Open Burn/Open Detonation Range (Dry Season) Groundwater Detection Monitoring Report

(1st Semiannual 2024)

Department of the Air Force

Andersen Air Force Base, Guam

Prepared by Sundance – EA Associates II in compliance with the Resource Conservation and Recovery Act Permit (Permit No. GUS002) for Andersen Air Force Base Hazardous Waste Management Facility

SUNDANCE-EA ASSOCIATES II

TABLE OF CONTENTS

TABLES

FIGURES

APPENDICES

Executive Summary

In accordance with Section IV.A.1.c of the Resource Conservation and Recovery Act (RCRA) Permit (Permit No. GUS002), a statistical evaluation and comparison of groundwater data to background concentrations of metals and explosives in up-gradient samples and comparison of groundwater concentrations to risk-based concentration limits (maximum contaminant levels) were performed to determine whether or not a release has occurred from the Open Burn/Open Detonation (OB/OD) Range.

The analytical results received from the Eurofins Calscience, LLC indicates that the permit-stipulated chemicals of concern (cyclotrimethylenetrinitramine [RDX], (bis(2-ethylhexyl) phthalate [DEHP], mercury, and lead) were not detected in the down-gradient freshwater seeps at statistically significant levels above established background concentration and no-risk based concentration limits were exceeded. Therefore, Andersen Air Force Base (Andersen AFB) will remain in detection monitoring only at the Explosive Ordinance Disposal (EOD) Range.

1.0 INTRODUCTION

Andersen Air Force Base (Andersen AFB) operates a Hazardous Waste Management Facility under Permit No. GUS002, issued by the Guam Environmental Protection Agency (Guam EPA) on 05 September 2018. The permit authorizes Andersen AFB to operate a hazardous waste treatment facility within the boundaries of Andersen AFB at the extreme reach of Tarague Beach ending just before Tagua Point, Yigo, Guam.

The hazardous waste management unit authorized by the permit is an Open Burn/Open Detonation (OB/OD) Range is used to treat reactive hazardous wastes (D003) and/or hazardous wastes determined to be toxic through Toxicity Characteristic Leaching Procedure (TCLP) analysis under the regulations of Guam EPA and the United States Environmental Protection Agency (USEPA) Region IX. The primary function of the OB/OD Range is the disposal of waste explosives and waste ammunitions. The EOD Range at Andersen AFB is required to comply with Guam EPA rules and regulations under the Guam Solid Waste Management and Litter Control Act (10 Guam Code) and the federal Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (RCRA) of 1976, as well as hazardous waste regulations promulgated under the Guam EPA and regulations enacted by the USEPA referenced in Title 40 of the Code of Federal Regulations.

The mission of OB/OD Range is to render unserviceable ordnance and other pyrotechnic devices harmless by either suppressed detonation or open burning. In addition, the EOD Range has been used for EOD training and emergency purposes.

This report summarizes the sampling events for the 2024 1st Semiannual OB/OD Range (Dry Season) groundwater detection monitoring at Andersen Air Force Base. Samples were collected by Sundance – EA Associates II from IRP-52 and associated freshwater seeps locations and submitted to Eurofins Calscience, LLC laboratory for mercury, lead, di(2-ethylhexyl) phthalate [DEHP], and RDX (cyclotrimethylenetrinitramine) analysis for this reporting period.

1.1 SITE LOCATION

The EOD Range is defined as the open beach area bounded by the Pacific Ocean to the north and the jungle and/or limestone to the east, south and west and is used for open burning and open detonation of waste ordnance materials. The unit is located at the extreme eastern reach of Tarague Beach, ending just before Tagua Point (See Figure 1, Appendix A). The grid coordinates for the portion of the range used for open detonation are 13 degrees 35.58 minutes north, 144 degrees 56.48 minutes east.

The detonation unit is located at the extreme eastern edge of Tarague Beach directly along the face of the cliff. Detonation of the munitions at the cliff face directs the destructive force of the detonation away from the occupied areas. Open detonation operations consist of several steps, including properly placing the waste munitions, an explosive charge to detonate the waste munitions, and an igniter to initiate the detonator. Detonations are initiated from the personnel bunker.

The inactive open burning pit is located approximately 80 feet from the jungle and 180 feet from the Pacific Ocean, approximately midway east west in the EOD Range.

1.2 SAMPLING LOCATIONS

Samples were collected at the five (5) sampling points specified in the approved 2015 *OB/OD Range Groundwater Monitoring Plan*: well IRP-52 and the four freshwater seeps (SP-1, SP-2, SP-4, and SP-5). Well IRP-52 is an upgradient well located along 32nd Street at Andersen AFB (See Figure 2, Appendix A). SP-1, SP-2, SP-4, and SP-5 are four (4) downgradient freshwater seeps located at the Tarague embayment (See Figure 3, Appendix A). Table 1 below provides the coordinates for the upgradient well and the four downgradient freshwater seeps. All seeps were marked for faster identification.

Table 1: Summary of Sample Locations

Well/Seep	Coordinates	
IRP-52	13° 35’ 39” N	144° 55’ 40” E
SP-1	13° 35’ 59.810” N	144° 55’ 39.760” E
SP-2	13° 36’ 0.001” N	144° 55’ 37.362” E
SP-4	13° 36’ 1.043” N	144° 55’ 34.523” E
SP-5	13° 36’ 1.195” N	144° 55’ 31.736” E

1.3 SITE GROUNDWATER MONITORING SYSTEM

Groundwater monitoring at the OB/OD Range was conducted in accordance with Section IV of the RCRA Permit for Andersen AFB Hazardous Waste Management Facility.

Groundwater background and detection monitoring were conducted in accordance with the 2015 *OB/OD Range Groundwater Monitoring Plan*. Background groundwater samplings for IRP-52 and the four freshwater seeps were performed quarterly for one year, from June 2014 to March 2015. The quarterly samples taken during the background data collection phase were used to establish background water quality.

Table 2: Detection Monitoring Parameter List

Frequency	Locations	Parameters
Semiannual	Well IRP-52, SP-1, SP-2, SP-4, SP-5	DEHP or di(2-ethylhexyl) phthalate RDX or cyclotrimethylenetrinitramine Mercury Lead

Field parameters including chloride, pH, specific conductance, and temperature are also monitored semiannually during detection monitoring, however no statistical analyses are required. Field results are discussed further in Section 2.5 of this report.

2.0 GROUNDWATER SAMPLING

The 2024 1st Semiannual OB/OD Range (Dry Season) groundwater detection monitoring sampling events at well IRP-52 and the four freshwater seeps were conducted on June 25, 2024.

Photos taken during the 2024 1st Semiannual OB/OD Range (Dry Season) groundwater detection monitoring sampling events are provided in Appendix B.

The procedures for obtaining groundwater samples, parameter analyses, and sample preservation and handling are discussed in Sections 2.1 through 2.8

2.1 WATER LEVEL DETERMINATION

Prior to collecting samples from well IRP-52, the depth to water was measured using an electronic water level indicator. The measurement was taken to the nearest 0.01 foot from the top of the well casing and recorded into the Semiannual Groundwater Sampling Form, Appendix C. The water level indicator equipment was decontaminated prior to use with non-phosphate detergent (Liquinox), rinsed with clean water and then distilled water provided by the Water and Environmental Research Institute (WERI) Laboratory. Decontamination of equipment is further discussed in Section 2.2 below.

2.2 EQUIPMENT DECONTAMINATION PROCEDURES

All sampling and measuring equipment were thoroughly decontaminated with non-phosphate detergent (Liquinox), rinsed with clean water and then distilled water prior to and after each sampling event in accordance with the 2015 *OB/OD Range Groundwater Monitoring Plan*. Decontaminated equipment was not allowed to come into contact with the ground or other contaminated surfaces prior to sample collection.

2.2.1 Procedures for Decontaminating the Low Flow Double Valve Pump and Sample/Discharge Line

The low flow double valve pump was decontaminated before and after it was used to purge well IRP-52. The double valve pump was cleaned with Liquinox and rinsed thoroughly with clean water and then distilled water. Decontamination Log Sheet is provided in Appendix C.

The sample/discharge line was decontaminated by submerging the double valve pump in clean water contained in a clean 50-gallon drum. The electronic pump control was activated to start the pump and re-circulate the water until the sample/discharge line was thoroughly cleaned and flushed.

2.3 WELL PURGING

Prior to collecting samples from well IRP-52, the groundwater well was purged using a portable low flow double valve pump to ensure that a representative sample was obtained. The double valve pump was lowered slowly and gently down the well to avoid the disturbance of any sediment that may be present in the well, creating or increasing sample turbidity. The groundwater well was purged until field measurements were stabilized with three (3) consecutive readings: temperature

is within ± 1°C, pH is within ± 0.1 unit, and specific conductivity is within ± 5%.

Well purging and field measurements were recorded into the Semiannual Groundwater Sampling Form. Field sampling forms are found in Appendix C of this report.

2.4 SAMPLE EXTRACTION

2.4.1 Well IRP-52 Groundwater Sampling

The equipment and techniques used to extract groundwater samples from well IRP-52 were selected based on the depth of the well and the parameters to be analyzed. To ensure the groundwater sample is representative of actual aquifer conditions, Sundance-EA Associates II maintains the following sampling protocols:

- sampling equipment used were operated and calibrated according to the manufacturer's recommended specifications;
- decontaminated equipment was not allowed to come into contact with the ground or other contaminated surface prior to sampling;
- used a low flow double valve pump to minimize the disturbance of any sediment that may be present in the well;
- all field measurements have stabilized with three (3) consecutive readings: change in temperature is within ± 1°C, change in pH is within ± 0.1 unit, and change in specific conductivity is within ± 5%;
- double valve pump did not make any contact with the bottom of the well; and
- all samples were allocated into the appropriate sample containers.

2.4.2 Groundwater Seeps Sampling

Field parameter measurements were conducted prior to collecting samples at the four (4) groundwater seeps located at the EOD Range. These parameters include: chloride, specific conductance, pH and temperature. To ensure the groundwater seep samples are representative of actual aquifer conditions, Sundance-EA Associates II maintains the following sampling protocols:

- all equipment used were operated and calibrated according to the manufacturers recommended specifications;
- samples were collected thirty (30) to sixty (60) minutes prior to the lowest tide;
- chloride readings were within 500 mg/L to 5000 mg/L. Field chloride test is further discussed in Section 2.5.1; and
- semi-volatile samples were collected directly into containers when the groundwater seep source was accessible by submerging the sample containers. When semi-volatile sample containers could not be submerged, a glass beaker was used to collect samples.

2.5 FIELD PARAMETERS MEASUREMENT

Some of the parameters evaluated are physically or chemically unstable and cannot be reliably measured in the laboratory as their characteristics change over a very short time scale. Field measurement is necessary to preserve sample integrity and ensure data accuracy.

Groundwater samples from well IRP-52 and the four freshwater seeps were field tested for pH, temperature, and specific conductance using a multi-probe instrument. Field measurements taken for well IRP-52 and groundwater seeps were recorded in the Groundwater Sampling Form and Seeps Sampling Form respectively, and are found in Appendix C.

Data summaries of the field measurement and analytical laboratory test results for the 2024 1st Semiannual OB/OD Range (Dry Season) groundwater detection monitoring sampling events are provided in Table 3, Appendix D, and in Table 4, Appendix E, respectively.

2.5.1 Field Chloride Test

There is a significant tidal mixing due to the proximity of the four freshwater seeps to the Pacific Ocean. Chloride concentration at the seeps will range between 500 and 5000 mg/L. A chloride reading within 500 to 5000 mg/L constitutes a freshwater seep sample.

Sundance – EA Associates II representatives conducted the field chloride test using the HACH® Chloride Quantab® test strips prior to collecting samples. A summary result of the field chloride measurements for the four freshwater seeps is provided in Table 3, Appendix D.

2.5.2 Calibration

Sundance – EA Associates II representatives ensured that all meters and equipment used for field parameter measurements were calibrated before use following manufacturers' recommendations.The calibration log sheet for the Horiba U52 Multi Probe System and HACH® Quantab® titrators is included in Appendix C.

2.6 FIELD QUALITY ASSURANCE/QUALITY CONTROL (QA/QC) SAMPLES

The results of field quality control (QC) samples are used to assess sample collection procedures and environmental conditions during sample collection. The field QC samples include field blanks and field duplicates.

2.6.1 Field Blanks

For quality assurance and quality control (QA/QC) purposes, field blanks were prepared in the field by pouring de-ionized water into the sample containers in the field and labeled Field Blanks. The field blank containers were opened and remained open throughout the process of filling sample containers and were closed thereafter. Two sets of field blanks were collected and analyzed: one set at the groundwater seeps and another set at well IRP-52. The field blanks were handled in the same manner as the rest of the samples. The field blank results were used to assess and identify any contamination from field conditions or procedures during sample collection and handling.

2.6.2 Field Duplicates

Field duplicate sample results are used to assess the precision of the sample collection process. A field duplicate sample is a second sample collected at the same location as one of the original samples. Procedures used for collecting the duplicate samples were identical to the sampling protocol detailed in Section 2.4.2, collected in immediate succession, and were treated in the identical manner during storage, transport, and analysis. The collected field duplicate samples were submitted blind to the laboratory and analyzed for the same parameters as the original samples. Result for the field duplicate sample collected at seep SP-4 is included in the data summary provided in Table 4, Appendix E.

2.7 SAMPLE CONTAINERS, PRESERVATION, AND HOLDING TIMES

Before each OB/OD groundwater sampling event, the appropriate sample containers were provided by the Eurofins Calscience, LLC laboratory. Sample containers were labeled to indicate use of preservatives, as appropriate. Samples were shipped to the offsite laboratory with sufficient time remaining to perform the analytical testing prior to the expiration of the specified holding time.

2.8 SAMPLE DOCUMENTATION, HANDLING, AND PACKAGING

2.8.1 Sample Labeling

All sample containers were labeled at the sampling location and at the time of collection to prevent misidentification of samples. The labels contained the following information:

- Sample Date and Time;
- Sample Location;
- Preservative;
- Analysis Required;
- Sampler's Initial.

2.8.2 Chain-Of-Custody Form

Collected samples were accompanied by a chain-of-custody (COC) record that included the name and signature of sampler(s), sampling point identification, collection date and time, sample matrix, number of containers, preservative, and analytical information.

2.8.3 Sample Preservation, Packing and Delivery

In accordance with the 2015 *OB/OD Range Groundwater Monitoring Plan*, collected samples were placed in a cooler for preservation and maintained at 4 degrees Celsius (°C) ± 2 °C using ice. Sample custody was retained by Sundance – EA Associates II from the time of collection until the sample coolers were sealed under secure chain of custody for expedited shipment to the offsite laboratory. Sample preservation, packing, and delivery were all in accordance with the 2015 *OB/OD Range Groundwater Monitoring Plan.*

3.0 2024 1st SEMIANNUAL OB/OD RANGE (Dry Season) GROUNDWATER DETECTION MONITORING

The sampling results described in this section are for the 2024 1st Semiannual OB/OD Range (Dry Season) groundwater detection monitoring sampling event conducted at well IRP-52 and the four freshwater seeps on June 25, 2024. Results for the 2024 1st Semiannual sampling event are summarized in the following sections, tables, and appendices.

3.1 Groundwater Flow and Direction

In accordance with the requirements of Section IV G (3) of the Resource, Conservation, and Recovery ACT (RCRA) Permit for Andersen Air Force Base Hazardous Waste Management Facility (Permit No. GUS002), groundwater flow rate and direction in the uppermost aquifer shall be determined at least annually. However, as discussed in Section 2.2 of the approved 2015 *OB/OD Range Groundwater Monitoring Plan,* groundwater flow rate and direction have been established for the uppermost aquifer in a previous Dye Trace Study (DTS) conducted at the landfill complex.

The groundwater flow in the Northern Guam Lens aquifer moves from the limestone/volcanic contacts toward the sea. The DTS conducted in 2006 at the OB/OD Range supports that direction, as dye concentrations demonstrated groundwater movement from the OB/OD Range toward the seeps located in the beach area (See Figure 3, Appendix A). The site-specific groundwater flow at the OB/OD Range is presumed to be consistent with the 2006 evaluation.

3.2 GROUNDWATER QUALITY

The analytical laboratory results for the 2024 1st Semiannual OB/OD Range (Dry Season) groundwater detection monitoring sampling events are presented in Appendix F. The statistical analysis program used was DUMPStat Version 3.1. The DUMPStat program was used to perform Intra-well Control Charts Analysis and Inter-well Comparisons. The DUMPStat program was used to identify increasing trends and determine if statistically significant increases have occurred. The results of the statistical analyses are provided in Appendix G.

3.2.1 Outlier Determination

After merging the 2024 1st Semiannual OB/OD Range (Dry Season) groundwater detection monitoring quality data with the established background groundwater data, along with the data sets collected from semiannual groundwater detection monitoring events from 2015 – 2023, the data was automatically screened for the presence of outliers by choosing the Intra-Well Control Charts and the Inter-Well Comparisons. Statistical outliers (if any) are presented graphically on the Intra-Well Control Charts and Inter- Well Comparisons in Appendix G.

3.2.2 Statistical Analysis Plan:

In accordance with the 2015 *OB/OD Range Groundwater Monitoring Plan,* the current approved groundwater monitoring program entails:

- The frequency of groundwater sampling during the detection monitoring will be semiannual. The sampling events will be conducted during the dry season (December through June) and

wet season (July through November). During the detection monitoring, one set of samples were collected at well IRP-52 and the four freshwater seeps every semiannual sampling event. The parameters sampled during detection monitoring are provided in Table 2.

- A summary of field parameter results is presented in Table 3, Appendix D.

- Following each sampling event, an Intra-Well and Inter-Well analysis will be performed for the parameters presented in Table 2. A semiannual groundwater monitoring report will be submitted to Guam Environmental Protection Agency (Guam EPA) within sixty (60) days of receipt of the laboratory analytical results from each semiannual sampling event.

- In the event the concentration levels of contaminants from a sampled seep and/or well IRP-52 during detection monitoring are above the risk-based concentration limit(s) or a statistically significant increase above background values, a verification sample will be collected immediately at the seeps and/or well IRP-52 where the exceedance occurred. Analytical results will be analyzed for the contaminants that exceeded the risked-based concentration limit(s).

- If there is an exceedance of a risk-based concentration limits and/or a statistically significant increase above the background values for the parameters listed in Table 2, Andersen AFB may demonstrate that a source other than a regulated unit caused the increase or that the increase resulted from error in sampling, analysis, or evaluation. In such cases:

    - Notify Guam EPA Administrator in writing within seven (7) days of determination made that Andersen AFB intends to make a demonstration.

    - Within ninety (90) days of the notice, Andersen AFB will submit a report to the Administrator, which demonstrates that a source other than a regulated unit caused the increase, or that the increase resulted from error in sampling, analysis, or evaluation.

    - Within ninety (90) days of the notice, Andersen AFB will submit an application for Permit Modification to make any appropriate changes to the site-monitoring program at the facility.

    - Andersen AFB will continue to monitor in accordance with the 2015 *OB/OD Range Groundwater Monitoring Plan.*

3.2.3 Results of the Statistical Analysis:

The results of the statistical calculations performed for the parameters listed in Table 2 are presented in Appendix G. Based on statistical analysis calculations performed with the DUMPStat program utilizing Intra-Well and Inter-Well methodology, no statistically significant increases above the background values were observed in the 2024 1st Semiannual OB/OD Range (Dry Season) groundwater detection monitoring.

3.2.4 Groundwater Result Summary

Table 4 in Appendix E presents a summary of the groundwater quality for the parameters listed in Table 2 at all sampling points. No risk-based concentration limit was exceeded during the 2024 1st Semiannual OB/OD Range (Dry Season) groundwater detection monitoring sample event.

3.2.5 Quality Assurance/Quality Control Results

Analytical results for the field blanks and groundwater seep duplicate sample (SP-4) showed no variability for the 2024 1st Semiannual OB/OD Range (Dry Season) groundwater detection monitoring sampling event, indicating consistent sampling and analytical procedures.

4.0 CONCLUSIONS

Based on the results of the 2024 1st Semiannual OB/OD Range (Dry Season) groundwater detection monitoring sampling and analytical testing, Andersen AFB reached the following conclusions:

Analytical Results:

- No risk-based concentration limit was exceeded during the 2024 1st Semiannual OB/OD Range (Dry Season) groundwater detection monitoring sampling event. Laboratory analytical results and data summary are provided in Appendix F and Appendix E, respectively.
- Analytical results for all field blank samples indicate no contamination as a result of field procedures and duplicate sample indicate consistency of sampling method.

Statistical Analysis:

The results of the statistical calculations performed for the parameters listed in Table 2 are presented in Appendix G. Based on statistical calculations performed with the DUMPStat statistical computer program using Intra-Well Control Charts and Inter-Well comparisons, no statistically significant increases were observed in samples collected during this reporting period.

