsworth						Surface	Subsurface	Surface	Subsurface	Surface	Subsurface	
Actinium-227	Ac-227	1.27E-01	--	--	--	--	--	1.34E-01	9.76E-02	1.27E-01	--	--	--	--	--	--	--	--	--	--	--
Actinium-228	Ac-228	2.30E+00	--	--	--	--	--	--	--	--	2.45E+00	1.82E+00	1.31E+00	2.30E+00	--	--	--	--	--	--	--
Americium-241	Am-241	1.62E-02	--	1.62E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Americium-243	Am-243	1.34E-02	1.34E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Antimony-125	Sb-125	3.21E-01	--	--	--	--	--	--	--	--	3.45E-01	2.29E-01	1.59E-01	3.21E-01	--	--	--	--	--	--	--
Barium-137m	Ba-137m	1.83E-01	--	--	1.83E-01	1.05E-02	2.11E-01	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Bismuth-212	Bi-212	2.04E+00	--	--	--	--	--	--	--	--	1.93E+00	2.04E+00	1.15E+00	2.04E+00	--	--	--	--	--	--	--
Bismuth-214	Bi-214	1.57E+00	--	--	--	--	--	--	--	--	--	--	--	--	1.83E+00	9.14E-01	1.31E+00	9.06E-01	1.57E+00	--	--
Cadmium-113m	Cd-113m	2.95E+03	--	2.95E+03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Carbon-14	C-14	2.54E+00	--	2.54E+00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cesium-134	Cs-134	3.00E-02	--	--	--	--	--	--	--	--	2.94E-02	2.13E-02	1.84E-02	3.00E-02	--	--	--	--	--	--	--
Cesium-137	Cs-137	1.93E-01	--	--	1.93E-01	8.03E-03	2.29E-01	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Cobalt-60	Co-60	5.56E-03	5.56E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Curium-243/244	Cm-243/244	1.47E-02	1.47E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Curium-245/246	Cm-245/246	1.62E-02	--	1.62E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Curium-248	Cm-247/248	2.34E-02	2.34E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Europium-152	Eu-152	1.69E-02	--	1.69E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Europium-154	Eu-154	2.51E-02	--	2.51E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Europium-155	Eu-155	1.98E-01	--	--	--	--	--	--	--	--	1.97E-01	1.54E-01	1.20E-01	1.98E-01	--	--	--	--	--	--	--
Holmium-166m	Ho-166m	3.65E-02	--	3.65E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iodine-129	I-129	2.08E+00	--	--	1.60E+00	2.08E+00	1.54E+00	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Iron-55	Fe-55	5.08E+00	--	5.08E+00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead-210	Pb-210	2.07E+00	--	2.07E+00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Lead-212	Pb-212	2.67E+00	--	--	--	--	--	--	--	--	2.81E+00	2.43E+00	1.80E+00	2.67E+00	--	--	--	--	--	--	--
Lead-214	Pb-214	1.68E+00	--	--	--	--	--	--	--	--	--	--	--	--	1.93E+00	1.39E+00	1.40E+00	9.80E+00	1.68E+00	--	--
Neptunium-236	Np-236	3.14E-02	--	--	--	--	--	3.54E-02	2.13E-02	3.14E-02	--	--	--	--	--	--	--	--	--	--	--
Neptunium-237	Np-237	1.09E-02	--	1.09E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Neptunium-239	Np-239	4.27E-02	4.27E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel-59	Ni-59	3.44E-01	3.44E-01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Nickel-63	Ni-63	4.52E-01	4.52E-01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Niobium-94	Nb-94	1.65E-02	--	--	--	--	--	--	--	--	1.66E-02	1.53E-02	1.08E-02	1.65E-02	--	--	--	--	--	--	--
Plutonium-236	Pu-236	1.84E-02	--	1.84E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Plutonium-238	Pu-238	4.25E-03	--	4.25E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Plutonium-239/240	Pu-239/240	1.42E-02	--	--	1.42E-02	2.09E-03	1.34E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Plutonium-241	Pu-241	3.49E-01	3.49E-01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Plutonium-242	Pu-242	2.46E-03	--	2.46E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Plutonium-244	Pu-244	1.56E-03	--	1.56E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Attachment A
Summary of Calculated and Selected Background Threshold Values