APPENDIX A

Location Maps

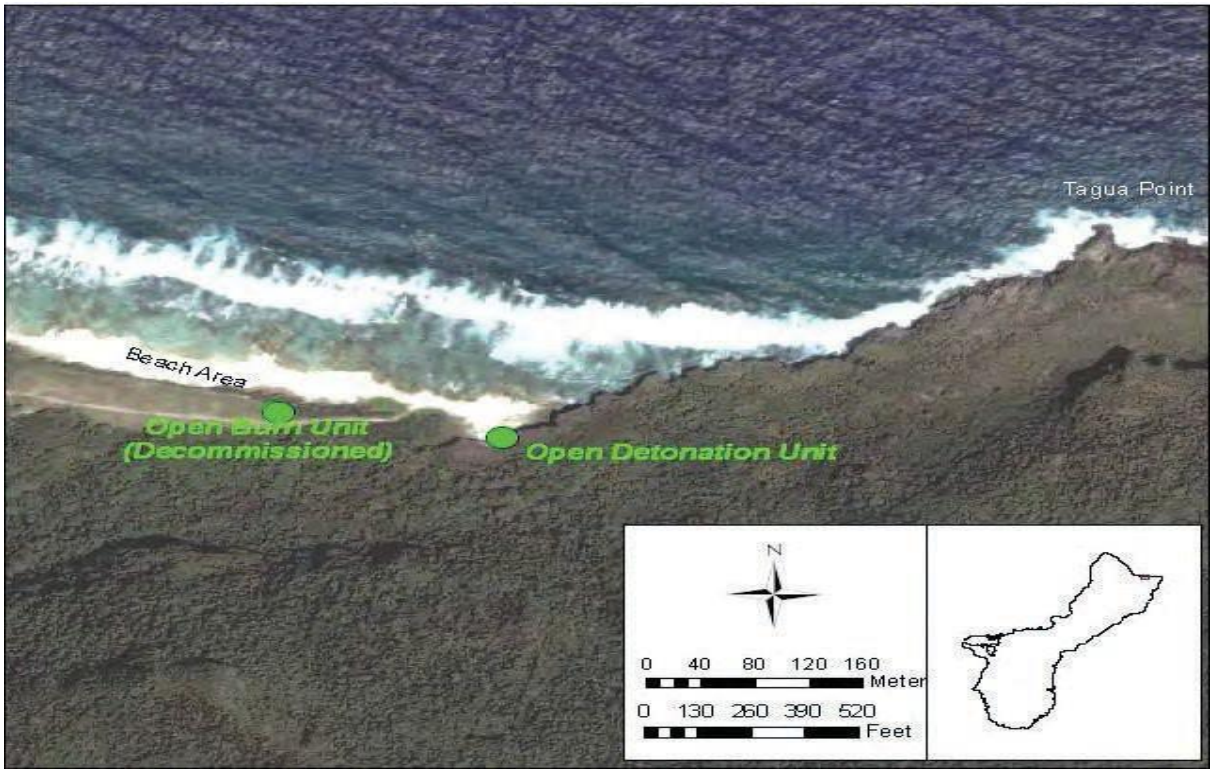

Figure 1: Location Map of the OB/OD Range, Andersen AFB

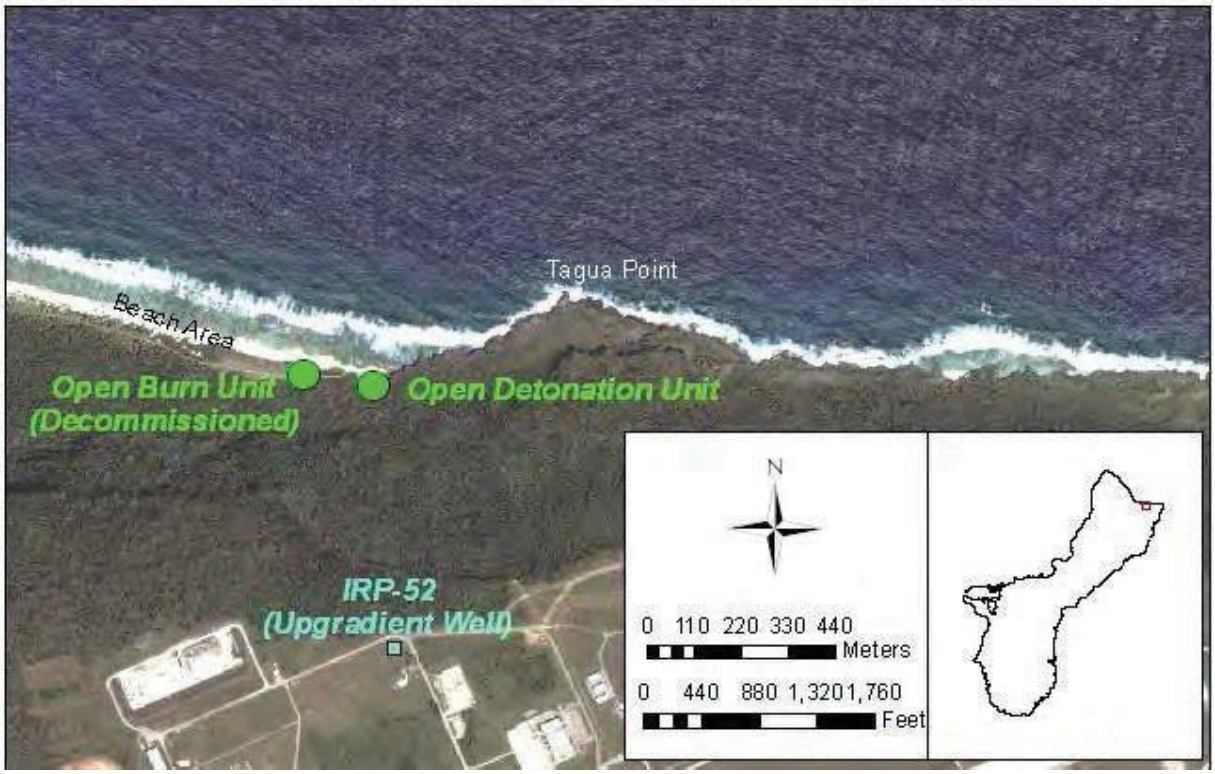

Figure 2: Map of Upgradient Well, IRP-52

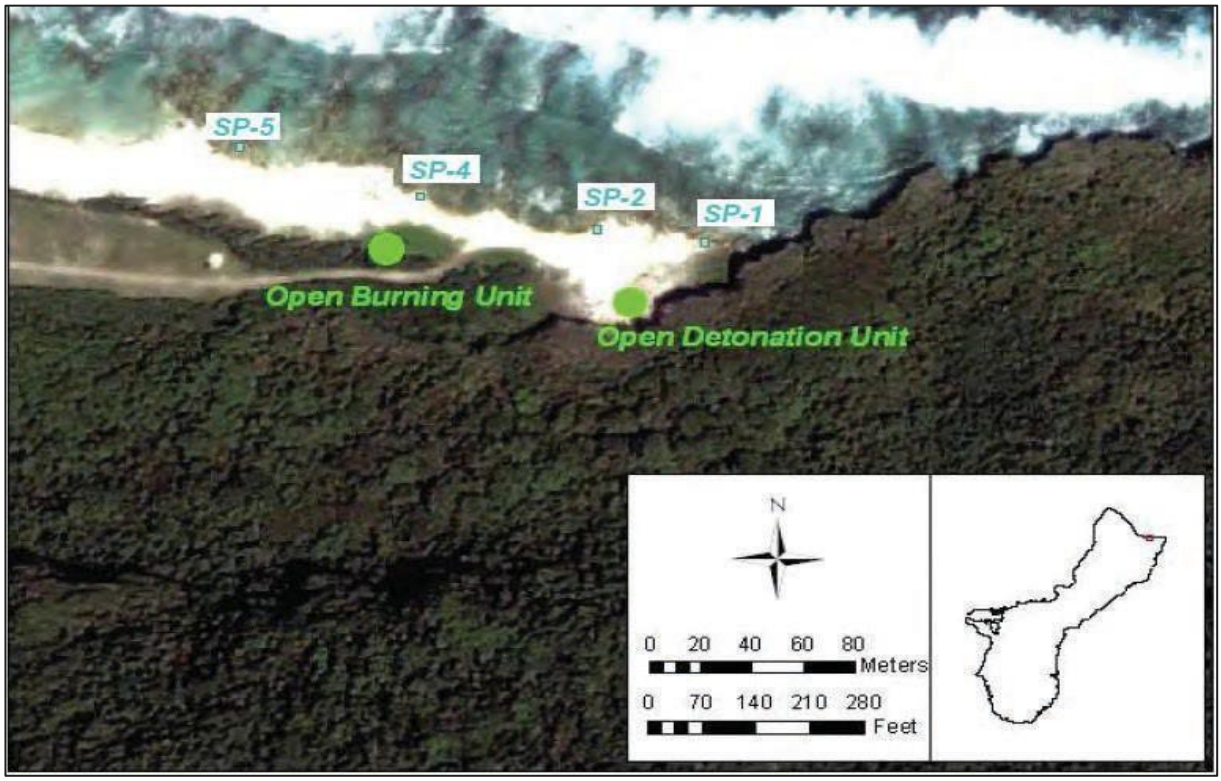

Figure 3: Map of Four Downgradient Freshwater Seeps (SP-1, SP-2, SP-4, SP-5)

APPENDIX B

2024 1st Semiannual (Dry Season) Detection Monitoring OB/OD Groundwater Sampling Photos

2024 1st Semiannual (Dry Season) Detection Monitoring
OB/OD Ground Water Sampling Photos

June 25, 2024

Photo 1: Well IRP-52 Sample reel tube & pump set-up

Photo 2: Freshwater Seep Blank Sample

2024 1st Semiannual (Dry Season) Detection Monitoring
OB/OD Ground Water Sampling Photos

Photo 3: Freshwater seep sampling at SP-2

Photo 5: Freshwater seep sampling at SP-4

APPENDIX C

Decontamination and Calibration Log Sheets,
Semiannual Groundwater Sampling Forms

Anderson AFB Open Burn Open Detonation
Decontamination Log Sheet

Date: 6/19/2024	**Site Location: Well IRP-52**
Recorded By: Heath Indalecio	**Checked By/Date: HI / JSN**

Decontamination Checklist:

Equipment	Purpose of Use	Liquinox®/Water Rinse	Potable Water Rinse	Other Water Rinse
Water Level Indicator Probe	**Sampling**	**Yes**	**Yes**	**Yes**
Sample Line	**Sampling**	**Yes**	**Yes**	**Yes**
Double Valve Pump	**Sampling**	**Yes**	**Yes**	**Yes**
Tag Line	**Sampling**	**Yes**	**Yes**	**Yes**

Decontamination Procedure Checklist	Yes	No
Place washing tubs on plastic sheeting?	✓	
Scrub sampling equipment in Liquinox®/water until all visible dirt/grim, grease, oil, etc. have been removed?	✓	
Rinsed sampling equipment with a final rinse using the designed water listed in the table above?	✓	
Placed decontaminated equipment of plastic sheeting for drying and transport?	✓	
Placed decontaminated solutions in sealed container?	✓	

Additional Note and Observation:

All sampling and measuring equipment were thoroughly decontaminated with non-phosphate detergent (Liquinox), rinsed thoroughly with water and then distilled water prior to and after each sampling event in accordance with the *OB/OD Range Groundwater Monitoring Plan*.

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Andersen AFB Open Burn Open Detonation Equipment Calibration Log Sheet

Equipment Type	Date	Parameter (Unit)	Standard Lot No (QA/QC)	Standard Expiry Date (QA/QC)	Standard True Value (QA/QC)	Initial
		Barometer (mmHg) http://w1.weather.gov/obhistory/PGUA.html				
Horiba U52 Model	6/25/2024	**Specific Conductance/ Conductivity (mS/cm)**	43110336	12/7/2025	1.0	RT
			43080506	9/11/2025	10.0	RT
Horiba U52 Model	6/25/2024	**pH Buffer 4**	8307141	7/27/2025	4.01	RT
		pH Buffer 7	A4032	Feb-26	7.00	RT
		pH Buffer 10				RT
Quantab® Test Strips	6/25/2024	**Chloride (mg/L)**	A3204A	Jun-25	1000	RT

NOTE(S):

QC Conductivity
Temperature: 24.6 °C
Actual Reading: 4.48 mS/cm
True Value: 4.45 mS/cm
Lot No: 8307141
EXP: 7/27/2025

QC pH
Actual Reading: 7.00
True Value: 7.00
Range: 7.00 ± 0.02
Lot No: A2298
EXP: 10/2024

Standards Accuracy at 25°C	**1. Conductivity Low Standard (1,000 µSiemens): ± 0.50% (995-1005µS or 0.995-1.005mS)** **2. Conductivity High Standard (10,000 µSiemens): ± 0.25% (9975-10025µS or 9.975-10.025mS)** **3. Chloride High Standard Solution (1,000 mg/L): ± 0.5% (950-1050 mg/L)** **4. pH Buffers: ± 0.05 pH units** **5. Quantab® Test Strips: Use chart printed on the bottle to determine the chloride concentration.**

Andersen AFB Open Burn Open Detonation
Semiannual Surface Water (Seep) Sampling Form
(Detection Monitoring)

Location (Seep ID): SP-1

Time on Site: 1230

Time Departed Site: 1345

Low Tide Time: 1611

Date: 06/25/2024

Weather Condition: Sunny

Sample Collection Method: Grab

Personnel: RT / HI / JSN

Field Analyses					
Sample Time	Chloride (mg/L)	pH	Temperature (°C)	Specific Conductance (µS/cm)	Sample Observation (Color, Odor, Etc.)
1334	571	7.73	28.67	3550	Clear, no odor, low flow

Analysis	Bottle Size	Preservative	Quantity	Method Number	Holding Time
Lead	1 500 mL HDPE	HNO_3	1	6010B	180 days
Mercury				7470A	28 days
RDX	1 Liter Amber Glass	None	3	8330	7 days to extraction; analyze w/in 40 days after extraction
DEHP				8270C	7 days to extraction; analyze w/in 40 days after extraction
Bottle Count			**4**		

Note:

Freshwater Conductivity - up to 2,000 uS/cm
Seeps Chloride Concentration - 500 - 5,000 mg/L to constitute a freshwater seep sample

SUNDANCE-EA ASSOCIATES II

Andersen AFB Open Burn Open Detonation
Semiannual Surface Water (Seep) Sampling Form
(Detection Monitoring)

Location (Seep ID): SP-2

Time on Site: 1230

Time Departed Site: 1345

Low Tide Time: 1611

Date: 06/25/2024

Weather Condition: Sunny

Sample Collection Method: Grab

Personnel: RT / HI / JSN

Field Analyses					
Sample Time	Chloride (mg/L)	pH	Temperature (°C)	Specific Conductance (µS/cm)	Sample Observation (Color, Odor, Etc.)
1322	600	7.53	26.82	2170	Clear, no odor, decent flow

Analysis	Bottle Size	Preservative	Quantity	Method Number	Holding Time
Lead	1 500 mL HDPE	HNO_3	1	6010B	180 days
Mercury				7470A	28 days
RDX	1 Liter Amber Glass	None	3	8330	7 days to extraction; analyze w/in 40 days after extraction
DEHP				8270C	7 days to extraction; analyze w/in 40 days after extraction
Bottle Count			**4**		

Note:

Freshwater Conductivity - up to 2,000 uS/cm
Seeps Chloride Concentration - 500 - 5,000 mg/L to constitute a freshwater seep sample

SUNDANCE-EA ASSOCIATES II

Andersen AFB Open Burn Open Detonation
Semiannual Surface Water (Seep) Sampling Form
(Detection Monitoring)

Location (Seep ID): SP-4

Time on Site: 1230

Time Departed Site: 1345

Low Tide Time: 1611

Date: 06/25/2024

Weather Condition: Sunny

Sample Collection Method: Grab

Personnel: RT / HI / JSN

Field Analyses					
Sample Time	Chloride (mg/L)	pH	Temperature (°C)	Specific Conductance (µS/cm)	Sample Observation (Color, Odor, Etc.)
1310	2067	7.77	29.67	13100	Clear, no odor, decent flow

Analysis	Bottle Size	Preservative	Quantity	Method Number	Holding Time
Lead	1 500 mL HDPE	HNO_3	1	6010B	180 days
Mercury				7470A	28 days
RDX	1 Liter Amber Glass	None	3	8330	7 days to extraction; analyze w/in 40 days after extraction
DEHP				8270C	7 days to extraction; analyze w/in 40 days after extraction
Bottle Count			**4**		

Note:

Freshwater Conductivity - up to 2,000 uS/cm

Seeps Chloride Concentration - 500 - 5,000 mg/L to constitute a freshwater seep sample

SUNDANCE-EA ASSOCIATES II

Andersen AFB Open Burn Open Detonation
Semiannual Surface Water (Seep) Sampling Form
(Detection Monitoring)

Location (Seep ID): SP-4 (Blind)

Time on Site: 1230

Time Departed Site: 1345

Low Tide Time: 1611

Date: 06/25/2024

Weather Condition: Sunny

Sample Collection Method: Grab

Personnel: RT / HI / JSN

Field Analyses					
Sample Time	Chloride (mg/L)	pH	Temperature (°C)	Specific Conductance (µS/cm)	Sample Observation (Color, Odor, Etc.)
1315	2067	7.77	29.67	13100	Clear, no odor, decent flow

Analysis	Bottle Size	Preservative	Quantity	Method Number	Holding Time
Lead	1 500 mL HDPE	HNO_3	1	6010B	180 days
Mercury				7470A	28 days
RDX	1 Liter Amber Glass	None	3	8330	7 days to extraction; analyze w/in 40 days after extraction
DEHP				8270C	7 days to extraction; analyze w/in 40 days after extraction
Bottle Count			**4**		

Note:

Freshwater Conductivity - up to 2,000 uS/cm
Seeps Chloride Concentration - 500 - 5,000 mg/L to constitute a freshwater seep sample

SUNDANCE-EA ASSOCIATES II

Andersen AFB Open Burn Open Detonation
Semiannual Surface Water (Seep) Sampling Form
(Detection Monitoring)

Location (Seep ID): SP-5

Time on Site: 1230

Time Departed Site: 1345

Low Tide Time: 1611

Date: 06/25/2024

Weather Condition: Sunny

Sample Collection Method: Grab

Personnel: RT / HI / JSN

Field Analyses					
Sample Time	Chloride (mg/L)	pH	Temperature (°C)	Specific Conductance (µS/cm)	Sample Observation (Color, Odor, Etc.)
1257	700	7.33	27.29	31.60	Clear, no odor, low flow

Analysis	Bottle Size	Preservative	Quantity	Method Number	Holding Time
Lead	1 500 mL HDPE	HNO_3	1	6010B	180 days
Mercury				7470A	28 days
RDX	1 Liter Amber Glass	None	3	8330	7 days to extraction; analyze w/in 40 days after extraction
DEHP				8270C	7 days to extraction; analyze w/in 40 days after extraction
Bottle Count			**4**		

Note:

Freshwater Conductivity - up to 2,000 uS/cm
Seeps Chloride Concentration - 500 - 5,000 mg/L to constitute a fresh water seep sample

Andersen AFB Open Burn Open Detonation
Semiannual Groundwater Sampling Form
(Detection Monitoring)

Well ID: IRP-52 Date: 06/25/2024
Reference Point/Top of Riser Pipe: ~2.5 feet By: HI / RT / JSN
Casing Diameter: 5 inches
Elevation/Depth to Top of Screen: 532 feet
Elevation/Depth to Bottom of Screen: 552 feet Mean Sea Level: -1.41
Depth to Water (DTW): 536.77 Water Column: 15.23 (552 – DTW = WC)

Semiannual

Field Analyses: Initial Purging

Time	pH	Temp (°C)	Specific Conductance (µS/cm)	Turbidity (NTU)	Volume Purged (gal)	DTW (ft)	Observations (Color, Odor, etc.)
1529	7.66	31.21	0.626	0.0		536.77	No color, no odor

Field Analyses: During Purging V= 3.14 x r^2 x L;
V= volume, r= radius of pipe (0.0635m), L = length of water in column in meter (total depth – depth to water)

Time	pH	Temp (°C)	Specific Conductance (µS/cm)	Turbidity (NTU	Volume Purged (gal)	DTW (ft)	Observations (Color, Odor, etc.)
1531	8.10	31.22	0.626	0.0		536.77	No color, no odor
1533	8.22	31.22	0.626	0.0		536.77	No color, no odor
1536	8.24	31.23	0.626	0.0		536.77	No color, no odor
1540	8.25	31.25	0.626	0.0		536.77	No color, no odor
1545	8.26	31.23	0.626	0.0		536.77	No color, no odor
1550	8.26	31.23	0.626	0.0		536.77	No color, no odor

Analysis	Bottle Size	Preservative	Quantity	Method Number	Holding Time
Lead	1 500 mL HDPE	HNO_3 (5 ml)	1	6010B	180 days
Mercury	1 500 mL HDPE	HNO_3 (5 ml)	1	7470C	28 days
RDX	1 Liter Amber Glass	None	1	8330	7 days to extraction; analyze w/in 40 days after extraction
DEHP	1 Liter Amber Glass	None	1	8270C	7 days
Bottle Count:			**4**		

Note:

Field parameters were measured for every 1 Liter of water purged until the field parameters were stabilized.
Total volume of water purged was approximately 3.0 gallons.

APPENDIX D

Field Measurements

Groundwater Field Parameter Result Summary
2024 1st Semiannual Detection Monitoring (Dry Season)
Table 3: Parameter List[1]

LOCATION [4]	SAMPLE DATE	SAMPLE TIME	WELL ELEVATION (ft)	DEPTH TO WATER[3] (ft)	CHLORIDE (mg/L)	TEMPERATURE (°C)	pH (s.u.)	SPECIFIC CONDUCTANCE (µS/cm)	TURBIDITY (NTU)
SP-1	6/25/2024	1334	N/A	N/A	571	28.67	7.7	3500	N/A
SP-2	6/25/2024	1322	N/A	N/A	600	26.82	7.5	2170	N/A
SP-4	6/25/2024	1310	N/A	N/A	2067	29.67	7.8	13100	N/A
SP-5	6/25/2024	1257	N/A	N/A	700	27.29	7.3	3160	N/A
SP-4 (Blind)	6/25/2024	1315	N/A	N/A	2067	29.67	7.8	13100	N/A
IRP-52 [2]	6/25/2024	1531	552	536.8	N/A	31.22	8.1	0.626	0.000
		1533	552	536.8	N/A	31.22	8.2	0.626	0.000
		1536	552	536.8	N/A	31.23	8.2	0.626	0.000
		1540	552	536.8	N/A	31.25	8.3	0.626	0.000
		1545	552	536.8	N/A	31.23	8.3	0.626	0.000
		1550	552	536.8	N/A	31.23	8.3	0.626	0.000

Definitions and Abbreviations:
ft - feet
mg/L - milligram per liter
S.U. - standard unit
°C - Celsius
µS/cm - microsiemens per centimeter
NTU - nephelometric turbidity unit
Blind - blind sample, also known as (DUP) duplicate sample

Notes:
[1] The above measurement data were taken prior to collecting samples for the 2024 1st OBOD semiannual groundwater detection monitoring (Dry season) sampling event.
[2] Results for well IRP-52 were taken during purging. Sample collection did not start until all field parameters have stabilized, as required in the approved OB/OD Range Ground Monitoring Plan.
[3] Depth to water was measured from the top of the well PVC casing.
[4] SP-1, SP-2, SP-4, and SP-5 are freshwater seeps located at the EOD Range, along Tarague Beach. IRP-52 is located around AAFB North ramp.

APPENDIX E

Data Summary

Groundwater Quality Result Summary
2024 1st Semiannual Detection Monitoring (Dry Season)

Table 4: Result Summary

Sample Date	Sample ID	Sample Time	Parameter	Lead (ug/L)	Mercury (ug/L)	Bis(2-ethylhexyl) phthalate or DEHP (ug/L)	Cyclotrimethylenetrinitramine or RDX (ug/L) [1]
			MCL	**15.0**	**2.0**	**6.0**	
6/25/2024	570-189834-1	1334	SP-1	ND	ND	ND	ND
6/25/2024	570-189834-2	1322	SP-2	ND	ND	ND	ND
6/25/2024	570-189834-3	1310	SP-4	ND	ND	ND	ND
6/25/2024	570-189834-4	1257	SP-5	ND	ND	ND	ND
6/25/2024	570-189834-5	1315	SP-4 (DUP)	ND	ND	ND	ND
6/25/2024	570-189834-7	1410	IRP-52	ND	ND	ND	ND

Definitions and Abbreviations:

ND - Not Detected at the reporting limit (RL) or method detection limit (MDL)
ug/L - micrograms per liter
DUP - Duplicate Sample
MCL- Maximum Contaminant Level

Notes:

[1] RDX does not have an established MCL. For RDX in tap water, EPA calculated a screening level of 0.7 ug/L as a guideline (EPA 2017), but not as a regulatory limit.

APPENDIX F

Analytical Laboratory Results

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Brenda Nuding
EA Engineering, Science, and Technology
19700 SW Johnson Road
West Linn OR 97068

Generated 7/22/2024 4:21 PM

JOB DESCRIPTION

NAVFAC Guam Compliance

JOB NUMBER

570-189834-1

Eurofins Calscience
2841 Dow Avenue, Suite 100
Tustin CA 92780

See page two for job notes and contact information.

myEOL

Eurofins Calscience

Job Notes

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Authorized for release by
Jimmy Jin, Project Manager I
Ming.Jin@et.eurofinsus.com
Designee for
Carla Hollowell, Project Manager I
Carla.Hollowell@et.eurofinsus.com
714 895-5494

Table of Contents

Table of Contents

Table of Contents

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
¤	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

CASE NARRATIVE

Client: EA Engineering, Science, and Technology

Project: NAVFAC Guam Compliance

Report Number: 570-189834-1

This case narrative is in the form of an exception report, where only the anomalies related to this report, method specific performance and/or QA/QC issues are discussed. If there are no issues to report, this narrative will include a statement that documents that there are no relevant data issues.

It should be noted that samples with elevated Reporting Limits (RLs) resulting from a dilution may not be able to satisfy customer reporting limits in some cases. Such increases in the RLs are an unavoidable but acceptable consequence of sample dilution that enables quantification of target analytes within the calibration range of the instrument or that reduces the interferences thereby enabling the quantification of target analytes.

Calculations are performed before rounding to avoid round-off errors in calculated results.

All holding times were met and proper preservation noted for the methods performed on these samples, unless otherwise detailed in the individual sections below.

RECEIPT

The samples were received on 6/27/2024 at 9:45 AM. Unless otherwise noted below, the samples arrived in good condition, and, where required, properly preserved and on ice. The temperatures of the 5 coolers at receipt time were 2.7°C, 3.2°C, 3.9°C, 4.1°C and 4.5°C.

Note: All samples which require thermal preservation are considered acceptable if the arrival temperature is within 2 degrees Celsius of the required temperature or method specified range. For samples with a specified temperature of 4 degrees Celsius, samples with a temperature ranging from just above freezing temperature of water to 6 degrees Celsius shall be acceptable. Samples that are hand delivered immediately following collection may not meet these criteria, however they will be deemed acceptable according to NELAC standards, if there is evidence that the chilling process has begun, such as arrival on ice, etc.

SEMIVOLATILE ORGANIC COMPOUNDS (GC-MS SIM)

Samples SP-1-062524 (570-189834-1), SP-2-062524 (570-189834-2), SP-4-062524 (570-189834-3), SP-5-062524 (570-189834-4), Blind Sample-062524 (570-189834-5), OBOD Field Blank- 062524 (570-189834-6), IRP-52-062524 (570-189834-7), IRP-52 Field Blank- 062524 (570-189834-8) and Equipment Blank- 062524 (570-189834-9) were analyzed for Semivolatile Organic Compounds in accordance with EPA SW-846 Method 8270C SIM. The samples were prepared on 07/01/2024 and analyzed on 07/03/2024 and 07/11/2024.

2-Fluorophenol (Surrogate) and Nitrobenzene-d5 (Surrogate) failed the surrogate recovery criteria low for SP-1-062524 (570-189834-1). The sample was not re-extracted due to holding time expired therefore, the data has been reported per PM/Client request.

2-Fluorophenol (Surrogate) and Nitrobenzene-d5 (Surrogate) failed the surrogate recovery criteria low for LCS 570-456194/2-A. The samples were not re-extracted due to holding time expired therefore, the data has been reported per PM/Client request. Refer to the QC report for details.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

NITROAROMATICS AND NITRAMINES (HPLC)

Samples SP-1-062524 (570-189834-1), SP-2-062524 (570-189834-2), SP-4-062524 (570-189834-3), SP-5-062524 (570-189834-4), Blind Sample-062524 (570-189834-5), OBOD Field Blank- 062524 (570-189834-6), IRP-52-062524 (570-189834-7), IRP-52 Field Blank- 062524 (570-189834-8) and Equipment Blank- 062524 (570-189834-9) were analyzed for Nitroaromatics and Nitramines (HPLC) in accordance with EPA SW846 Method 8330. The samples were prepared on 06/28/2024 and analyzed on 07/03/2024 and 07/04/2024.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL RECOVERABLE METALS (ICP)

Samples SP-1-062524 (570-189834-1), SP-2-062524 (570-189834-2), SP-4-062524 (570-189834-3), SP-5-062524 (570-189834-4), Blind Sample-062524 (570-189834-5), OBOD Field Blank- 062524 (570-189834-6), IRP-52-062524 (570-189834-7), IRP-52 Field Blank- 062524 (570-189834-8) and Equipment Blank- 062524 (570-189834-9) were analyzed for total recoverable metals (ICP) in accordance with EPA SW-846 Method 6010B. The samples were prepared and analyzed on 06/28/2024.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

TOTAL MERCURY

Samples SP-1-062524 (570-189834-1), SP-2-062524 (570-189834-2), SP-4-062524 (570-189834-3), SP-5-062524 (570-189834-4), Blind Sample-062524 (570-189834-5), OBOD Field Blank- 062524 (570-189834-6), IRP-52-062524 (570-189834-7), IRP-52 Field Blank- 062524 (570-189834-8) and Equipment Blank- 062524 (570-189834-9) were analyzed for total mercury in accordance with EPA SW-846 Method 7470A. The samples were prepared and analyzed on 06/28/2024.

No analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Detection Summary

Client: EA Engineering, Science, and Technology
Project/Site: NAVFAC Guam Compliance

Job ID: 570-189834-1

Client Sample ID: SP-1-062524 — Lab Sample ID: 570-189834-1

No Detections.

Client Sample ID: SP-2-062524 — Lab Sample ID: 570-189834-2

No Detections.

Client Sample ID: SP-4-062524 — Lab Sample ID: 570-189834-3

No Detections.

Client Sample ID: SP-5-062524 — Lab Sample ID: 570-189834-4

No Detections.

Client Sample ID: Blind Sample-062524 — Lab Sample ID: 570-189834-5

No Detections.

Client Sample ID: OBOD Field Blank- 062524 — Lab Sample ID: 570-189834-6

No Detections.

Client Sample ID: IRP-52-062524 — Lab Sample ID: 570-189834-7

No Detections.

Client Sample ID: IRP-52 Field Blank- 062524 — Lab Sample ID: 570-189834-8

No Detections.

Client Sample ID: Equipment Blank- 062524 — Lab Sample ID: 570-189834-9

No Detections.

This Detection Summary does not include radiochemical test results.

Method: SW846 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: SP-1-062524
Date Collected: 06/25/24 13:34
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		5.0	3.6	ug/L		07/01/24 05:28	07/03/24 19:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*63*		*20 - 132*	*07/01/24 05:28*	*07/03/24 19:12*	*1*
2-Fluorophenol (Surr)	*4*	*S1-*	*18 - 100*	*07/01/24 05:28*	*07/03/24 19:12*	*1*
Nitrobenzene-d5 (Surr)	*22*	*S1-*	*32 - 120*	*07/01/24 05:28*	*07/03/24 19:12*	*1*
Phenol-d6 (Surr)	*11*		*10 - 100*	*07/01/24 05:28*	*07/03/24 19:12*	*1*
p-Terphenyl-d14 (Surr)	*53*		*39 - 129*	*07/01/24 05:28*	*07/03/24 19:12*	*1*
2-Fluorobiphenyl (Surr)	*46*		*31 - 120*	*07/01/24 05:28*	*07/03/24 19:12*	*1*

Client Sample ID: SP-2-062524
Date Collected: 06/25/24 13:22
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		4.9	3.5	ug/L		07/01/24 05:28	07/03/24 19:33	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*58*		*20 - 132*	*07/01/24 05:28*	*07/03/24 19:33*	*1*
2-Fluorophenol (Surr)	*44*		*18 - 100*	*07/01/24 05:28*	*07/03/24 19:33*	*1*
Nitrobenzene-d5 (Surr)	*42*		*32 - 120*	*07/01/24 05:28*	*07/03/24 19:33*	*1*
Phenol-d6 (Surr)	*25*		*10 - 100*	*07/01/24 05:28*	*07/03/24 19:33*	*1*
p-Terphenyl-d14 (Surr)	*103*		*39 - 129*	*07/01/24 05:28*	*07/03/24 19:33*	*1*
2-Fluorobiphenyl (Surr)	*107*		*31 - 120*	*07/01/24 05:28*	*07/03/24 19:33*	*1*

Client Sample ID: SP-4-062524
Date Collected: 06/25/24 13:10
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		4.9	3.5	ug/L		07/01/24 05:28	07/11/24 01:12	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*97*		*20 - 132*	*07/01/24 05:28*	*07/11/24 01:12*	*1*
2-Fluorophenol (Surr)	*43*		*18 - 100*	*07/01/24 05:28*	*07/11/24 01:12*	*1*
Nitrobenzene-d5 (Surr)	*82*		*32 - 120*	*07/01/24 05:28*	*07/11/24 01:12*	*1*
Phenol-d6 (Surr)	*26*		*10 - 100*	*07/01/24 05:28*	*07/11/24 01:12*	*1*
p-Terphenyl-d14 (Surr)	*84*		*39 - 129*	*07/01/24 05:28*	*07/11/24 01:12*	*1*
2-Fluorobiphenyl (Surr)	*77*		*31 - 120*	*07/01/24 05:28*	*07/11/24 01:12*	*1*

Client Sample ID: SP-5-062524
Date Collected: 06/25/24 12:57
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		4.9	3.6	ug/L		07/01/24 05:28	07/11/24 01:34	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*90*		*20 - 132*	*07/01/24 05:28*	*07/11/24 01:34*	*1*
2-Fluorophenol (Surr)	*42*		*18 - 100*	*07/01/24 05:28*	*07/11/24 01:34*	*1*
Nitrobenzene-d5 (Surr)	*78*		*32 - 120*	*07/01/24 05:28*	*07/11/24 01:34*	*1*
Phenol-d6 (Surr)	*27*		*10 - 100*	*07/01/24 05:28*	*07/11/24 01:34*	*1*
p-Terphenyl-d14 (Surr)	*81*		*39 - 129*	*07/01/24 05:28*	*07/11/24 01:34*	*1*
2-Fluorobiphenyl (Surr)	*73*		*31 - 120*	*07/01/24 05:28*	*07/11/24 01:34*	*1*

Method: SW846 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: Blind Sample-062524
Lab Sample ID: 570-189834-5
Date Collected: 06/25/24 12:30
Matrix: Water
Date Received: 06/27/24 09:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		4.9	3.5	ug/L		07/01/24 05:28	07/11/24 01:56	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*83*		*20 - 132*	*07/01/24 05:28*	*07/11/24 01:56*	*1*
2-Fluorophenol (Surr)	*40*		*18 - 100*	*07/01/24 05:28*	*07/11/24 01:56*	*1*
Nitrobenzene-d5 (Surr)	*71*		*32 - 120*	*07/01/24 05:28*	*07/11/24 01:56*	*1*
Phenol-d6 (Surr)	*26*		*10 - 100*	*07/01/24 05:28*	*07/11/24 01:56*	*1*
p-Terphenyl-d14 (Surr)	*79*		*39 - 129*	*07/01/24 05:28*	*07/11/24 01:56*	*1*
2-Fluorobiphenyl (Surr)	*67*		*31 - 120*	*07/01/24 05:28*	*07/11/24 01:56*	*1*

Client Sample ID: OBOD Field Blank- 062524
Lab Sample ID: 570-189834-6
Date Collected: 06/25/24 12:51
Matrix: Water
Date Received: 06/27/24 09:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		4.8	3.5	ug/L		07/01/24 05:28	07/11/24 02:18	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*88*		*20 - 132*	*07/01/24 05:28*	*07/11/24 02:18*	*1*
2-Fluorophenol (Surr)	*36*		*18 - 100*	*07/01/24 05:28*	*07/11/24 02:18*	*1*
Nitrobenzene-d5 (Surr)	*78*		*32 - 120*	*07/01/24 05:28*	*07/11/24 02:18*	*1*
Phenol-d6 (Surr)	*21*		*10 - 100*	*07/01/24 05:28*	*07/11/24 02:18*	*1*
p-Terphenyl-d14 (Surr)	*81*		*39 - 129*	*07/01/24 05:28*	*07/11/24 02:18*	*1*
2-Fluorobiphenyl (Surr)	*73*		*31 - 120*	*07/01/24 05:28*	*07/11/24 02:18*	*1*

Client Sample ID: IRP-52-062524
Lab Sample ID: 570-189834-7
Date Collected: 06/25/24 15:52
Matrix: Water
Date Received: 06/27/24 09:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		4.9	3.5	ug/L		07/01/24 05:28	07/03/24 21:20	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*54*		*20 - 132*	*07/01/24 05:28*	*07/03/24 21:20*	*1*
2-Fluorophenol (Surr)	*24*		*18 - 100*	*07/01/24 05:28*	*07/03/24 21:20*	*1*
Nitrobenzene-d5 (Surr)	*41*		*32 - 120*	*07/01/24 05:28*	*07/03/24 21:20*	*1*
Phenol-d6 (Surr)	*14*		*10 - 100*	*07/01/24 05:28*	*07/03/24 21:20*	*1*
p-Terphenyl-d14 (Surr)	*67*		*39 - 129*	*07/01/24 05:28*	*07/03/24 21:20*	*1*
2-Fluorobiphenyl (Surr)	*55*		*31 - 120*	*07/01/24 05:28*	*07/03/24 21:20*	*1*

Client Sample ID: IRP-52 Field Blank- 062524
Lab Sample ID: 570-189834-8
Date Collected: 06/25/24 14:12
Matrix: Water
Date Received: 06/27/24 09:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		4.8	3.5	ug/L		07/01/24 05:28	07/03/24 21:41	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*74*		*20 - 132*	*07/01/24 05:28*	*07/03/24 21:41*	*1*
2-Fluorophenol (Surr)	*38*		*18 - 100*	*07/01/24 05:28*	*07/03/24 21:41*	*1*
Nitrobenzene-d5 (Surr)	*94*		*32 - 120*	*07/01/24 05:28*	*07/03/24 21:41*	*1*
Phenol-d6 (Surr)	*24*		*10 - 100*	*07/01/24 05:28*	*07/03/24 21:41*	*1*
p-Terphenyl-d14 (Surr)	*58*		*39 - 129*	*07/01/24 05:28*	*07/03/24 21:41*	*1*
2-Fluorobiphenyl (Surr)	*48*		*31 - 120*	*07/01/24 05:28*	*07/03/24 21:41*	*1*

Method: SW846 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Client Sample ID: Equipment Blank- 062524
Lab Sample ID: 570-189834-9
Date Collected: 06/25/24 09:45
Matrix: Water
Date Received: 06/27/24 09:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		4.8	3.4	ug/L		07/01/24 05:28	07/03/24 22:03	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*84*		*20 - 132*	*07/01/24 05:28*	*07/03/24 22:03*	*1*
2-Fluorophenol (Surr)	*38*		*18 - 100*	*07/01/24 05:28*	*07/03/24 22:03*	*1*
Nitrobenzene-d5 (Surr)	*80*		*32 - 120*	*07/01/24 05:28*	*07/03/24 22:03*	*1*
Phenol-d6 (Surr)	*24*		*10 - 100*	*07/01/24 05:28*	*07/03/24 22:03*	*1*
p-Terphenyl-d14 (Surr)	*63*		*39 - 129*	*07/01/24 05:28*	*07/03/24 22:03*	*1*
2-Fluorobiphenyl (Surr)	*89*		*31 - 120*	*07/01/24 05:28*	*07/03/24 22:03*	*1*

Method: SW846 8330 - Nitroaromatics and Nitramines (HPLC)

Client Sample ID: SP-1-062524
Date Collected: 06/25/24 13:34
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
RDX	ND		1.2	0.50	ug/L		06/28/24 20:54	07/03/24 23:19	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene (Surr)	*124*		*60 - 150*	*06/28/24 20:54*	*07/03/24 23:19*	*1*

Client Sample ID: SP-2-062524
Date Collected: 06/25/24 13:22
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
RDX	ND		1.1	0.47	ug/L		06/28/24 20:54	07/03/24 23:42	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene (Surr)	*123*		*60 - 150*	*06/28/24 20:54*	*07/03/24 23:42*	*1*

Client Sample ID: SP-4-062524
Date Collected: 06/25/24 13:10
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
RDX	ND		1.1	0.47	ug/L		06/28/24 20:54	07/04/24 00:05	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene (Surr)	*125*		*60 - 150*	*06/28/24 20:54*	*07/04/24 00:05*	*1*

Client Sample ID: SP-5-062524
Date Collected: 06/25/24 12:57
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
RDX	ND		1.2	0.49	ug/L		06/28/24 20:54	07/04/24 00:52	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene (Surr)	*124*		*60 - 150*	*06/28/24 20:54*	*07/04/24 00:52*	*1*

Client Sample ID: Blind Sample-062524
Date Collected: 06/25/24 12:30
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
RDX	ND		1.1	0.47	ug/L		06/28/24 20:54	07/04/24 01:16	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene (Surr)	*123*		*60 - 150*	*06/28/24 20:54*	*07/04/24 01:16*	*1*

Client Sample ID: OBOD Field Blank- 062524
Date Collected: 06/25/24 12:51
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
RDX	ND		1.1	0.47	ug/L		06/28/24 20:54	07/04/24 01:39	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene (Surr)	*120*		*60 - 150*	*06/28/24 20:54*	*07/04/24 01:39*	*1*

Method: SW846 8330 - Nitroaromatics and Nitramines (HPLC)

Client Sample ID: IRP-52-062524
Lab Sample ID: 570-189834-7
Date Collected: 06/25/24 15:52
Matrix: Water
Date Received: 06/27/24 09:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
RDX	ND		1.1	0.47	ug/L		06/28/24 20:54	07/04/24 02:02	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene (Surr)	*124*		*60 - 150*	*06/28/24 20:54*	*07/04/24 02:02*	*1*

Client Sample ID: IRP-52 Field Blank- 062524
Lab Sample ID: 570-189834-8
Date Collected: 06/25/24 14:12
Matrix: Water
Date Received: 06/27/24 09:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
RDX	ND		1.2	0.50	ug/L		06/28/24 20:54	07/04/24 02:26	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene (Surr)	*121*		*60 - 150*	*06/28/24 20:54*	*07/04/24 02:26*	*1*

Client Sample ID: Equipment Blank- 062524
Lab Sample ID: 570-189834-9
Date Collected: 06/25/24 09:45
Matrix: Water
Date Received: 06/27/24 09:45

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
RDX	ND		1.2	0.48	ug/L		06/28/24 20:54	07/04/24 02:49	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
1,2-Dinitrobenzene (Surr)	*124*		*60 - 150*	*06/28/24 20:54*	*07/04/24 02:49*	*1*

Method: SW846 6010B - Metals (ICP) - Total Recoverable

Client Sample ID: SP-1-062524
Date Collected: 06/25/24 13:34
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0500	0.00527	mg/L		06/28/24 06:45	06/28/24 16:21	1

Client Sample ID: SP-2-062524
Date Collected: 06/25/24 13:22
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0500	0.00527	mg/L		06/28/24 06:45	06/28/24 16:42	1

Client Sample ID: SP-4-062524
Date Collected: 06/25/24 13:10
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0500	0.00527	mg/L		06/28/24 06:45	06/28/24 16:44	1

Client Sample ID: SP-5-062524
Date Collected: 06/25/24 12:57
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0500	0.00527	mg/L		06/28/24 06:45	06/28/24 16:47	1

Client Sample ID: Blind Sample-062524
Date Collected: 06/25/24 12:30
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0500	0.00527	mg/L		06/28/24 06:45	06/28/24 16:49	1

Client Sample ID: OBOD Field Blank- 062524
Date Collected: 06/25/24 12:51
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0500	0.00527	mg/L		06/28/24 06:45	06/28/24 16:52	1

Client Sample ID: IRP-52-062524
Date Collected: 06/25/24 15:52
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0500	0.00527	mg/L		06/28/24 06:45	06/28/24 16:54	1

Client Sample ID: IRP-52 Field Blank- 062524
Date Collected: 06/25/24 14:12
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0500	0.00527	mg/L		06/28/24 06:45	06/28/24 16:56	1

Client Sample ID: Equipment Blank- 062524
Date Collected: 06/25/24 09:45
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0500	0.00527	mg/L		06/28/24 06:45	06/28/24 16:59	1

Method: SW846 7470A - Mercury (CVAA)

Client Sample ID: SP-1-062524
Date Collected: 06/25/24 13:34
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-1
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000124	mg/L		06/28/24 08:00	06/28/24 15:44	1

Client Sample ID: SP-2-062524
Date Collected: 06/25/24 13:22
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-2
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000124	mg/L		06/28/24 08:00	06/28/24 15:46	1

Client Sample ID: SP-4-062524
Date Collected: 06/25/24 13:10
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-3
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000124	mg/L		06/28/24 08:00	06/28/24 15:48	1

Client Sample ID: SP-5-062524
Date Collected: 06/25/24 12:57
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-4
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000124	mg/L		06/28/24 08:00	06/28/24 15:50	1

Client Sample ID: Blind Sample-062524
Date Collected: 06/25/24 12:30
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-5
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000124	mg/L		06/28/24 08:00	06/28/24 15:52	1

Client Sample ID: OBOD Field Blank- 062524
Date Collected: 06/25/24 12:51
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-6
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000124	mg/L		06/28/24 08:00	06/28/24 15:54	1

Client Sample ID: IRP-52-062524
Date Collected: 06/25/24 15:52
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-7
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000124	mg/L		06/28/24 08:00	06/28/24 15:56	1

Client Sample ID: IRP-52 Field Blank- 062524
Date Collected: 06/25/24 14:12
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-8
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000124	mg/L		06/28/24 08:00	06/28/24 15:58	1

Client Sample ID: Equipment Blank- 062524
Date Collected: 06/25/24 09:45
Date Received: 06/27/24 09:45
Lab Sample ID: 570-189834-9
Matrix: Water

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000124	mg/L		06/28/24 08:00	06/28/24 16:00	1

Default Detection Limits

Client: EA Engineering, Science, and Technology
Project/Site: NAVFAC Guam Compliance

Job ID: 570-189834-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)
Prep: 3510C

Analyte	RL	MDL	Units
Bis(2-ethylhexyl) phthalate	5.0	3.6	ug/L

Method: 8330 - Nitroaromatics and Nitramines (HPLC)
Prep: 8330

Analyte	RL	MDL	Units
RDX	2.0	0.83	ug/L

Method: 6010B - Metals (ICP) - Total Recoverable
Prep: 3005A

Analyte	RL	MDL	Units
Lead	0.0500	0.00527	mg/L

Method: 7470A - Mercury (CVAA)
Prep: 7470A

Analyte	RL	MDL	Units
Mercury	0.000200	0.000124	mg/L

Surrogate Summary

Client: EA Engineering, Science, and Technology
Project/Site: NAVFAC Guam Compliance