Radionuclides	Symbol	Selected BTV (pCi/g)	Less than Five Detections (pCi/g)	One BTV for all data (pCi/g)	Surface and Subsurface Soil BTVs (pCi/g)			Geologic Formations with Different BTVs (pCi/g)			RBRA with Different BTVs (pCi/g)				Individual Datasets with Different BTVs (pCi/g)						
					Surface	Subsurface	All Data	Formation		All Data	Bridal Path RBRA	Lang Ranch RBRA	Rocky Peak RBRA	All Data	Bridal Path RBRA		Lang Ranch RBRA ¹		Rocky Peak RBRA ¹		All Data
								Santa Susana	Chatsworth						Surface	Subsurface	Surface	Subsurface	Surface	Subsurface	
Polonium-210	Po-210	2.09E+00	--	2.09E+00	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Potassium-40	K-40	3.05E+01	--	--	--	--	--	--	--	--	2.15E+01	3.05E+01	2.50E+01	3.05E+01	--	--	--	--	--	--	--
Promethium-147	Pm-147	4.96E+00	--	--	4.96E+00	3.28E+00	4.60E+00	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Protactinium-231	Pa-231	7.91E-01	--	7.91E-01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Radium-226	Ra-226	1.88E+00	--	--	--	--	--	--	--	--	1.88E+00	1.56E+00	1.15E+00	1.88E+00	--	--	--	--	--	--	--
Radium-228	Ra-228	2.30E+00	--	--	--	--	--	--	--	--	2.45E+00	1.82E+00	1.31E+00	2.30E+00	--	--	--	--	--	--	--
Radon-220	Rn-220	2.27E+00	--	--	--	--	--	--	--	--	2.34E+00	2.04E+00	1.48E+00	2.27E+00	--	--	--	--	--	--	--
Radon-222	Rn-222	1.61E+00	--	--	--	--	--	--	--	--	--	--	--	--	1.61E+00	1.36E+00	1.34E+00	1.30E+00	9.14E-01	8.87E-01	1.61E+00
Sodium-22	Na-22	7.87E-03	--	7.87E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Strontium-90/ Yttrium-90	Sr-90	7.50E-02	--	--	7.50E-02	1.31E-02	7.35E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Technetium-99	Tc-99	3.68E-01	--	3.68E-01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tellurium-125m	Te-125m	7.61E-02	--	--	--	--	--	--	--	--	7.97E-02	5.29E-02	3.51E-02	7.61E-02	--	--	--	--	--	--	--
Thallium-208	Tl-208	9.23E-01	--	--	--	--	--	--	--	--	9.39E-01	7.98E-01	5.49E-01	9.23E-01	--	--	--	--	--	--	--
Thorium-228	Th-228	3.67E+00	--	--	--	--	--	3.55E+00	3.29E+00	3.67E+00	--	--	--	--	--	--	--	--	--	--	--
Thorium-229	Th-229	4.62E-02	--	--	--	--	--	4.45E-02	4.02E-02	4.62E-02	--	--	--	--	--	--	--	--	--	--	--
Thorium-230	Th-230	2.04E+00	--	--	--	--	--	1.88E+00	2.04E+00	2.04E+00	--	--	--	--	--	--	--	--	--	--	--
Thorium-231	Th-231	1.30E-01	--	--	--	--	--	1.22E-01	1.25E-01	1.30E-01	--	--	--	--	--	--	--	--	--	--	--
Thorium-232	Th-232	2.95E+00	--	--	--	--	--	3.19E+00	2.29E+00	2.95E+00	--	--	--	--	--	--	--	--	--	--	--
Thorium-234	Th-234	3.04E+00	--	--	--	--	--	--	--	--	2.45E+00	1.92E+00	1.26E+00	3.04E+00	--	--	--	--	--	--	--
Thulium-171	Tm-171	6.59E+01	6.59E+01	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tin-126	Sn-126	4.90E-03	4.90E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Tritium	H-3	7.38E+00	--	--	3.75E+00	7.38E+00	5.86E+00	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Uranium-232	U-232	5.65E-02	5.65E-02	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
Uranium-233/234	U-233/234	1.87E+00	--	--	--	--	--	1.77E+00	1.73E+00	1.87E+00	--	--	--	--	--	--	--	--	--	--	--
Uranium-235/236	U-235/236	1.30E-01	--	--	--	--	--	1.22E-01	1.25E-01	1.30E-01	--	--	--	--	--	--	--	--	--	--	--
Uranium-238	U-238	1.68E+00	--	--	--	--	--	1.74E+00	1.65E+00	1.68E+00	--	--	--	--	--	--	--	--	--	--	--
Uranium-240	U-240	1.56E-03	--	1.56E-03	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--

Notes:

Data from Section 8 Tables, *Final SSFL Radiological Background Study Report, HGL, 2011*

Bold values indicate selected BTV

Shaded rows indicate radionuclide removed from analytical suites after background study.

¹Bi-214 and Pb-214 Lang Ranch and Rocky Peak RBRA surface and subsurface are combined values

-- No BTV calculated

BTV - background threshold value

RBRA - Radiological Background Reference Area

pCi/g - picocuries per gram