Job ID: 570-189834-1

Method: 8270C SIM - Semivolatile Organic Compounds (GC/MS SIM)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)					
		TBP	2FP	NBZ	PHL6	TPHd14	FBP
Lab Sample ID	Client Sample ID	(20-132)	(18-100)	(32-120)	(10-100)	(39-129)	(31-120)
570-189834-1	SP-1-062524	63	4 S1-	22 S1-	11	53	46
570-189834-2	SP-2-062524	58	44	42	25	103	107
570-189834-3	SP-4-062524	97	43	82	26	84	77
570-189834-4	SP-5-062524	90	42	78	27	81	73
570-189834-5	Blind Sample-062524	83	40	71	26	79	67
570-189834-6	OBOD Field Blank- 062524	88	36	78	21	81	73
570-189834-7	IRP-52-062524	54	24	41	14	67	55
570-189834-8	IRP-52 Field Blank- 062524	74	38	94	24	58	48
570-189834-9	Equipment Blank- 062524	84	38	80	24	63	89
LCS 570-456194/2-A	Lab Control Sample	61	15 S1-	28 S1-	11	78	35
LCSD 570-456194/3-A	Lab Control Sample Dup	83	43	69	33	98	54
MB 570-456194/1-A	Method Blank	70	33	47	17	69	78

Surrogate Legend

TBP = 2,4,6-Tribromophenol (Surr)
2FP = 2-Fluorophenol (Surr)
NBZ = Nitrobenzene-d5 (Surr)
PHL6 = Phenol-d6 (Surr)
TPHd14 = p-Terphenyl-d14 (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Method: 8330 - Nitroaromatics and Nitramines (HPLC)

Matrix: Water

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)
		12DNB1
Lab Sample ID	Client Sample ID	(60-150)
570-189834-1	SP-1-062524	124
570-189834-2	SP-2-062524	123
570-189834-3	SP-4-062524	125
570-189834-4	SP-5-062524	124
570-189834-5	Blind Sample-062524	123
570-189834-6	OBOD Field Blank- 062524	120
570-189834-7	IRP-52-062524	124
570-189834-8	IRP-52 Field Blank- 062524	121
570-189834-9	Equipment Blank- 062524	124
LCS 570-455925/2-A	Lab Control Sample	120
LCSD 570-455925/3-A	Lab Control Sample Dup	118
MB 570-455925/1-A	Method Blank	127

Surrogate Legend

12DNB = 1,2-Dinitrobenzene (Surr)

Method: 8270C SIM - Semivolat ile C rganic C mpoun s (GC/I S SIM)

Lab Sample ID: MB 570-456194/1-A
Matrix: Water
Analysis Batch: 457377

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 456194

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	ND		5.0	3.6	ug/L		07/01/24 05:28	07/03/24 17:25	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2,4,6-Tribromophenol (Surr)	*70*		*20 - 132*	*07/01/24 05:28*	*07/03/24 17:25*	*1*
2-Fluorophenol (Surr)	*33*		*18 - 100*	*07/01/24 05:28*	*07/03/24 17:25*	*1*
Nitrobenzene-d5 (Surr)	*47*		*32 - 120*	*07/01/24 05:28*	*07/03/24 17:25*	*1*
Phenol-d6 (Surr)	*17*		*10 - 100*	*07/01/24 05:28*	*07/03/24 17:25*	*1*
p-Terphenyl-d14 (Surr)	*69*		*39 - 129*	*07/01/24 05:28*	*07/03/24 17:25*	*1*
2-Fluorobiphenyl (Surr)	*78*		*31 - 120*	*07/01/24 05:28*	*07/03/24 17:25*	*1*

Lab Sample ID: LCS 570-456194/2-A
Matrix: Water
Analysis Batch: 459068

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 456194

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Bis(2-ethylhexyl) phthalate			20.0	17.62		ug/L		88	48 - 139		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*61*		*20 - 132*
2-Fluorophenol (Surr)	*15*	*S1-*	*18 - 100*
Nitrobenzene-d5 (Surr)	*28*	*S1-*	*32 - 120*
Phenol-d6 (Surr)	*11*		*10 - 100*
p-Terphenyl-d14 (Surr)	*78*		*39 - 129*
2-Fluorobiphenyl (Surr)	*35*		*31 - 120*

Lab Sample ID: LCSD 570 - 456194/3-A
Matrix: Water
Analysis Batch: 457377

(ient Samp e ID: La Control S mpl Dup
Prep Ty p : Tc tal/NA
Prep Ba tch: 4 6194

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Bis(2-ethylhexyl) phthalate			20.0	15.62		ug/L		78	48 - 139	12	30

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2,4,6-Tribromophenol (Surr)	*83*		*20 - 132*
2-Fluorophenol (Surr)	*43*		*18 - 100*
Nitrobenzene-d5 (Surr)	*69*		*32 - 120*
Phenol-d6 (Surr)	*33*		*10 - 100*
p-Terphenyl-d14 (Surr)	*98*		*39 - 129*
2-Fluorobiphenyl (Surr)	*54*		*31 - 120*

Method: 8330 - Nitroaromatics and Nitramines (HPLC)

Lab Sample ID: MB 570-455925/1-A
Matrix: Water
Analysis Batch: 457395

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 455925

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
RDX	ND		1.1	0.46	ug/L		06/28/24 19:52	07/03/24 21:45	1

Method: 8330 - Nitroaromatics and Nitramines (HPLC) (Continued)

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
1,2-Dinitrobenzene (Surr)	127		60 - 150	06/28/24 19:52	07/03/24 21:45	1

Lab Sample ID: LCS 570-455925/2-A
Matrix: Water
Analysis Batch: 457395

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 455925

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
RDX	26.0	27.65		ug/L		106	42 - 150

Surrogate	LCS %Recovery	LCS Qualifier	Limits
1,2-Dinitrobenzene (Surr)	120		60 - 150

Lab Sample ID: LCSD 570 - 455925/3-A
Matrix: Water
Analysis Batch: 457395

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 455925

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
RDX	26.0	26.06		ug/L		100	42 - 150	6	15

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
1,2-Dinitrobenzene (Surr)	118		60 - 150

Method: 6010B - Metals (ICP)

Lab Sample ID: MB 570-455583/1-A
Matrix: Water
Analysis Batch: 455906

Client Sample ID: Method Blank
Prep Type: Total Recoverable
Prep Batch: 455583

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Lead	ND		0.0500	0.00527	mg/L		06/28/24 06:45	06/28/24 16:12	1

Lab Sample ID: LCS 570-455583/2-A
Matrix: Water
Analysis Batch: 455906

Client Sample ID: Lab Control Sample
Prep Type: Total Recoverable
Prep Batch: 455583

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Lead	0.500	0.5289		mg/L		106	80 - 120

Lab Sample ID: LCSD 570-455583/3-A
Matrix: Water
Analysis Batch: 455906

Client Sample ID: Lab Control Sample Dup
Prep Type: Total Recoverable
Prep Batch: 455583

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Lead	0.500	0.5207		mg/L		104	80 - 120	2	20

Lab Sample ID: 570-189834-1 MS
Matrix: Water
Analysis Batch: 455906

Client Sample ID: SP-1-062524
Prep Type: Total Recoverable
Prep Batch: 455583

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Lead	ND		0.500	0.5099		mg/L		102	84 - 120

Method: 6010B - Metals (ICP) (Co ntinued)

Lab Sample ID: 570-189834-1 MSD
Matrix: Water
Analysis Batch: 455906

Client Sample ID: SP-1-062524
Prep Type: Total Recoverable
Prep Batch: 455583

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Lead	ND		0.500	0.5016		mg/L		100	84 - 120	2	7

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 570-455624/1-A
Matrix: Water
Analysis Batch: 455745

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 455624

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	ND		0.000200	0.000124	mg/L		06/28/24 08:00	06/28/24 15:04	1

Lab Sample ID: LCS 570-455624/2-A
Matrix: Water
Analysis Batch: 455745

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 455624

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	0.00800	0.007750		mg/L		97	80 - 120

Lab Sample ID: LCSD 570-455624/3-A
Matrix: Water
Analysis Batch: 455745

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 455624

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	0.00800	0.007858		mg/L		98	80 - 120	1	10

GC/MS Semi VOA

Prep Batch: 456194

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-189834-1	SP-1-062524	Total/NA	Water	3510C	
570-189834-2	SP-2-062524	Total/NA	Water	3510C	
570-189834-3	SP-4-062524	Total/NA	Water	3510C	
570-189834-4	SP-5-062524	Total/NA	Water	3510C	
570-189834-5	Blind Sample-062524	Total/NA	Water	3510C	
570-189834-6	OBOD Field Blank- 062524	Total/NA	Water	3510C	
570-189834-7	IRP-52-062524	Total/NA	Water	3510C	
570-189834-8	IRP-52 Field Blank- 062524	Total/NA	Water	3510C	
570-189834-9	Equipment Blank- 062524	Total/NA	Water	3510C	
MB 570-456194/1-A	Method Blank	Total/NA	Water	3510C	
LCS 570-456194/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 570-456194/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

Analysis Batch: 457377

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-189834-1	SP-1-062524	Total/NA	Water	8270C SIM	456194
570-189834-2	SP-2-062524	Total/NA	Water	8270C SIM	456194
570-189834-7	IRP-52-062524	Total/NA	Water	8270C SIM	456194
570-189834-8	IRP-52 Field Blank- 062524	Total/NA	Water	8270C SIM	456194
570-189834-9	Equipment Blank- 062524	Total/NA	Water	8270C SIM	456194
MB 570-456194/1-A	Method Blank	Total/NA	Water	8270C SIM	456194
LCSD 570-456194/3-A	Lab Control Sample Dup	Total/NA	Water	8270C SIM	456194

Analysis Batch: 459068

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-189834-3	SP-4-062524	Total/NA	Water	8270C SIM	456194
570-189834-4	SP-5-062524	Total/NA	Water	8270C SIM	456194
570-189834-5	Blind Sample-062524	Total/NA	Water	8270C SIM	456194
570-189834-6	OBOD Field Blank- 062524	Total/NA	Water	8270C SIM	456194
LCS 570-456194/2-A	Lab Control Sample	Total/NA	Water	8270C SIM	456194

HPLC/IC

Prep Batch: 455925

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-189834-1	SP-1-062524	Total/NA	Water	8330	
570-189834-2	SP-2-062524	Total/NA	Water	8330	
570-189834-3	SP-4-062524	Total/NA	Water	8330	
570-189834-4	SP-5-062524	Total/NA	Water	8330	
570-189834-5	Blind Sample-062524	Total/NA	Water	8330	
570-189834-6	OBOD Field Blank- 062524	Total/NA	Water	8330	
570-189834-7	IRP-52-062524	Total/NA	Water	8330	
570-189834-8	IRP-52 Field Blank- 062524	Total/NA	Water	8330	
570-189834-9	Equipment Blank- 062524	Total/NA	Water	8330	
MB 570-455925/1-A	Method Blank	Total/NA	Water	8330	
LCS 570-455925/2-A	Lab Control Sample	Total/NA	Water	8330	
LCSD 570-455925/3-A	Lab Control Sample Dup	Total/NA	Water	8330	

Analysis Batch: 457395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-189834-1	SP-1-062524	Total/NA	Water	8330	455925

HPLC/IC (Continued)

Analysis Batch: 457395 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-189834-2	SP-2-062524	Total/NA	Water	8330	455925
570-189834-3	SP-4-062524	Total/NA	Water	8330	455925
570-189834-4	SP-5-062524	Total/NA	Water	8330	455925
570-189834-5	Blind Sample-062524	Total/NA	Water	8330	455925
570-189834-6	OBOD Field Blank- 062524	Total/NA	Water	8330	455925
570-189834-7	IRP-52-062524	Total/NA	Water	8330	455925
570-189834-8	IRP-52 Field Blank- 062524	Total/NA	Water	8330	455925
570-189834-9	Equipment Blank- 062524	Total/NA	Water	8330	455925
MB 570-455925/1-A	Method Blank	Total/NA	Water	8330	455925
LCS 570-455925/2-A	Lab Control Sample	Total/NA	Water	8330	455925
LCSD 570-455925/3-A	Lab Control Sample Dup	Total/NA	Water	8330	455925

Metals

Prep Batch: 455583

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-189834-1	SP-1-062524	Total Recoverable	Water	3005A	
570-189834-2	SP-2-062524	Total Recoverable	Water	3005A	
570-189834-3	SP-4-062524	Total Recoverable	Water	3005A	
570-189834-4	SP-5-062524	Total Recoverable	Water	3005A	
570-189834-5	Blind Sample-062524	Total Recoverable	Water	3005A	
570-189834-6	OBOD Field Blank- 062524	Total Recoverable	Water	3005A	
570-189834-7	IRP-52-062524	Total Recoverable	Water	3005A	
570-189834-8	IRP-52 Field Blank- 062524	Total Recoverable	Water	3005A	
570-189834-9	Equipment Blank- 062524	Total Recoverable	Water	3005A	
MB 570-455583/1-A	Method Blank	Total Recoverable	Water	3005A	
LCS 570-455583/2-A	Lab Control Sample	Total Recoverable	Water	3005A	
LCSD 570-455583/3-A	Lab Control Sample Dup	Total Recoverable	Water	3005A	
570-189834-1 MS	SP-1-062524	Total Recoverable	Water	3005A	
570-189834-1 MSD	SP-1-062524	Total Recoverable	Water	3005A	

Prep Batch: 455624

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-189834-1	SP-1-062524	Total/NA	Water	7470A	
570-189834-2	SP-2-062524	Total/NA	Water	7470A	
570-189834-3	SP-4-062524	Total/NA	Water	7470A	
570-189834-4	SP-5-062524	Total/NA	Water	7470A	
570-189834-5	Blind Sample-062524	Total/NA	Water	7470A	
570-189834-6	OBOD Field Blank- 062524	Total/NA	Water	7470A	
570-189834-7	IRP-52-062524	Total/NA	Water	7470A	
570-189834-8	IRP-52 Field Blank- 062524	Total/NA	Water	7470A	
570-189834-9	Equipment Blank- 062524	Total/NA	Water	7470A	
MB 570-455624/1-A	Method Blank	Total/NA	Water	7470A	
LCS 570-455624/2-A	Lab Control Sample	Total/NA	Water	7470A	
LCSD 570-455624/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	

Analysis Batch: 455745

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-189834-1	SP-1-062524	Total/NA	Water	7470A	455624
570-189834-2	SP-2-062524	Total/NA	Water	7470A	455624
570-189834-3	SP-4-062524	Total/NA	Water	7470A	455624

Metals (Continued)

Analysis Batch: 455745 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-189834-4	SP-5-062524	Total/NA	Water	7470A	455624
570-189834-5	Blind Sample-062524	Total/NA	Water	7470A	455624
570-189834-6	OBOD Field Blank- 062524	Total/NA	Water	7470A	455624
570-189834-7	IRP-52-062524	Total/NA	Water	7470A	455624
570-189834-8	IRP-52 Field Blank- 062524	Total/NA	Water	7470A	455624
570-189834-9	Equipment Blank- 062524	Total/NA	Water	7470A	455624
MB 570-455624/1-A	Method Blank	Total/NA	Water	7470A	455624
LCS 570-455624/2-A	Lab Control Sample	Total/NA	Water	7470A	455624
LCSD 570-455624/3-A	Lab Control Sample Dup	Total/NA	Water	7470A	455624

Analysis Batch: 455906

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
570-189834-1	SP-1-062524	Total Recoverable	Water	6010B	455583
570-189834-2	SP-2-062524	Total Recoverable	Water	6010B	455583
570-189834-3	SP-4-062524	Total Recoverable	Water	6010B	455583
570-189834-4	SP-5-062524	Total Recoverable	Water	6010B	455583
570-189834-5	Blind Sample-062524	Total Recoverable	Water	6010B	455583
570-189834-6	OBOD Field Blank- 062524	Total Recoverable	Water	6010B	455583
570-189834-7	IRP-52-062524	Total Recoverable	Water	6010B	455583
570-189834-8	IRP-52 Field Blank- 062524	Total Recoverable	Water	6010B	455583
570-189834-9	Equipment Blank- 062524	Total Recoverable	Water	6010B	455583
MB 570-455583/1-A	Method Blank	Total Recoverable	Water	6010B	455583
LCS 570-455583/2-A	Lab Control Sample	Total Recoverable	Water	6010B	455583
LCSD 570-455583/3-A	Lab Control Sample Dup	Total Recoverable	Water	6010B	455583
570-189834-1 MS	SP-1-062524	Total Recoverable	Water	6010B	455583
570-189834-1 MSD	SP-1-062524	Total Recoverable	Water	6010B	455583

Client Sample ID: SP-1-062524
Date Collected: 06/25/24 13:34
Date Received: 06/27/24 09:45

Lab Sample ID: 570-189834-1
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			995.4 mL	2 mL	456194	07/01/24 05:28	H1SH	EET CAL 4
Total/NA	Analysis	8270C SIM		1	1 mL	1 mL	457377	07/03/24 19:12	ULLI	EET CAL 4
	Instrument ID: GCMSEEE									
Total/NA	Prep	8330			770 mL	12.0 mL	455925	06/28/24 20:54	UM1W	EET CAL 4
Total/NA	Analysis	8330		1	1 mL	1 mL	457395	07/03/24 23:19	URMH	EET CAL 4
	Instrument ID: HPLC7									
Total Recoverable	Prep	3005A			50 mL	50 mL	455583	06/28/24 06:45	JP8N	EET CAL 4
Total Recoverable	Analysis	6010B		1			455906	06/28/24 16:21	UFLE	EET CAL 4
	Instrument ID: ICP11									
Total/NA	Prep	7470A			25 mL	50 mL	455624	06/28/24 08:00	VCN7	EET CAL 4
Total/NA	Analysis	7470A		1			455745	06/28/24 15:44	RL6Q	EET CAL 4
	Instrument ID: HG9									

Client Sample ID: SP-2-062524
Date Collected: 06/25/24 13:22
Date Received: 06/27/24 09:45

Lab Sample ID: 570-189834-2
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1012.4 mL	2 mL	456194	07/01/24 05:28	H1SH	EET CAL 4
Total/NA	Analysis	8270C SIM		1	1 mL	1 mL	457377	07/03/24 19:33	ULLI	EET CAL 4
	Instrument ID: GCMSEEE									
Total/NA	Prep	8330			770 mL	11.2 mL	455925	06/28/24 20:54	UM1W	EET CAL 4
Total/NA	Analysis	8330		1	1 mL	1 mL	457395	07/03/24 23:42	URMH	EET CAL 4
	Instrument ID: HPLC7									
Total Recoverable	Prep	3005A			50 mL	50 mL	455583	06/28/24 06:45	JP8N	EET CAL 4
Total Recoverable	Analysis	6010B		1			455906	06/28/24 16:42	UFLE	EET CAL 4
	Instrument ID: ICP11									
Total/NA	Prep	7470A			25 mL	50 mL	455624	06/28/24 08:00	VCN7	EET CAL 4
Total/NA	Analysis	7470A		1			455745	06/28/24 15:46	RL6Q	EET CAL 4
	Instrument ID: HG9									

Client Sample ID: SP-4-062524
Date Collected: 06/25/24 13:10
Date Received: 06/27/24 09:45

Lab Sample ID: 570-189834-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1014.4 mL	2 mL	456194	07/01/24 05:28	H1SH	EET CAL 4
Total/NA	Analysis	8270C SIM		1	1 mL	1 mL	459068	07/11/24 01:12	PQS1	EET CAL 4
	Instrument ID: GCMSJJJ									
Total/NA	Prep	8330			770 mL	11.2 mL	455925	06/28/24 20:54	UM1W	EET CAL 4
Total/NA	Analysis	8330		1	1 mL	1 mL	457395	07/04/24 00:05	URMH	EET CAL 4
	Instrument ID: HPLC7									
Total Recoverable	Prep	3005A			50 mL	50 mL	455583	06/28/24 06:45	JP8N	EET CAL 4
Total Recoverable	Analysis	6010B		1			455906	06/28/24 16:44	UFLE	EET CAL 4
	Instrument ID: ICP11									

Client Sample ID: SP-4-062524
Date Collected: 06/25/24 13:10
Date Received: 06/27/24 09:45

Lab Sample ID: 570-189834-3
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			25 mL	50 mL	455624	06/28/24 08:00	VCN7	EET CAL 4
Total/NA	Analysis	7470A		1			455745	06/28/24 15:48	RL6Q	EET CAL 4
	Instrument ID: HG9									

Client Sample ID: SP-5-062524
Date Collected: 06/25/24 12:57
Date Received: 06/27/24 09:45

Lab Sample ID: 570-189834-4
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1011 mL	2 mL	456194	07/01/24 05:28	H1SH	EET CAL 4
Total/NA	Analysis	8270C SIM		1	1 mL	1 mL	459068	07/11/24 01:34	PQS1	EET CAL 4
	Instrument ID: GCMSJJJ									
Total/NA	Prep	8330			770 mL	11.8 mL	455925	06/28/24 20:54	UM1W	EET CAL 4
Total/NA	Analysis	8330		1	1 mL	1 mL	457395	07/04/24 00:52	URMH	EET CAL 4
	Instrument ID: HPLC7									
Total Recoverable	Prep	3005A			50 mL	50 mL	455583	06/28/24 06:45	JP8N	EET CAL 4
Total Recoverable	Analysis	6010B		1			455906	06/28/24 16:47	UFLE	EET CAL 4
	Instrument ID: ICP11									
Total/NA	Prep	7470A			25 mL	50 mL	455624	06/28/24 08:00	VCN7	EET CAL 4
Total/NA	Analysis	7470A		1			455745	06/28/24 15:50	RL6Q	EET CAL 4
	Instrument ID: HG9									

Client Sample ID: Blind Sample-062524
Date Collected: 06/25/24 12:30
Date Received: 06/27/24 09:45

Lab Sample ID: 570-189834-5
Matrix: Water

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1019.7 mL	2 mL	456194	07/01/24 05:28	H1SH	EET CAL 4
Total/NA	Analysis	8270C SIM		1	1 mL	1 mL	459068	07/11/24 01:56	PQS1	EET CAL 4
	Instrument ID: GCMSJJJ									
Total/NA	Prep	8330			770 mL	11.2 mL	455925	06/28/24 20:54	UM1W	EET CAL 4
Total/NA	Analysis	8330		1	1 mL	1 mL	457395	07/04/24 01:16	URMH	EET CAL 4
	Instrument ID: HPLC7									
Total Recoverable	Prep	3005A			50 mL	50 mL	455583	06/28/24 06:45	JP8N	EET CAL 4
Total Recoverable	Analysis	6010B		1			455906	06/28/24 16:49	UFLE	EET CAL 4
	Instrument ID: ICP11									
Total/NA	Prep	7470A			25 mL	50 mL	455624	06/28/24 08:00	VCN7	EET CAL 4
Total/NA	Analysis	7470A		1			455745	06/28/24 15:52	RL6Q	EET CAL 4
	Instrument ID: HG9									

Client Sample ID: OBOD Field Blank- 062524

Lab Sample ID: 570-189834-6

Date Collected: 06/25/24 12:51

Matrix: Water

Date Received: 06/27/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1038.5 mL	2 mL	456194	07/01/24 05:28	H1SH	EET CAL 4
Total/NA	Analysis	8270C SIM		1	1 mL	1 mL	459068	07/11/24 02:18	PQS1	EET CAL 4
	Instrument ID: GCMSJJJ									
Total/NA	Prep	8330			770 mL	11.4 mL	455925	06/28/24 20:54	UM1W	EET CAL 4
Total/NA	Analysis	8330		1	1 mL	1 mL	457395	07/04/24 01:39	URMH	EET CAL 4
	Instrument ID: HPLC7									
Total Recoverable	Prep	3005A			50 mL	50 mL	455583	06/28/24 06:45	JP8N	EET CAL 4
Total Recoverable	Analysis	6010B		1			455906	06/28/24 16:52	UFLE	EET CAL 4
	Instrument ID: ICP11									
Total/NA	Prep	7470A			25 mL	50 mL	455624	06/28/24 08:00	VCN7	EET CAL 4
Total/NA	Analysis	7470A		1			455745	06/28/24 15:54	RL6Q	EET CAL 4
	Instrument ID: HG9									

Client Sample ID: IRP-52-062524

Lab Sample ID: 570-189834-7

Date Collected: 06/25/24 15:52

Matrix: Water

Date Received: 06/27/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1013 mL	2 mL	456194	07/01/24 05:28	H1SH	EET CAL 4
Total/NA	Analysis	8270C SIM		1	1 mL	1 mL	457377	07/03/24 21:20	ULLI	EET CAL 4
	Instrument ID: GCMSEEE									
Total/NA	Prep	8330			770 mL	11.4 mL	455925	06/28/24 20:54	UM1W	EET CAL 4
Total/NA	Analysis	8330		1	1 mL	1 mL	457395	07/04/24 02:02	URMH	EET CAL 4
	Instrument ID: HPLC7									
Total Recoverable	Prep	3005A			50 mL	50 mL	455583	06/28/24 06:45	JP8N	EET CAL 4
Total Recoverable	Analysis	6010B		1			455906	06/28/24 16:54	UFLE	EET CAL 4
	Instrument ID: ICP11									
Total/NA	Prep	7470A			25 mL	50 mL	455624	06/28/24 08:00	VCN7	EET CAL 4
Total/NA	Analysis	7470A		1			455745	06/28/24 15:56	RL6Q	EET CAL 4
	Instrument ID: HG9									

Client Sample ID: IRP-52 Field Blank- 062524

Lab Sample ID: 570-189834-8

Date Collected: 06/25/24 14:12

Matrix: Water

Date Received: 06/27/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1035.9 mL	2 mL	456194	07/01/24 05:28	H1SH	EET CAL 4
Total/NA	Analysis	8270C SIM		1	1 mL	1 mL	457377	07/03/24 21:41	ULLI	EET CAL 4
	Instrument ID: GCMSEEE									
Total/NA	Prep	8330			770 mL	11.9 mL	455925	06/28/24 20:54	UM1W	EET CAL 4
Total/NA	Analysis	8330		1	1 mL	1 mL	457395	07/04/24 02:26	URMH	EET CAL 4
	Instrument ID: HPLC7									
Total Recoverable	Prep	3005A			50 mL	50 mL	455583	06/28/24 06:45	JP8N	EET CAL 4
Total Recoverable	Analysis	6010B		1			455906	06/28/24 16:56	UFLE	EET CAL 4
	Instrument ID: ICP11									

Client Sample ID: IRP-52 Field Blank- 062524

Lab Sample ID: 570-189834-8

Date Collected: 06/25/24 14:12

Matrix: Water

Date Received: 06/27/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	7470A			25 mL	50 mL	455624	06/28/24 08:00	VCN7	EET CAL 4
Total/NA	Analysis	7470A		1			455745	06/28/24 15:58	RL6Q	EET CAL 4
	Instrument ID: HG9									

Client Sample ID: Equipment Blank- 062524

Lab Sample ID: 570-189834-9

Date Collected: 06/25/24 09:45

Matrix: Water

Date Received: 06/27/24 09:45

Prep Type	Batch Type	Batch Method	Run	Dil Factor	Initial Amount	Final Amount	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Prep	3510C			1049.2 mL	2 mL	456194	07/01/24 05:28	H1SH	EET CAL 4
Total/NA	Analysis	8270C SIM		1	1 mL	1 mL	457377	07/03/24 22:03	ULLI	EET CAL 4
	Instrument ID: GCMSEEE									
Total/NA	Prep	8330			770 mL	11.6 mL	455925	06/28/24 20:54	UM1W	EET CAL 4
Total/NA	Analysis	8330		1	1 mL	1 mL	457395	07/04/24 02:49	URMH	EET CAL 4
	Instrument ID: HPLC7									
Total Recoverable	Prep	3005A			50 mL	50 mL	455583	06/28/24 06:45	JP8N	EET CAL 4
Total Recoverable	Analysis	6010B		1			455906	06/28/24 16:59	UFLE	EET CAL 4
	Instrument ID: ICP11									
Total/NA	Prep	7470A			25 mL	50 mL	455624	06/28/24 08:00	VCN7	EET CAL 4
Total/NA	Analysis	7470A		1			455745	06/28/24 16:00	RL6Q	EET CAL 4
	Instrument ID: HG9									

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Accreditation/Certification Summary

Client: EA Engineering, Science, and Technology
Job ID: 570-189834-1
Project/Site: NAVFAC Guam Compliance

Laboratory: Eurofins Calscience

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
California	State	3082	07-31-24

The following analytes are included in this report, but the laboratory is not certified by California State 3082. This list may include analytes for which the agency does not offer certification:

Analysis Method	Prep Method	Matrix	Analyte
8330	8330	Water	RDX

Method Summary

Client: EA Engineering, Science, and Technology
Project/Site: NAVFAC Guam Compliance

Job ID: 570-189834-1

Method	Method Description	Protocol	Laboratory
8270C SIM	Semivolatile Organic Compounds (GC/MS SIM)	SW846	EET CAL 4
8330	Nitroaromatics and Nitramines (HPLC)	SW846	EET CAL 4
6010B	Metals (ICP)	SW846	EET CAL 4
7470A	Mercury (CVAA)	SW846	EET CAL 4
3005A	Preparation, Total Recoverable or Dissolved Metals	SW846	EET CAL 4
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET CAL 4
7470A	Preparation, Mercury	SW846	EET CAL 4
8330	Aqueous Salting Out Extraction (Explosives)	SW846	EET CAL 4

Protocol References:

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET CAL 4 = Eurofins Calscience Tustin, 2841 Dow Avenue, Tustin, CA 92780, TEL (714)895-5494

Sample Summary

Client: EA Engineering, Science, and Technology
Project/Site: NAVFAC Guam Compliance

Job ID: 570-189834-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
570-189834-1	SP-1-062524	Water	06/25/24 13:34	06/27/24 09:45
570-189834-2	SP-2-062524	Water	06/25/24 13:22	06/27/24 09:45
570-189834-3	SP-4-062524	Water	06/25/24 13:10	06/27/24 09:45
570-189834-4	SP-5-062524	Water	06/25/24 12:57	06/27/24 09:45
570-189834-5	Blind Sample-062524	Water	06/25/24 12:30	06/27/24 09:45
570-189834-6	OBOD Field Blank- 062524	Water	06/25/24 12:51	06/27/24 09:45
570-189834-7	IRP-52-062524	Water	06/25/24 15:52	06/27/24 09:45
570-189834-8	IRP-52 Field Blank- 062524	Water	06/25/24 14:12	06/27/24 09:45
570-189834-9	Equipment Blank- 062524	Water	06/25/24 09:45	06/27/24 09:45

CHAIN OF CUSTODY

SUNDANCE-EA ASSOCIATES II

Loc: 570
189834

570-189834 Chain of Custody

Page 1 of 1
Lab Job #:

Laboratory: Eurofins Calscience
Address: 2841 Dow Avenue,Tustin, CA 92780
Phone #: (714) 895-5494 or (714) 904-1892
POC: Carla Hollowell <Carla.Hollowell@ET.EurofinsUS.com>

ELIN D062 - OB/OD

Client / Reporting Information

Company Name: Sundance-EA Associates II
Address: 1001 Army Drive, Suite 203
City: Barrigada State: Guam Zip: 96913
Project Contact: Brenda Nuding
Phone #: 808-256-8268
Samplers's Name: H. Indalecio / R. Teodosio / J. San Nicolas

Project Information

Project Name: NAVFAC Guam Compliance
Street:
City: State: Guam
Project #: ELIN D062 - OB/OD
Email: bnuding@eaest.com; pacificchem@eaest.com; cperez@sundance-inc.net; hindalecio@eaest.com
Purchase Order #: NA80-041-PO7 (pending PO signature)

Matrix Codes

WQ - Water Quality
GW - Ground Water

Lab Sample ID	Sample ID / Field Point / Point of Collection	Collection: Guam Collection Date*	Collection: Time (Military Time)	Collection: Sampled by	Matrix	# of bottles	Number of preserved Bottles: NONE	Number of preserved Bottles: HNO3	Analytical Information: DEHP, bis(2-ethylhexyl) phthalate - SW 8270C	Lead (Pb) - SW 6020	Mercury (Hg) - SW 7470A	RDX (Explosives) - SW 8330	Notes
1	SP-1 - 062524	25-Jun-2024	1334	RT	GW	4	3	1	X	X	X	X	7-Day Holding Time
2	SP-2 - 062524	25-Jun-2024	1322	HI	GW	4	3	1	X	X	X	X	
3	SP-4 - 062524	25-Jun-2024	1310	HI	GW	4	3	1	X	X	X	X	
4	SP-5 - 062524	25-Jun-2024	1257	HI	GW	4	3	1	X	X	X	X	
5	Blind Sample - 062524	25-Jun-2024	1230	HI	GW	4	3	1	X	X	X	X	
6	OBOD Field Blank - 062524	25-Jun-2024	1251	HI	WQ	4	3	1	X	X	X	X	
7	IRP-52 - 062524	25-Jun-2024	1552	HI	GW	4	3	1	X	X	X	X	
8	IRP-52 Field Blank - 062524	25-Jun-2024	1412	JSN	WQ	4	3	1	X	X	X	X	
9	Equipment Blank - 062524	25-Jun-2024	0945	HI	WQ	4	3	1	X	X	X	X	

Turnaround Time (Business days)

Standard TAT as per contract

Data Deliverable Information

Level IV Report
EQuIS EDD

Comments / Remarks

7-Day HT until extraction for SW8270C & SW8330

Sample Custody must be documented below each time samples change possession, including courier delivery.

*Please note that the Guam sample collection time and dates are in ChST (UTC+10). For example, if sampled in Guam, ChST (UTC+10) on July 26 @ 1000, the PDT (UTC-8) sample time/date is July 25 @ 1700. Please keep in mind for sample hold times. To sample receipt staff at the laboratory: Please sign/date next to the last relinquished by signature on COC record below. The courier service does not take possession of the samples as the cooler is sealed.

	Relinquished by Sampler:	Date Time:	Received By:	Date Time:	Relinquished By:	Date Time:	Received By:	Date Time:
1	Heath Indalecio / SDEA	25 June 2024 @ 1800	A Pliuta EA Engineering Alexander Plimpton	6/10/5 26 June 2024	A Pliuta 2 Alexander Plimpton	6/12/5 26 June 2024	2 FedEx	
3		FedEx		6/27/24 0945	4		4	
5								

Custody Seal #:
On Ice Y / N: SCI Y
Labels Match COC? Y / N
Cooler Temp: 2.6/2.7 3.1/3.2 3.8/3.9 4.4/4.5

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HONOLULU, HI 96814
UNITED STATES US

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EUROFINS CALSCIENCE, INC.

2841 DOW AVE

TUSTIN CA 92780

(714) 904-1892 REF: 7400/6365301/0003.1/****

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Login Sample Receipt Checklist

Client: EA Engineering, Science, and Technology

Job Number: 570-189834-1

Login Number: 189834
List Number: 1
Creator: Aguilera, Ernan

List Source: Eurofins Calscience

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

APPENDIX G

DUMPStat Statistical Analysis

Table 1

Summary Statistics and Intermediate Computations for Combined Shewhart-CUSUM Control Charts

Constituent	Units	Well	N(back)	N(mon)	N(tot)	Mean	SD	R(i-1)	R(i)	S(i-1)	S(i)	Limit	Type	
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	4	20	24			10.0000	4.9000			33.6317	poisson	**
Lead	ug/L	IRP-52	4	19	23			1.0000	50.0000			8.2396	poisson	**
Mercury	ug/L	IRP-52	4	19	23	0.1455	0.1082	0.2000	0.2000	0.1455	0.1455	0.6325	normal	
RDX	ug/L	IRP-52	4	19	23			1.1000	1.1000			4.3693	poisson	**
Di(2-ethylhexyl)phthalate	ug/L	SP-1	4	19	23			10.0000	5.0000			34.9121	poisson	**
Lead	ug/L	SP-1	4	19	23			1.0000	50.0000			8.2396	poisson	**
Mercury	ug/L	SP-1	4	19	23	0.0929	0.0507	0.2000	0.2000	0.0929	0.0929	0.3212	normal	
RDX	ug/L	SP-1	4	20	24			1.1500	1.2000			4.3693	poisson	**
Di(2-ethylhexyl)phthalate	ug/L	SP-2	4	19	23			9.8500	4.9000			34.9121	poisson	**
Lead	ug/L	SP-2	4	19	23			1.0000	50.0000			8.2396	poisson	**
Mercury	ug/L	SP-2	4	19	23	0.1051	0.0753	0.2000	0.2000	0.1051	0.1051	0.4438	normal	
RDX	ug/L	SP-2	4	19	23			1.2000	1.1000			4.3693	poisson	**
Di(2-ethylhexyl)phthalate	ug/L	SP-4	4	19	23			9.8000	4.9000			34.9121	poisson	**
Lead	ug/L	SP-4	4	19	23			1.0000	50.0000			8.2396	poisson	**
Mercury	ug/L	SP-4	4	19	23	0.0934	0.0517	0.2000	0.2000	0.0934	0.0934	0.3262	normal	
RDX	ug/L	SP-4	4	20	24			1.1000	1.1000			4.3693	poisson	**
Di(2-ethylhexyl)phthalate	ug/L	SP-5	4	19	23			9.8000	4.9000			33.6317	poisson	**
Lead	ug/L	SP-5	4	19	23			1.0000	50.0000			8.2396	poisson	**
Mercury	ug/L	SP-5	4	19	23	0.0874	0.0397	0.2000	0.2000	0.0874	0.0874	0.2662	normal	
RDX	ug/L	SP-5	4	19	23			1.1000	1.2000			4.3693	poisson	**

N(back) and N(mon) = Non-outlier measurements in the background and monitoring periods.
N(tot) = All independent measurements for that constituent and well.
For transformed data, mean and SD in transformed units and control limit in original units.
* - Insufficient Data.
** - Detection Frequency < 25%.
*** - Zero Variance.
**** - Calculated limit raised to Manual Reporting Limit.

Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	06/26/2014	yes	20.0000	ND			21.0000	***
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	09/04/2014	yes	23.0000	ND			21.0000	***
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	11/19/2014	yes	22.0000	ND			21.0000	***
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	03/12/2015	yes	21.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	05/12/2015		20.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	10/02/2015		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	04/15/2016		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	10/14/2016		21.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	05/12/2017		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	09/14/2017		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	06/14/2018		23.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	10/18/2018		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	05/02/2019		23.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	09/06/2019		25.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	05/08/2020		23.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	09/18/2020		23.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	06/24/2021		13.0000					
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	11/04/2021		9.7000	ND				
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	12/13/2021		9.8000	ND				
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	06/14/2022		9.7000	ND				
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	08/12/2022		9.7000	ND				
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	06/06/2023		9.7000	ND				
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	08/29/2023		10.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	06/25/2024		4.9000	ND				
Lead	ug/L	IRP-52	06/26/2014	yes	3.0000	ND				
Lead	ug/L	IRP-52	09/04/2014	yes	3.0000	ND				
Lead	ug/L	IRP-52	11/19/2014	yes	3.0000	ND				
Lead	ug/L	IRP-52	03/12/2015	yes	3.0000	ND				
Lead	ug/L	IRP-52	05/12/2015		3.0000	ND				
Lead	ug/L	IRP-52	10/02/2015		3.3800	ND				
Lead	ug/L	IRP-52	04/15/2016		3.3800	ND				
Lead	ug/L	IRP-52	10/14/2016		3.3800	ND				

* - Outlier for that well and constituent.
** - Non-outlier detected sample Result and / or CUSUM value exceeds limit.
*** - ND value replaced with median RL.
**** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Lead	ug/L	IRP-52	05/11/2017		3.3800	ND				
Lead	ug/L	IRP-52	09/14/2017		3.3800	ND				
Lead	ug/L	IRP-52	05/16/2018		3.3800	ND				
Lead	ug/L	IRP-52	10/18/2018		3.3800	ND				
Lead	ug/L	IRP-52	05/02/2019		3.3800	ND				
Lead	ug/L	IRP-52	09/06/2019		3.3800	ND				
Lead	ug/L	IRP-52	05/08/2020		3.0000	ND				
Lead	ug/L	IRP-52	09/18/2020		3.0000	ND				
Lead	ug/L	IRP-52	06/24/2021		50.0000	ND				
Lead	ug/L	IRP-52	11/29/2021		1.0000	ND				
Lead	ug/L	IRP-52	06/14/2022		1.0000	ND				
Lead	ug/L	IRP-52	08/12/2022		1.0000	ND				
Lead	ug/L	IRP-52	06/06/2023		1.0000	ND				
Lead	ug/L	IRP-52	08/29/2023		1.0000	ND				
Lead	ug/L	IRP-52	06/25/2024		50.0000	ND				
Mercury	ug/L	IRP-52	06/26/2014	yes	0.0675	ND		0.1455		
Mercury	ug/L	IRP-52	09/04/2014	yes	0.1500			0.1455		
Mercury	ug/L	IRP-52	11/19/2014	yes	0.2970			0.1888		
Mercury	ug/L	IRP-52	03/12/2015	yes	0.0675	ND		0.1455		
Mercury	ug/L	IRP-52	05/12/2015		0.0675	ND		0.1455		
Mercury	ug/L	IRP-52	10/02/2015		0.0675	ND		0.1455		
Mercury	ug/L	IRP-52	04/15/2016		0.0675	ND		0.1455		
Mercury	ug/L	IRP-52	10/14/2016		0.0675	ND		0.1455		
Mercury	ug/L	IRP-52	05/11/2017		0.0675	ND		0.1455		
Mercury	ug/L	IRP-52	09/14/2017		0.0070	ND		0.1455		
Mercury	ug/L	IRP-52	05/16/2018		0.0070	ND		0.1455		
Mercury	ug/L	IRP-52	10/18/2018		0.0070	ND		0.1455		
Mercury	ug/L	IRP-52	05/02/2019		0.0070	ND		0.1455		
Mercury	ug/L	IRP-52	09/06/2019		0.0070	ND		0.1455		
Mercury	ug/L	IRP-52	05/08/2020		0.0070	ND		0.1455		
Mercury	ug/L	IRP-52	09/18/2020		0.0050	ND		0.1455		
Mercury	ug/L	IRP-52	06/24/2021		0.5000	ND		0.1455		

* - Outlier for that well and constituent.
** - Non-outlier detected sample Result and / or CUSUM value exceeds limit.
*** - ND value replaced with median RL.
**** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Mercury	ug/L	IRP-52	11/29/2021		0.5000	ND		0.1455		
Mercury	ug/L	IRP-52	06/14/2022		0.5000	ND		0.1455		
Mercury	ug/L	IRP-52	08/12/2022		0.5000	ND		0.1455		
Mercury	ug/L	IRP-52	06/06/2023		0.2000	ND		0.1455		
Mercury	ug/L	IRP-52	08/29/2023		0.2000	ND		0.1455		
Mercury	ug/L	IRP-52	06/25/2024		0.2000	ND		0.1455		
RDX	ug/L	IRP-52	06/26/2014	yes	1.0000	ND				
RDX	ug/L	IRP-52	09/04/2014	yes	1.0000	ND				
RDX	ug/L	IRP-52	11/19/2014	yes	1.0000	ND				
RDX	ug/L	IRP-52	03/12/2015	yes	1.0000	ND				
RDX	ug/L	IRP-52	05/12/2015		1.0000	ND				
RDX	ug/L	IRP-52	10/02/2015		1.0000	ND				
RDX	ug/L	IRP-52	04/15/2016		1.0000	ND				
RDX	ug/L	IRP-52	10/14/2016		1.0000	ND				
RDX	ug/L	IRP-52	05/12/2017		1.0000	ND				
RDX	ug/L	IRP-52	09/14/2017		1.0000	ND				
RDX	ug/L	IRP-52	05/16/2018		1.0000	ND				
RDX	ug/L	IRP-52	10/18/2018		1.0000	ND				
RDX	ug/L	IRP-52	05/02/2019		1.0000	ND				
RDX	ug/L	IRP-52	09/06/2019		1.0000	ND				
RDX	ug/L	IRP-52	05/08/2020		1.0000	ND				
RDX	ug/L	IRP-52	09/18/2020		1.0000	ND				
RDX	ug/L	IRP-52	06/24/2021		1.2000	ND				
RDX	ug/L	IRP-52	12/13/2021		1.2000	ND				
RDX	ug/L	IRP-52	06/14/2022		1.1000	ND				
RDX	ug/L	IRP-52	08/12/2022		1.1000	ND				
RDX	ug/L	IRP-52	06/06/2023		1.1000	ND				
RDX	ug/L	IRP-52	08/29/2023		1.1000	ND				
RDX	ug/L	IRP-52	06/25/2024		1.1000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	06/17/2014	yes	22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	09/05/2014	yes	20.0000	ND			22.0000	***
Di(2-ethylhexyl)phthalate	ug/L	SP-1	11/14/2014	yes	22.0000	ND				

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ND = Not detected, Result = detection limit.

Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Di(2-ethylhexyl)phthalate	ug/L	SP-1	03/23/2015	yes	22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	05/07/2015		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	10/22/2015		21.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	04/12/2016		21.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	10/13/2016		20.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	05/12/2017		19.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	09/15/2017		23.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	05/17/2018		21.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	10/18/2018		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	05/03/2019		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	09/06/2019		24.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	05/07/2020		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	09/17/2020		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	06/23/2021		9.5000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	11/29/2021		9.5000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	06/14/2022		9.7000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	08/12/2022		9.7000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	06/06/2023		9.7000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	08/29/2023		10.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-1	06/25/2024		5.0000	ND				
Lead	ug/L	SP-1	06/17/2014	yes	3.0000	ND				
Lead	ug/L	SP-1	09/05/2014	yes	3.0000	ND				
Lead	ug/L	SP-1	11/14/2014	yes	3.0000	ND				
Lead	ug/L	SP-1	03/23/2015	yes	3.0000	ND				
Lead	ug/L	SP-1	05/07/2015		3.0000	ND				
Lead	ug/L	SP-1	10/22/2015		3.3800	ND				
Lead	ug/L	SP-1	04/12/2016		3.3800	ND				
Lead	ug/L	SP-1	10/13/2016		3.3800	ND				
Lead	ug/L	SP-1	05/11/2017		3.3800	ND				
Lead	ug/L	SP-1	09/15/2017		3.3800	ND				
Lead	ug/L	SP-1	05/17/2018		3.3800	ND				
Lead	ug/L	SP-1	10/18/2018		3.3800	ND				

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Lead	ug/L	SP-1	05/03/2019		3.3800	ND				
Lead	ug/L	SP-1	09/06/2019		3.3800	ND				
Lead	ug/L	SP-1	05/07/2020		3.0000	ND				
Lead	ug/L	SP-1	09/17/2020		3.0000	ND				
Lead	ug/L	SP-1	06/23/2021		50.0000	ND				
Lead	ug/L	SP-1	11/29/2021		1.0000	ND				
Lead	ug/L	SP-1	06/14/2022		1.0000	ND				
Lead	ug/L	SP-1	08/12/2022		1.0000	ND				
Lead	ug/L	SP-1	06/06/2023		1.0000	ND				
Lead	ug/L	SP-1	08/29/2023		1.0000	ND				
Lead	ug/L	SP-1	06/25/2024		50.0000	ND				
Mercury	ug/L	SP-1	06/17/2014	yes	0.0675	ND		0.0929		
Mercury	ug/L	SP-1	09/05/2014	yes	0.0675	ND		0.0929		
Mercury	ug/L	SP-1	11/14/2014	yes	0.1690			0.1183		
Mercury	ug/L	SP-1	03/23/2015	yes	0.0675	ND		0.0929		
Mercury	ug/L	SP-1	05/07/2015		0.0675	ND		0.0929		
Mercury	ug/L	SP-1	10/22/2015		0.0675	ND		0.0929		
Mercury	ug/L	SP-1	04/12/2016		0.0675	ND		0.0929		
Mercury	ug/L	SP-1	10/13/2016		0.0675	ND		0.0929		
Mercury	ug/L	SP-1	05/11/2017		0.0675	ND		0.0929		
Mercury	ug/L	SP-1	09/15/2017		0.0070	ND		0.0929		
Mercury	ug/L	SP-1	05/17/2018		0.0070	ND		0.0929		
Mercury	ug/L	SP-1	10/18/2018		0.0070	ND		0.0929		
Mercury	ug/L	SP-1	05/03/2019		0.0070	ND		0.0929		
Mercury	ug/L	SP-1	09/06/2019		0.0070	ND		0.0929		
Mercury	ug/L	SP-1	05/07/2020		0.0070	ND		0.0929		
Mercury	ug/L	SP-1	09/17/2020		0.0050	ND		0.0929		
Mercury	ug/L	SP-1	06/23/2021		0.5000	ND		0.0929		
Mercury	ug/L	SP-1	11/29/2021		0.5000	ND		0.0929		
Mercury	ug/L	SP-1	06/14/2022		0.5000	ND		0.0929		
Mercury	ug/L	SP-1	08/12/2022		0.5000	ND		0.0929		
Mercury	ug/L	SP-1	06/06/2023		0.2000	ND		0.0929		

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Mercury	ug/L	SP-1	08/29/2023		0.2000	ND		0.0929		
Mercury	ug/L	SP-1	06/25/2024		0.2000	ND		0.0929		
RDX	ug/L	SP-1	06/17/2014	yes	1.0000	ND				
RDX	ug/L	SP-1	09/05/2014	yes	1.0000	ND				
RDX	ug/L	SP-1	11/14/2014	yes	1.0000	ND				
RDX	ug/L	SP-1	03/23/2015	yes	1.0000	ND				
RDX	ug/L	SP-1	05/07/2015		1.0000	ND				
RDX	ug/L	SP-1	10/22/2015		1.0000	ND				
RDX	ug/L	SP-1	04/12/2016		1.0000	ND				
RDX	ug/L	SP-1	10/13/2016		1.0000	ND				
RDX	ug/L	SP-1	05/12/2017		1.0000	ND				
RDX	ug/L	SP-1	09/15/2017		1.0000	ND				
RDX	ug/L	SP-1	05/17/2018		1.0000	ND				
RDX	ug/L	SP-1	10/18/2018		1.0000	ND				
RDX	ug/L	SP-1	05/03/2019		1.0000	ND				
RDX	ug/L	SP-1	09/06/2019		1.0000	ND				
RDX	ug/L	SP-1	05/07/2020		1.0000	ND				
RDX	ug/L	SP-1	09/17/2020		1.0000	ND				
RDX	ug/L	SP-1	06/23/2021		1.1000	ND				
RDX	ug/L	SP-1	11/29/2021		1.1000	ND				
RDX	ug/L	SP-1	06/14/2022		1.1000	ND				
RDX	ug/L	SP-1	08/12/2022		1.2000	ND				
RDX	ug/L	SP-1	06/06/2023		1.1000	ND				
RDX	ug/L	SP-1	08/29/2023		1.2000	ND				
RDX	ug/L	SP-1	10/25/2023		1.1500	ND				
RDX	ug/L	SP-1	06/25/2024		1.2000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	06/17/2014	yes	22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	09/05/2014	yes	21.0000	ND			22.0000	***
Di(2-ethylhexyl)phthalate	ug/L	SP-2	11/14/2014	yes	22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	03/23/2015	yes	22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	05/07/2015		20.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	10/21/2015		21.0000	ND				

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Di(2-ethylhexyl)phthalate	ug/L	SP-2	04/12/2016		24.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	10/13/2016		20.5000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	05/12/2017		21.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	09/15/2017		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	05/17/2018		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	10/18/2018		23.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	05/03/2019		23.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	09/06/2019		24.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	05/07/2020		23.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	09/17/2020		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	06/23/2021		9.7000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	11/29/2021		9.7000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	06/14/2022		9.6000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	08/12/2022		9.7000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	06/06/2023		9.7000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	08/29/2023		9.8500	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-2	06/25/2024		4.9000	ND				
Lead	ug/L	SP-2	06/17/2014	yes	3.0000	ND				
Lead	ug/L	SP-2	09/05/2014	yes	3.0000	ND				
Lead	ug/L	SP-2	11/14/2014	yes	3.0000	ND				
Lead	ug/L	SP-2	03/23/2015	yes	3.0000	ND				
Lead	ug/L	SP-2	05/07/2015		3.0000	ND				
Lead	ug/L	SP-2	10/21/2015		3.3800	ND				
Lead	ug/L	SP-2	04/12/2016		3.3800	ND				
Lead	ug/L	SP-2	10/13/2016		3.3800	ND				
Lead	ug/L	SP-2	05/11/2017		3.3800	ND				
Lead	ug/L	SP-2	09/15/2017		3.3800	ND				
Lead	ug/L	SP-2	05/17/2018		3.3800	ND				
Lead	ug/L	SP-2	10/18/2018		3.3800	ND				
Lead	ug/L	SP-2	05/03/2019		3.3800	ND				
Lead	ug/L	SP-2	09/06/2019		3.3800	ND				
Lead	ug/L	SP-2	05/07/2020		3.0000	ND				

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Lead	ug/L	SP-2	09/17/2020		3.0000	ND				
Lead	ug/L	SP-2	06/23/2021		50.0000	ND				
Lead	ug/L	SP-2	11/29/2021		1.0000	ND				
Lead	ug/L	SP-2	06/14/2022		1.0000	ND				
Lead	ug/L	SP-2	08/12/2022		1.0000	ND				
Lead	ug/L	SP-2	06/06/2023		1.0000	ND				
Lead	ug/L	SP-2	08/29/2023		1.0000	ND				
Lead	ug/L	SP-2	06/25/2024		50.0000	ND				
Mercury	ug/L	SP-2	06/17/2014	yes	0.0675	ND		0.1051		
Mercury	ug/L	SP-2	09/05/2014	yes	0.0675	ND		0.1051		
Mercury	ug/L	SP-2	11/14/2014	yes	0.2180			0.1427		
Mercury	ug/L	SP-2	03/23/2015	yes	0.0675	ND		0.1051		
Mercury	ug/L	SP-2	05/07/2015		0.0675	ND		0.1051		
Mercury	ug/L	SP-2	10/21/2015		0.0675	ND		0.1051		
Mercury	ug/L	SP-2	04/12/2016		0.0675	ND		0.1051		
Mercury	ug/L	SP-2	10/13/2016		0.0675	ND		0.1051		
Mercury	ug/L	SP-2	05/11/2017		0.0675	ND		0.1051		
Mercury	ug/L	SP-2	09/15/2017		0.0070	ND		0.1051		
Mercury	ug/L	SP-2	05/17/2018		0.0070	ND		0.1051		
Mercury	ug/L	SP-2	10/18/2018		0.0070	ND		0.1051		
Mercury	ug/L	SP-2	05/03/2019		0.0070	ND		0.1051		
Mercury	ug/L	SP-2	09/06/2019		0.0070	ND		0.1051		
Mercury	ug/L	SP-2	05/07/2020		0.0070	ND		0.1051		
Mercury	ug/L	SP-2	09/17/2020		0.0050	ND		0.1051		
Mercury	ug/L	SP-2	06/23/2021		0.5000	ND		0.1051		
Mercury	ug/L	SP-2	11/29/2021		0.5000	ND		0.1051		
Mercury	ug/L	SP-2	06/14/2022		0.5000	ND		0.1051		
Mercury	ug/L	SP-2	08/12/2022		0.5000	ND		0.1051		
Mercury	ug/L	SP-2	06/06/2023		0.2000	ND		0.1051		
Mercury	ug/L	SP-2	08/29/2023		0.2000	ND		0.1051		
Mercury	ug/L	SP-2	06/25/2024		0.2000	ND		0.1051		
RDX	ug/L	SP-2	06/17/2014	yes	1.0000	ND				

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
RDX	ug/L	SP-2	09/05/2014	yes	1.0000	ND				
RDX	ug/L	SP-2	11/14/2014	yes	1.0000	ND				
RDX	ug/L	SP-2	03/23/2015	yes	1.0000	ND				
RDX	ug/L	SP-2	05/07/2015		1.0000	ND				
RDX	ug/L	SP-2	10/21/2015		1.0000	ND				
RDX	ug/L	SP-2	04/12/2016		1.0000	ND				
RDX	ug/L	SP-2	10/13/2016		1.0000	ND				
RDX	ug/L	SP-2	05/12/2017		1.0000	ND				
RDX	ug/L	SP-2	09/15/2017		1.0000	ND				
RDX	ug/L	SP-2	05/17/2018		1.0000	ND				
RDX	ug/L	SP-2	10/18/2018		1.0000	ND				
RDX	ug/L	SP-2	05/03/2019		1.0000	ND				
RDX	ug/L	SP-2	09/06/2019		1.0000	ND				
RDX	ug/L	SP-2	05/07/2020		1.0000	ND				
RDX	ug/L	SP-2	09/17/2020		1.0000	ND				
RDX	ug/L	SP-2	06/23/2021		1.1000	ND				
RDX	ug/L	SP-2	11/29/2021		1.1000	ND				
RDX	ug/L	SP-2	06/14/2022		1.1000	ND				
RDX	ug/L	SP-2	08/12/2022		1.2000	ND				
RDX	ug/L	SP-2	06/06/2023		1.2000	ND				
RDX	ug/L	SP-2	08/29/2023		1.2000	ND				
RDX	ug/L	SP-2	06/25/2024		1.1000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	06/17/2014	yes	22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	09/05/2014	yes	22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	11/14/2014	yes	22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	03/23/2015	yes	20.0000	ND			22.0000	***
Di(2-ethylhexyl)phthalate	ug/L	SP-4	05/07/2015		20.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	10/21/2015		21.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	04/12/2016		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	10/13/2016		21.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	05/12/2017		21.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	09/15/2017		24.0000	ND				

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Di(2-ethylhexyl)phthalate	ug/L	SP-4	05/17/2018		21.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	10/18/2018		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	05/03/2019		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	09/06/2019		24.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	05/07/2020		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	09/17/2020		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	06/23/2021		9.5000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	11/29/2021		9.5000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	06/14/2022		9.6000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	08/12/2022		9.5500	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	06/06/2023		9.5500	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	08/29/2023		9.8000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-4	06/25/2024		4.9000	ND				
Lead	ug/L	SP-4	06/17/2014	yes	3.0000	ND				
Lead	ug/L	SP-4	09/05/2014	yes	3.0000	ND				
Lead	ug/L	SP-4	11/14/2014	yes	3.0000	ND				
Lead	ug/L	SP-4	03/23/2015	yes	3.0000	ND				
Lead	ug/L	SP-4	05/07/2015		3.0000	ND				
Lead	ug/L	SP-4	10/21/2015		3.0000	ND				
Lead	ug/L	SP-4	04/12/2016		3.0000	ND				
Lead	ug/L	SP-4	10/13/2016		3.3800	ND				
Lead	ug/L	SP-4	05/11/2017		3.3800	ND				
Lead	ug/L	SP-4	09/15/2017		3.3800	ND				
Lead	ug/L	SP-4	05/17/2018		3.3800	ND				
Lead	ug/L	SP-4	10/18/2018		3.3800	ND				
Lead	ug/L	SP-4	05/03/2019		3.3800	ND				
Lead	ug/L	SP-4	09/06/2019		3.3800	ND				
Lead	ug/L	SP-4	05/07/2020		3.0000	ND				
Lead	ug/L	SP-4	09/17/2020		3.0000	ND				
Lead	ug/L	SP-4	06/23/2021		50.0000	ND				
Lead	ug/L	SP-4	11/29/2021		1.0000	ND				
Lead	ug/L	SP-4	06/14/2022		1.0000	ND				

* - Outlier for that well and constituent.
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*** - ND value replaced with median RL.
**** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Lead	ug/L	SP-4	08/12/2022		1.0000	ND				
Lead	ug/L	SP-4	06/06/2023		1.0000	ND				
Lead	ug/L	SP-4	08/29/2023		1.0000	ND				
Lead	ug/L	SP-4	06/25/2024		50.0000	ND				
Mercury	ug/L	SP-4	06/17/2014	yes	0.0675	ND		0.0934		
Mercury	ug/L	SP-4	09/05/2014	yes	0.0675	ND		0.0934		
Mercury	ug/L	SP-4	11/14/2014	yes	0.1710			0.1193		
Mercury	ug/L	SP-4	03/23/2015	yes	0.0675	ND		0.0934		
Mercury	ug/L	SP-4	05/07/2015		0.0675	ND		0.0934		
Mercury	ug/L	SP-4	10/21/2015		0.0675	ND		0.0934		
Mercury	ug/L	SP-4	04/12/2016		0.0675	ND		0.0934		
Mercury	ug/L	SP-4	10/13/2016		0.0675	ND		0.0934		
Mercury	ug/L	SP-4	05/11/2017		0.0675	ND		0.0934		
Mercury	ug/L	SP-4	09/15/2017		0.0070	ND		0.0934		
Mercury	ug/L	SP-4	05/17/2018		0.0070	ND		0.0934		
Mercury	ug/L	SP-4	10/18/2018		0.0070	ND		0.0934		
Mercury	ug/L	SP-4	05/03/2019		0.0070	ND		0.0934		
Mercury	ug/L	SP-4	09/06/2019		0.0070	ND		0.0934		
Mercury	ug/L	SP-4	05/07/2020		0.0070	ND		0.0934		
Mercury	ug/L	SP-4	09/17/2020		0.0050	ND		0.0934		
Mercury	ug/L	SP-4	06/23/2021		0.5000	ND		0.0934		
Mercury	ug/L	SP-4	11/29/2021		0.5000	ND		0.0934		
Mercury	ug/L	SP-4	06/14/2022		0.5000	ND		0.0934		
Mercury	ug/L	SP-4	08/12/2022		0.5000	ND		0.0934		
Mercury	ug/L	SP-4	06/06/2023		0.2000	ND		0.0934		
Mercury	ug/L	SP-4	08/29/2023		0.2000	ND		0.0934		
Mercury	ug/L	SP-4	06/25/2024		0.2000	ND		0.0934		
RDX	ug/L	SP-4	06/17/2014	yes	1.0000	ND				
RDX	ug/L	SP-4	09/05/2014	yes	1.0000	ND				
RDX	ug/L	SP-4	11/14/2014	yes	1.0000	ND				
RDX	ug/L	SP-4	03/23/2015	yes	1.0000	ND				
RDX	ug/L	SP-4	05/07/2015		1.0000	ND				

* - Outlier for that well and constituent.
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**** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
RDX	ug/L	SP-4	10/21/2015		1.0000	ND				
RDX	ug/L	SP-4	04/12/2016		1.0000	ND				
RDX	ug/L	SP-4	10/13/2016		1.0000	ND				
RDX	ug/L	SP-4	05/12/2017		1.0000	ND				
RDX	ug/L	SP-4	09/15/2017		1.0000	ND				
RDX	ug/L	SP-4	05/17/2018		1.0000	ND				
RDX	ug/L	SP-4	10/18/2018		1.0000	ND				
RDX	ug/L	SP-4	05/03/2019		1.0000	ND				
RDX	ug/L	SP-4	09/06/2019		1.0000	ND				
RDX	ug/L	SP-4	05/07/2020		1.0000	ND				
RDX	ug/L	SP-4	09/17/2020		1.0000	ND				
RDX	ug/L	SP-4	06/23/2021		1.1000	ND				
RDX	ug/L	SP-4	11/29/2021		1.1000	ND				
RDX	ug/L	SP-4	06/14/2022		1.1000	ND				
RDX	ug/L	SP-4	08/12/2022		1.1000	ND				
RDX	ug/L	SP-4	06/06/2023		1.1000	ND				
RDX	ug/L	SP-4	08/29/2023		1.1000	ND				
RDX	ug/L	SP-4	10/25/2023		1.1000	ND				
RDX	ug/L	SP-4	06/25/2024		1.1000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	06/17/2014	yes	21.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	09/05/2014	yes	21.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	11/14/2014	yes	20.0000	ND			21.0000	***
Di(2-ethylhexyl)phthalate	ug/L	SP-5	03/23/2015	yes	22.0000	ND			21.0000	***
Di(2-ethylhexyl)phthalate	ug/L	SP-5	05/07/2015		20.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	10/22/2015		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	04/12/2016		19.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	10/13/2016		22.5000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	05/12/2017		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	09/15/2017		20.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	05/17/2018		19.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	10/18/2018		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	05/03/2019		28.0000	ND				

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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Di(2-ethylhexyl)phthalate	ug/L	SP-5	09/06/2019		23.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	05/07/2020		22.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	09/17/2020		24.0000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	06/23/2021		9.5000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	11/29/2021		9.5000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	06/14/2022		9.6000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	08/12/2022		9.5000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	06/06/2023		9.5000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	08/29/2023		9.8000	ND				
Di(2-ethylhexyl)phthalate	ug/L	SP-5	06/25/2024		4.9000	ND				
Lead	ug/L	SP-5	06/17/2014	yes	3.0000	ND				
Lead	ug/L	SP-5	09/05/2014	yes	3.0000	ND				
Lead	ug/L	SP-5	11/14/2014	yes	3.0000	ND				
Lead	ug/L	SP-5	03/23/2015	yes	3.0000	ND				
Lead	ug/L	SP-5	05/07/2015		3.0000	ND				
Lead	ug/L	SP-5	10/22/2015		3.0000	ND				
Lead	ug/L	SP-5	04/12/2016		3.0000	ND				
Lead	ug/L	SP-5	10/13/2016		3.3800	ND				
Lead	ug/L	SP-5	05/11/2017		3.3800	ND				
Lead	ug/L	SP-5	09/15/2017		3.3800	ND				
Lead	ug/L	SP-5	05/17/2018		3.3800	ND				
Lead	ug/L	SP-5	10/18/2018		3.3800	ND				
Lead	ug/L	SP-5	05/03/2019		3.3800	ND				
Lead	ug/L	SP-5	09/06/2019		3.3800	ND				
Lead	ug/L	SP-5	05/07/2020		3.0000	ND				
Lead	ug/L	SP-5	09/17/2020		3.0000	ND				
Lead	ug/L	SP-5	06/23/2021		50.0000	ND				
Lead	ug/L	SP-5	11/29/2021		1.0000	ND				
Lead	ug/L	SP-5	06/14/2022		1.0000	ND				
Lead	ug/L	SP-5	08/12/2022		1.0000	ND				
Lead	ug/L	SP-5	06/06/2023		1.0000	ND				
Lead	ug/L	SP-5	08/29/2023		1.0000	ND				

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ND = Not detected, Result = detection limit.

Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
Lead	ug/L	SP-5	06/25/2024		50.0000	ND				
Mercury	ug/L	SP-5	06/17/2014	yes	0.0675	ND		0.0874		
Mercury	ug/L	SP-5	09/05/2014	yes	0.0675	ND		0.0874		
Mercury	ug/L	SP-5	11/14/2014	yes	0.1470			0.1073		
Mercury	ug/L	SP-5	03/23/2015	yes	0.0675	ND		0.0874		
Mercury	ug/L	SP-5	05/07/2015		0.0675	ND		0.0874		
Mercury	ug/L	SP-5	10/22/2015		0.0675	ND		0.0874		
Mercury	ug/L	SP-5	04/12/2016		0.0675	ND		0.0874		
Mercury	ug/L	SP-5	10/13/2016		0.0675	ND		0.0874		
Mercury	ug/L	SP-5	05/11/2017		0.0675	ND		0.0874		
Mercury	ug/L	SP-5	09/15/2017		0.0070	ND		0.0874		
Mercury	ug/L	SP-5	05/17/2018		0.0070	ND		0.0874		
Mercury	ug/L	SP-5	10/18/2018		0.0070	ND		0.0874		
Mercury	ug/L	SP-5	05/03/2019		0.0070	ND		0.0874		
Mercury	ug/L	SP-5	09/06/2019		0.0070	ND		0.0874		
Mercury	ug/L	SP-5	05/07/2020		0.0070	ND		0.0874		
Mercury	ug/L	SP-5	09/17/2020		0.0050	ND		0.0874		
Mercury	ug/L	SP-5	06/23/2021		0.5000	ND		0.0874		
Mercury	ug/L	SP-5	11/29/2021		0.5000	ND		0.0874		
Mercury	ug/L	SP-5	06/14/2022		0.5000	ND		0.0874		
Mercury	ug/L	SP-5	08/12/2022		0.5000	ND		0.0874		
Mercury	ug/L	SP-5	06/06/2023		0.2000	ND		0.0874		
Mercury	ug/L	SP-5	08/29/2023		0.2000	ND		0.0874		
Mercury	ug/L	SP-5	06/25/2024		0.2000	ND		0.0874		
RDX	ug/L	SP-5	06/17/2014	yes	1.0000	ND				
RDX	ug/L	SP-5	09/05/2014	yes	1.0000	ND				
RDX	ug/L	SP-5	11/14/2014	yes	1.0000	ND				
RDX	ug/L	SP-5	03/23/2015	yes	1.0000	ND				
RDX	ug/L	SP-5	05/07/2015		1.0000	ND				
RDX	ug/L	SP-5	10/22/2015		1.0000	ND				
RDX	ug/L	SP-5	04/12/2016		1.0000	ND				
RDX	ug/L	SP-5	10/13/2016		1.0000	ND				

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*** - ND value replaced with median RL.
**** - ND value replaced with manual RL.
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Table 2

Analytical Data and CUSUM Summary

Constituent	Units	Well	Date	Background	Result		Outlier	CUSUM	Adjusted	
RDX	ug/L	SP-5	05/12/2017		1.0000	ND				
RDX	ug/L	SP-5	09/15/2017		1.0000	ND				
RDX	ug/L	SP-5	05/17/2018		1.0000	ND				
RDX	ug/L	SP-5	10/18/2018		1.0000	ND				
RDX	ug/L	SP-5	05/03/2019		1.0000	ND				
RDX	ug/L	SP-5	09/06/2019		1.0000	ND				
RDX	ug/L	SP-5	05/07/2020		1.0000	ND				
RDX	ug/L	SP-5	09/17/2020		1.0000	ND				
RDX	ug/L	SP-5	06/23/2021		1.1000	ND				
RDX	ug/L	SP-5	11/29/2021		1.1000	ND				
RDX	ug/L	SP-5	06/14/2022		1.1000	ND				
RDX	ug/L	SP-5	08/12/2022		1.1000	ND				
RDX	ug/L	SP-5	06/06/2023		1.2000	ND				
RDX	ug/L	SP-5	08/29/2023		1.1000	ND				
RDX	ug/L	SP-5	06/25/2024		1.2000	ND				

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** - Non-outlier detected sample Result and / or CUSUM value exceeds limit.
*** - ND value replaced with median RL.
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ND = Not detected, Result = detection limit.

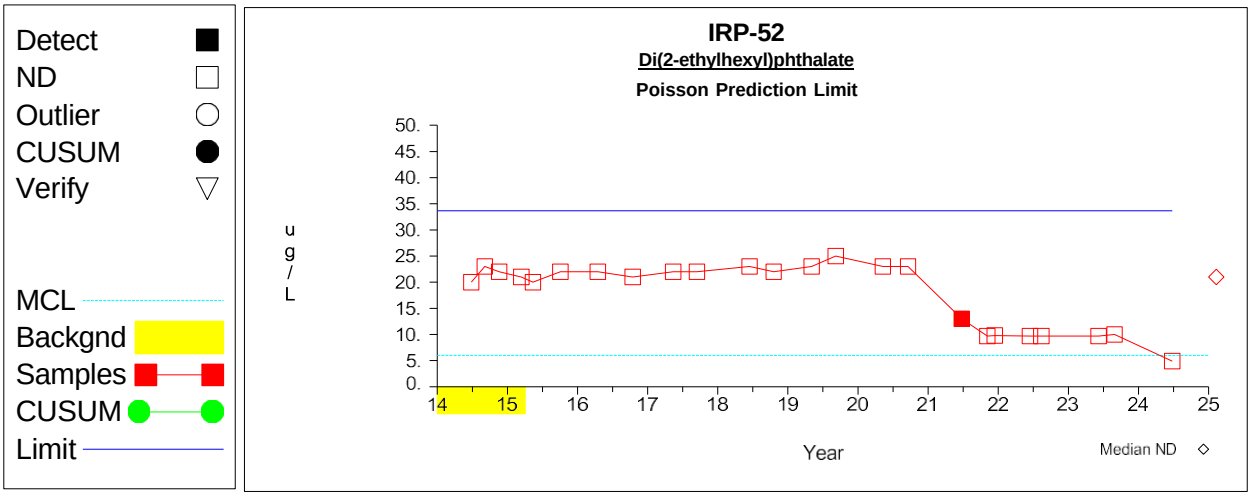
Table 4

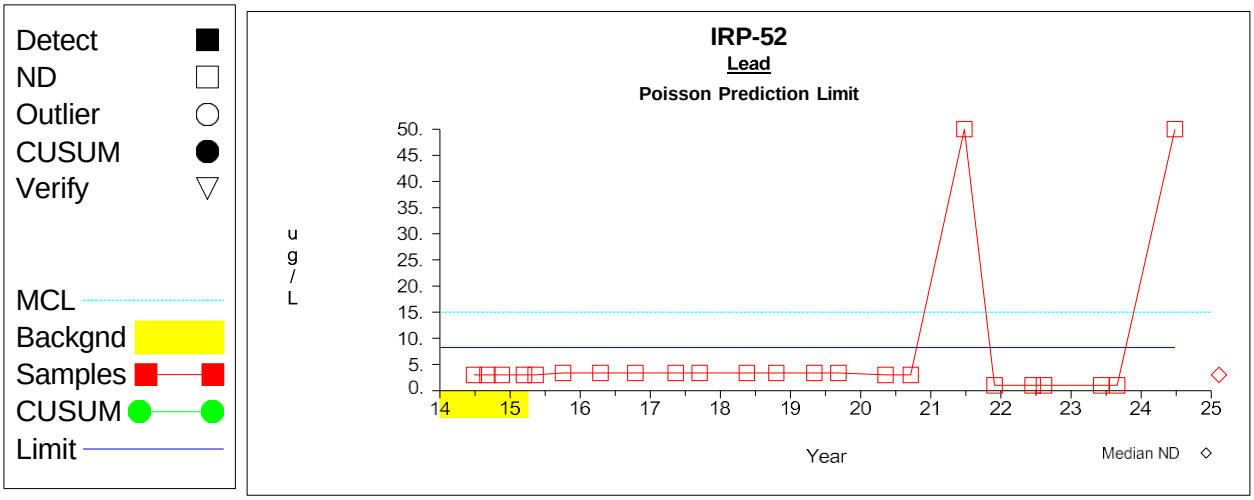
Dixon's Test Outliers
1% Significance Level

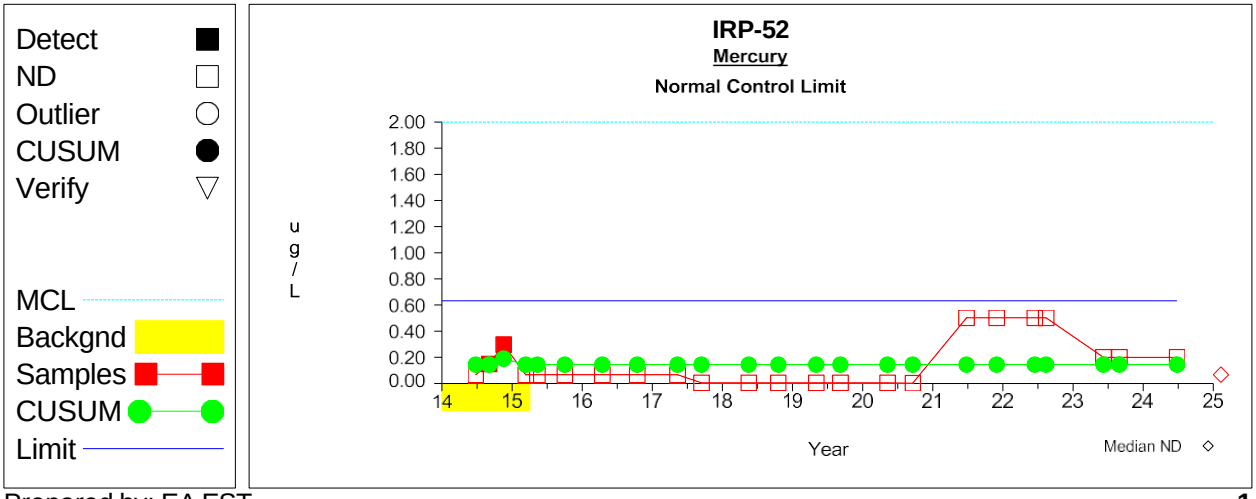
Constituent	Units	Well	Date	Result	ND Qualifier	Date Range	N	Critical Value

N = Total number of independent measurements in background at each well.
Date Range = Dates of the first and last measurements included in background at each well.
Critical Value depends on the significance level and on N-1 when the two most extreme values are tested or N for the most extreme value.

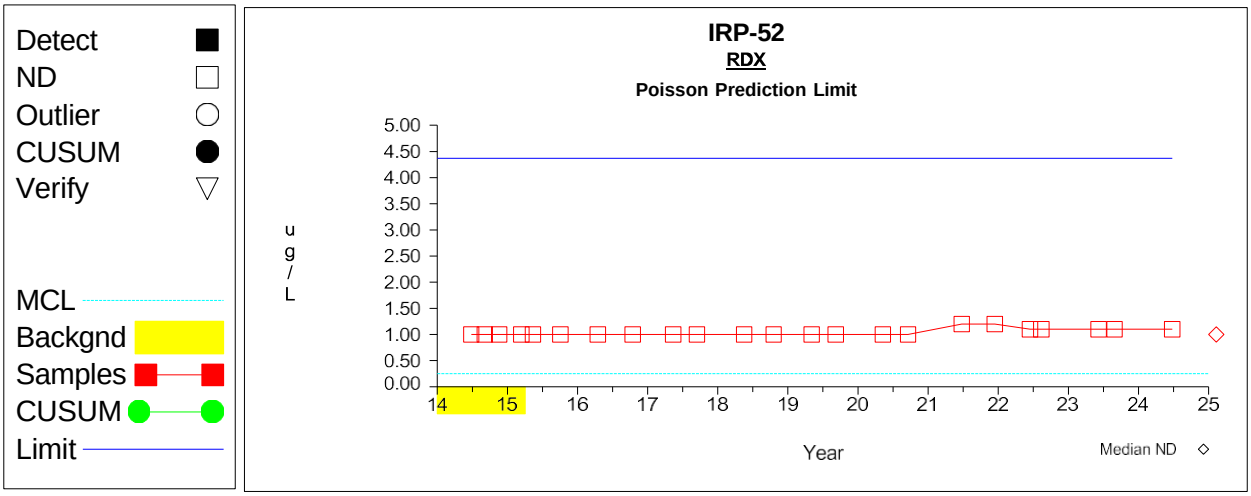
Intra-Well Control Charts / Prediction Limits

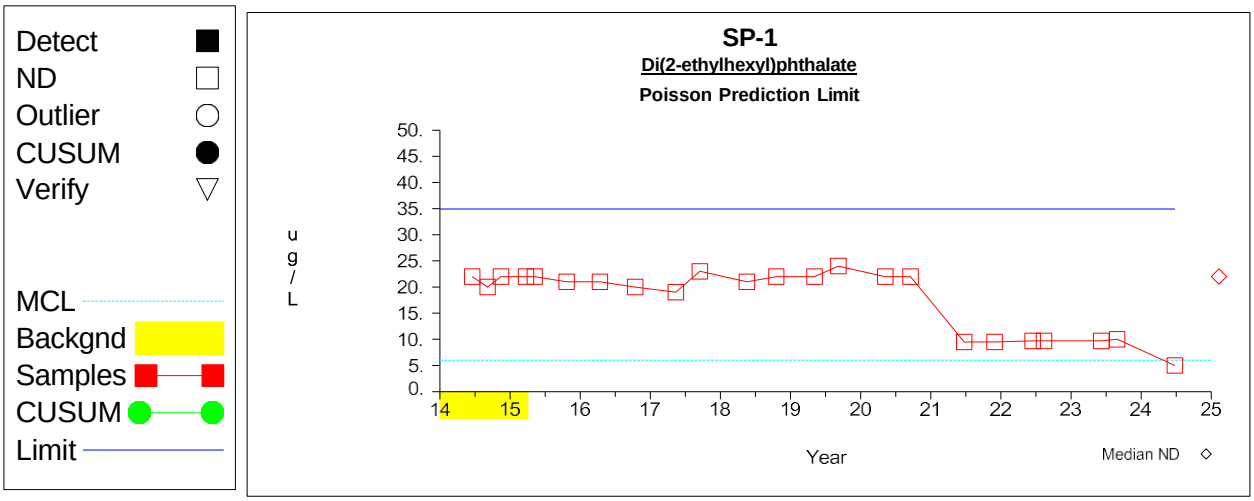


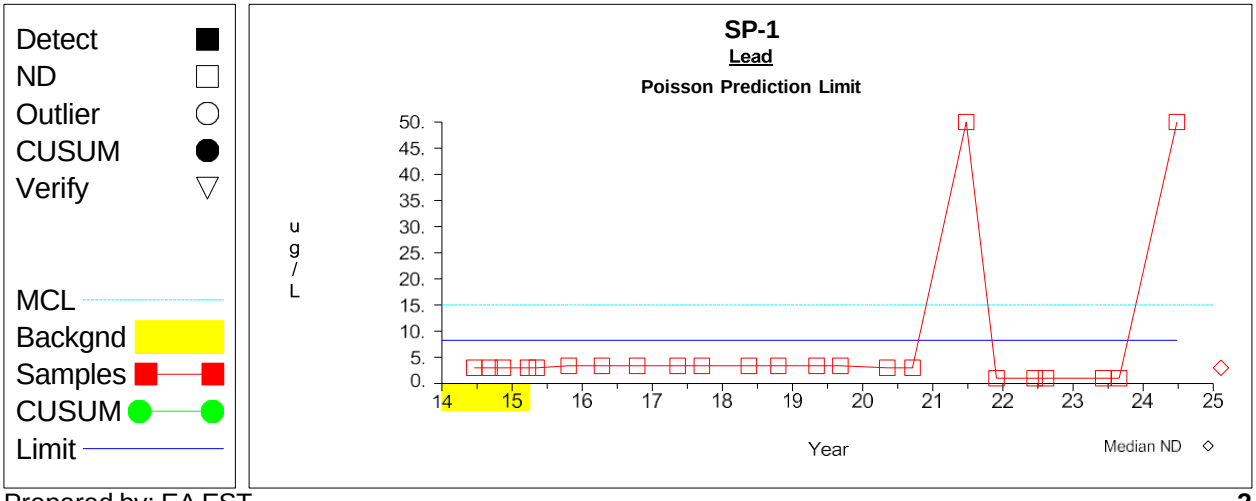




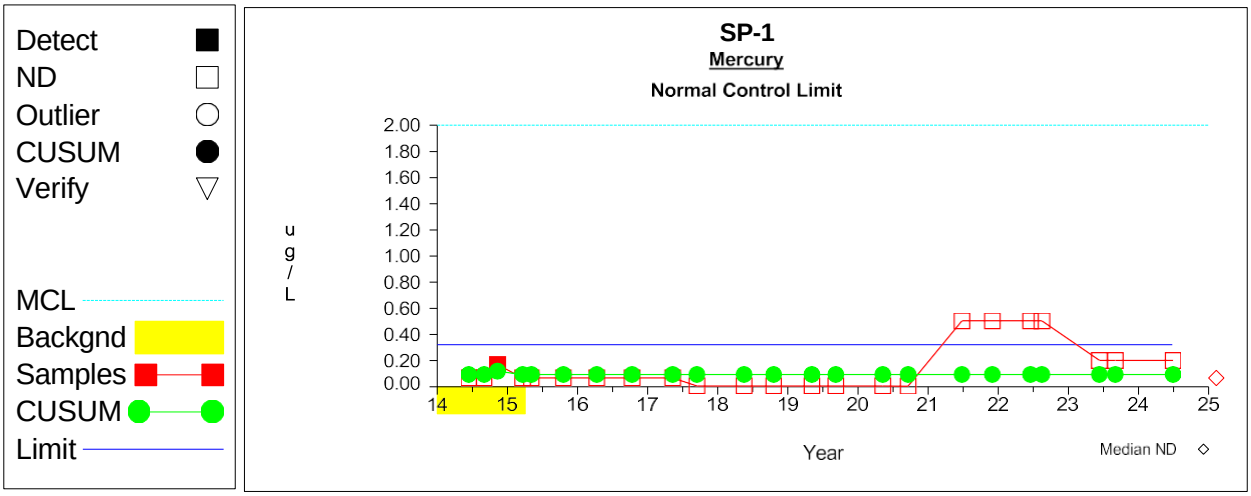
Intra-Well Control Charts / Prediction Limits

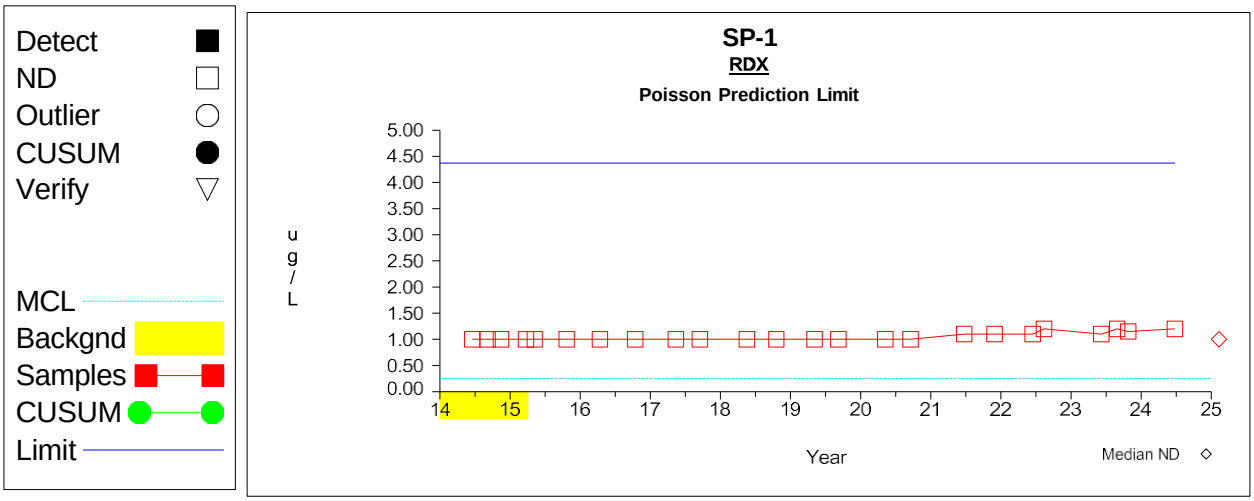


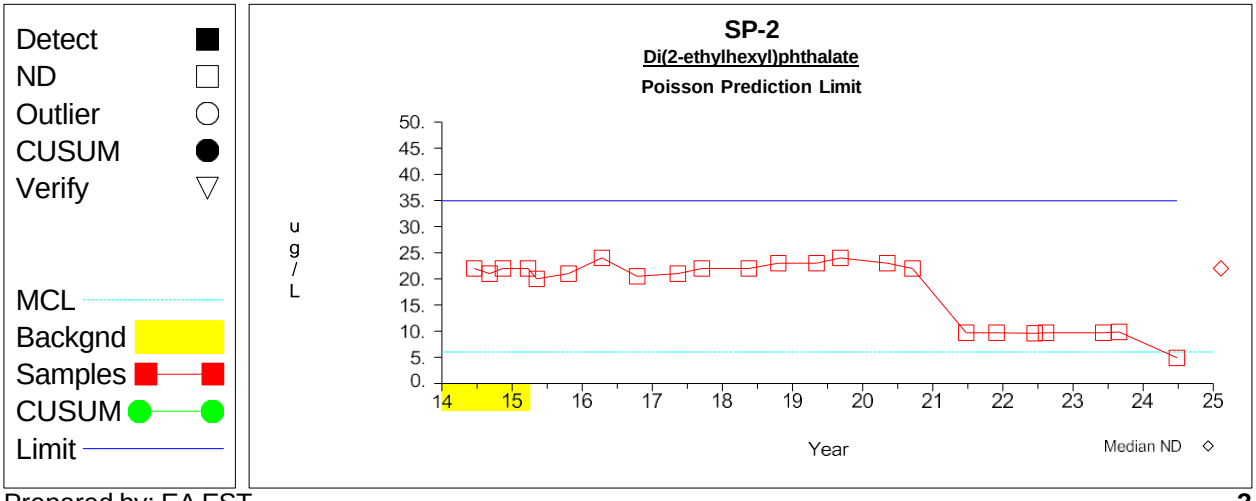




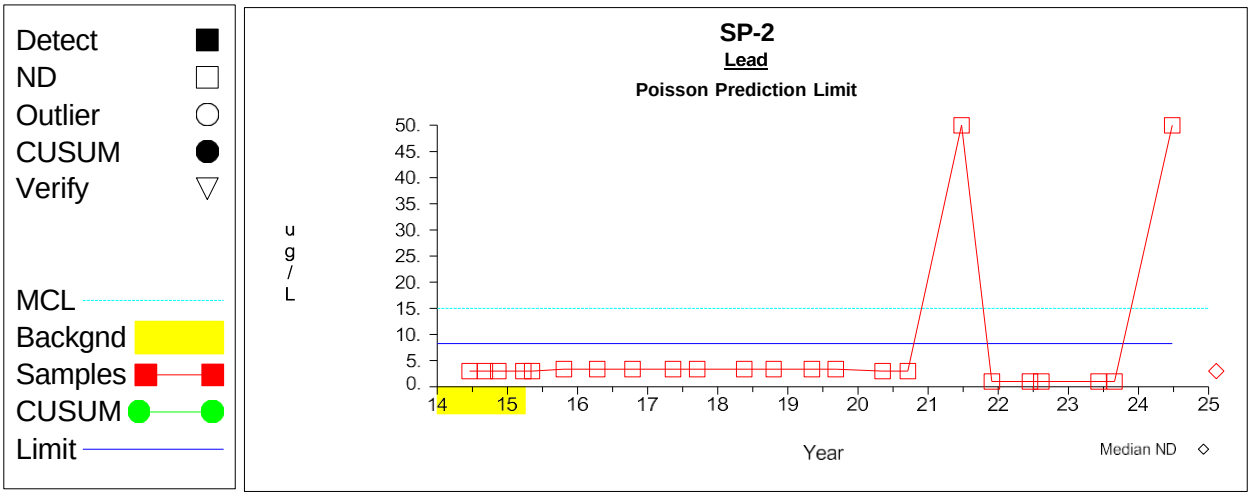
Intra-Well Control Charts / Prediction Limits

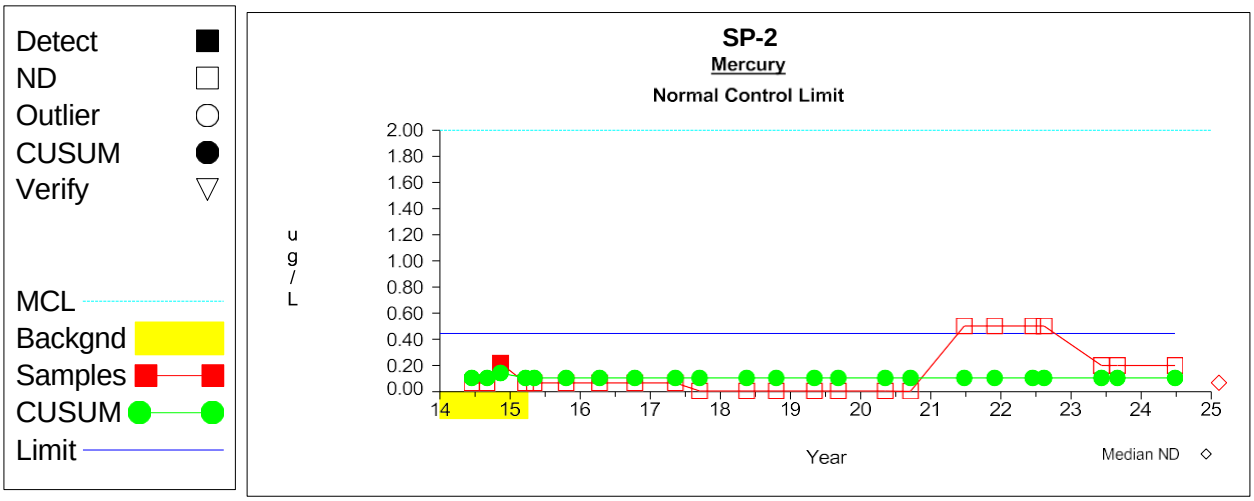


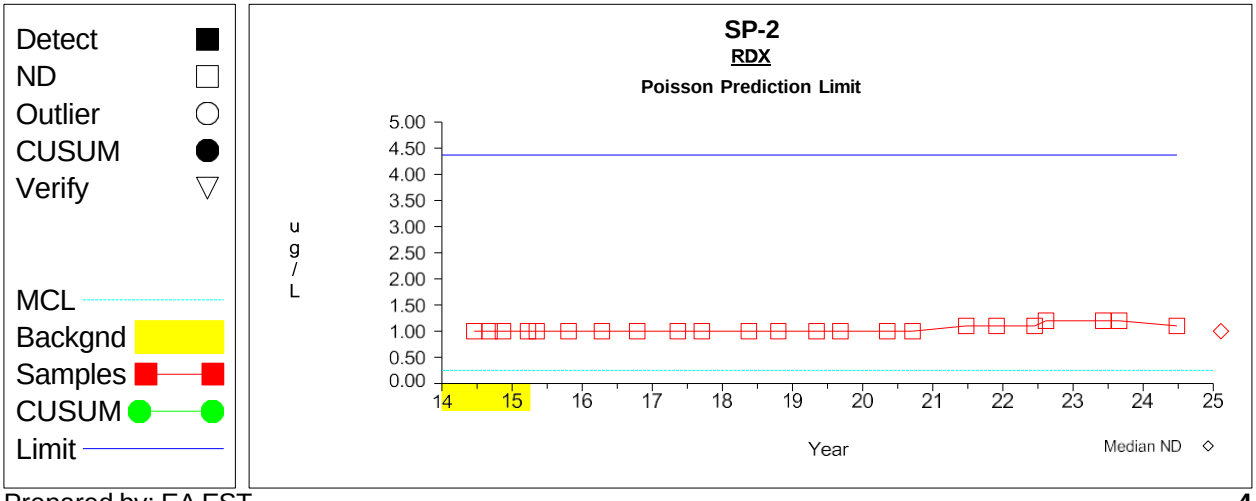




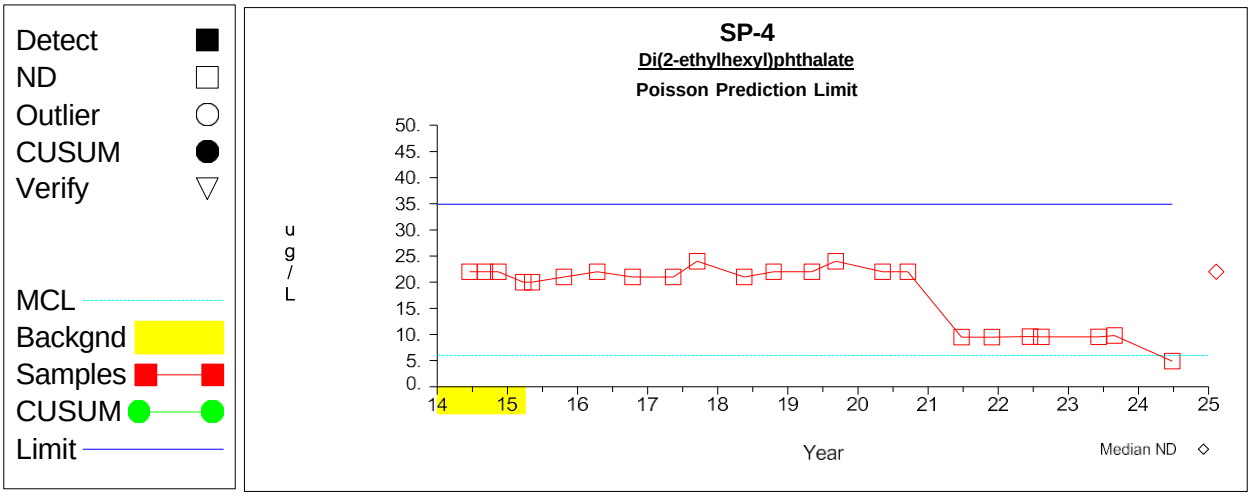
Intra-Well Control Charts / Prediction Limits

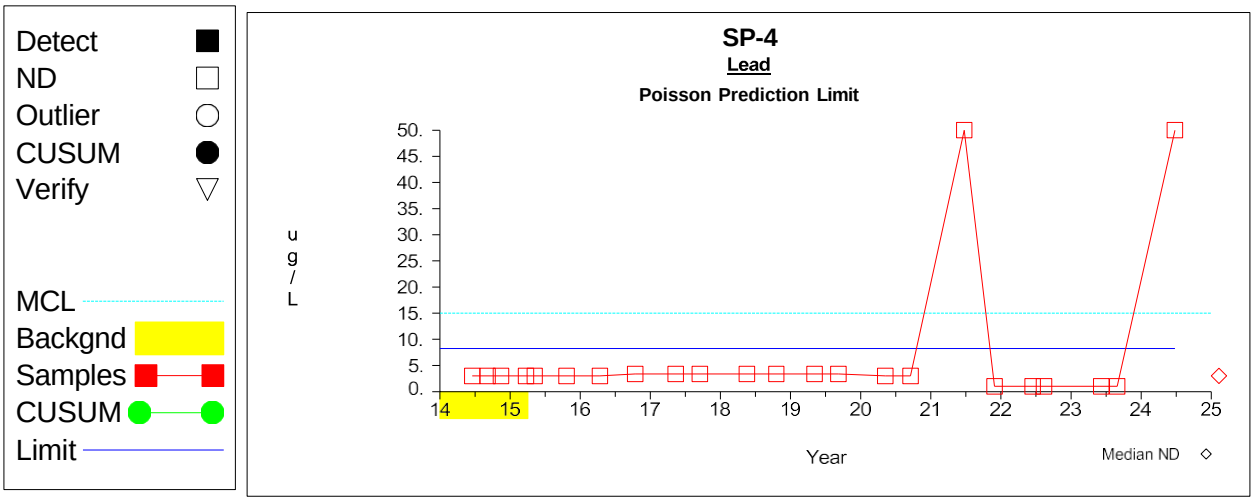


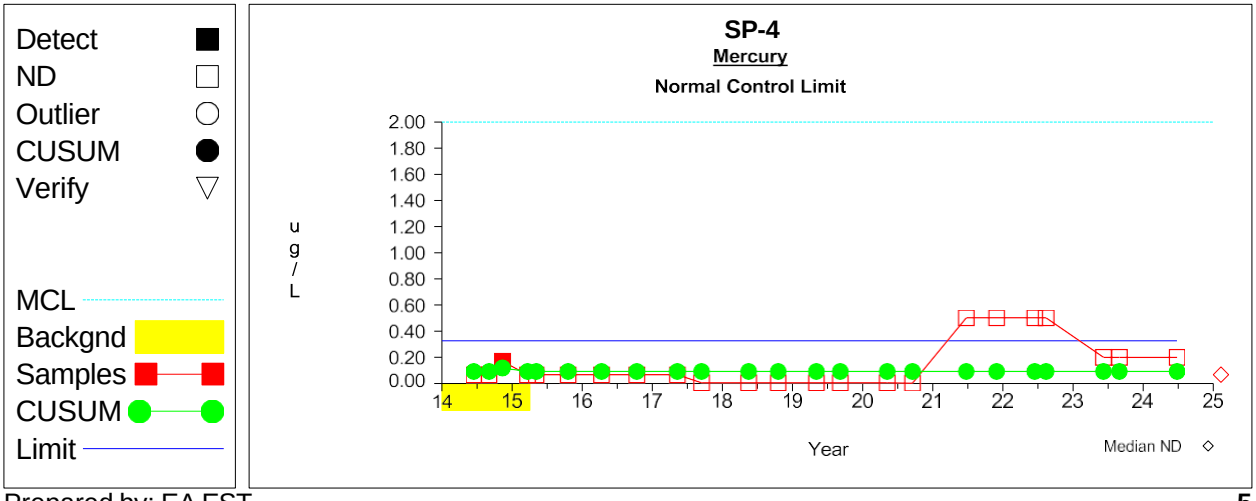




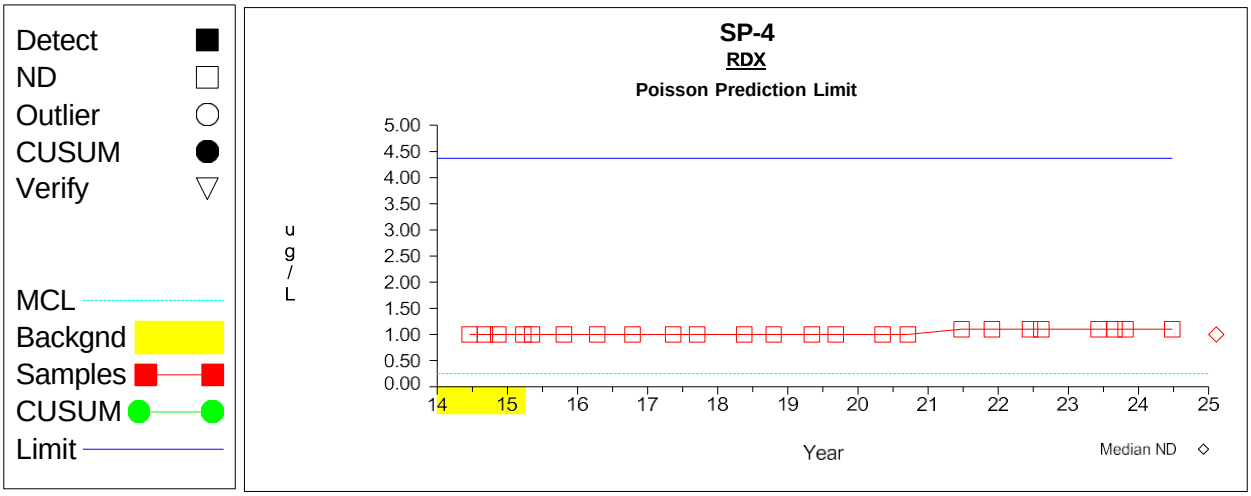
Intra-Well Control Charts / Prediction Limits

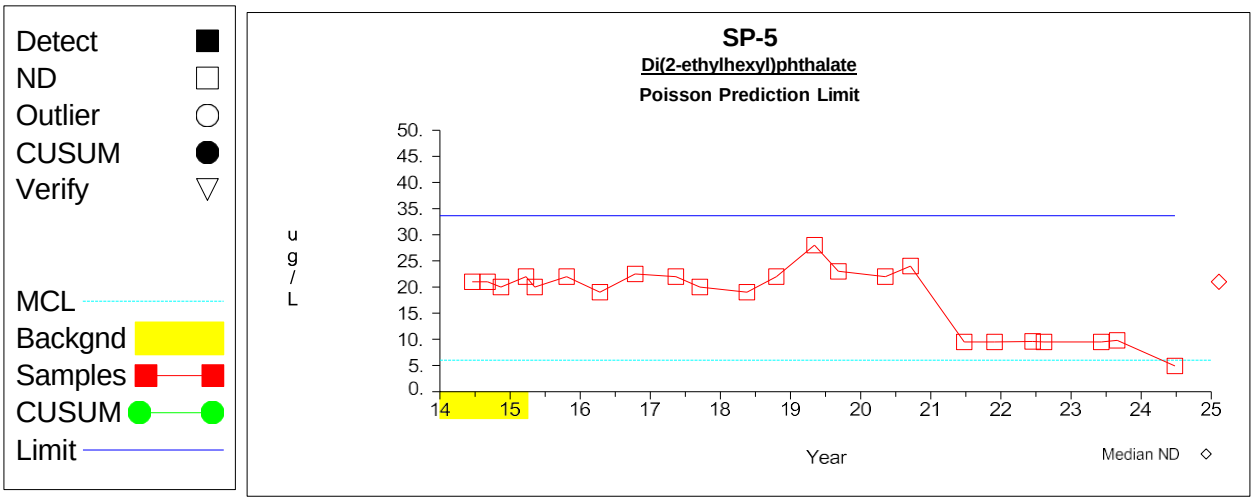


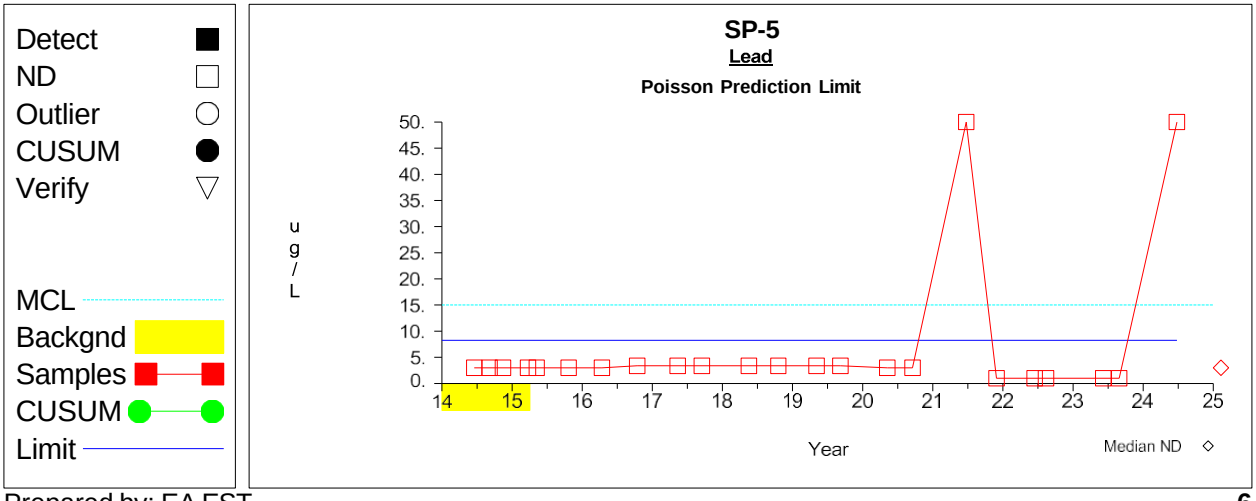




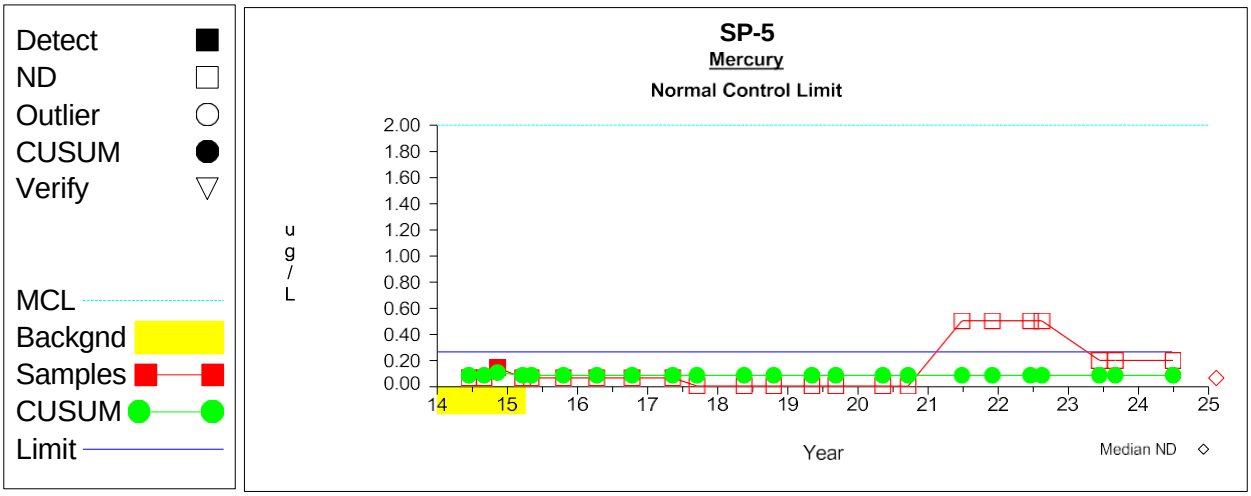
Intra-Well Control Charts / Prediction Limits

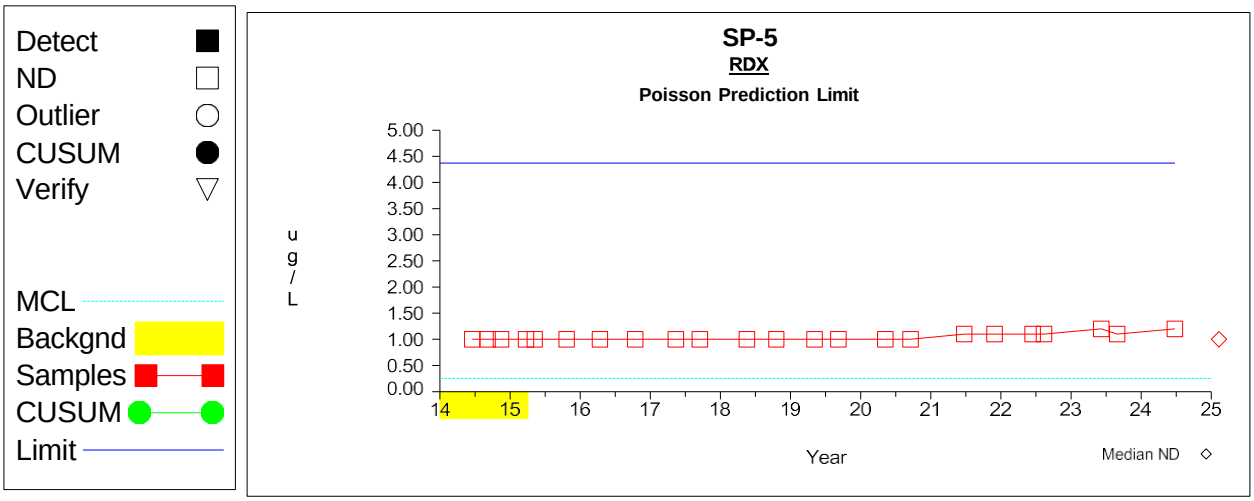






Intra-Well Control Charts / Prediction Limits





Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Di(2-ethylhexyl)phthalate (ug/L) at IRP-52
Poisson Prediction Limit

Step	Equation	Description
1	Transform ppm to ppb if required.	
2	Substitute reporting limit (quantification limit recommended) for nondetects.	
3	Y = **sum[X]** = **84.0**	Compute sum of concentrations and/or reporting limits.
4	alpha = min[(1-.95$^{1/K}$)^{½}, .01] = min[(1-.95$^{1/\mathbf{20}}$)^{½}, .01] = **0.01**	Adjusted per comparison false positive rate. Pass initial or 1 resample.
5	PL = **Y**/**N** + **Z**^{2}/2**N** + (**Z**/**N**)(**Y**(1+**N**) + **Z**^{2}/4)^{½} = **84.0**/**4** + **2.329**^{2}/(2*4) + (**2.329**/**4**)(**84.0**(1+**4**) + **2.329**^{2}/4)^{½} = **33.632**	Compute Poisson prediction limit and express result in original metric (*e.g.* ppb or ppm). Z is the alpha percentage point of the normal distribution.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Lead (ug/L) at IRP-52
Poisson Prediction Limit

Step	Equation	Description
1	Transform ppm to ppb if required.	
2	Substitute reporting limit (quantification limit recommended) for nondetects.	
3	Y = **sum[X]** = **12.0**	Compute sum of concentrations and/or reporting limits.
4	alpha = min[(1-.95$^{1/\mathbf{K}}$)^{½}, .01] = min[(1-.95$^{1/\mathbf{20}}$)^{½}, .01] = **0.01**	Adjusted per comparison false positive rate. Pass initial or 1 resample.
5	PL = **Y**/**N** + **Z**^{2}/2**N** + (**Z**/**N**)(**Y**(1+**N**) + **Z**^{2}/4)^{½} = **12.0**/**4** + **2.329**^{2}/(2*4) + (**2.329**/**4**)(**12.0**(1+**4**) + **2.329**^{2}/4)^{½} = **8.24**	Compute Poisson prediction limit and express result in original metric (*e.g.* ppb or ppm). Z is the alpha percentage point of the normal distribution.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Mercury (ug/L) at IRP-52
Normal Control Limit

Step	Equation	Description
1	$\bar{X}$ = **sum[X] / N** = **0.582 / 4** = **0.146**	Compute background mean.
2	$S = ((\mathbf{sum[X^2]} - \mathbf{sum[X]}^2/\mathbf{N}) / (\mathbf{N}-1))^{1/2}$ $= ((\mathbf{0.12} - \mathbf{0.339}/\mathbf{4}) / (\mathbf{4}-1))^{1/2}$ = **0.108**	Compute background sd.
3	SCL = $\bar{\mathbf{X}}$ + **F** * **S** = **0.146** + **4.5** * **0.108** = **0.633**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **4** * (**4**-1) / 2 = **6**	Number of sample pairs during trend detection period.
5	S = **0.215**	Sen's estimator of trend.
6	var(S) = **7.667**	Variance estimate for slope.
7	$M_1(S) = (\mathbf{N}' - \mathbf{Z}_{.99} * \mathbf{var(S)}^{1/2}) / 2$ $= (\mathbf{6} - \mathbf{2.326} * \mathbf{7.667}^{1/2}) / 2$ = **-0.22**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.741**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
RDX (ug/L) at IRP-52
Poisson Prediction Limit

Step	Equation	Description
1	Transform ppm to ppb if required.	
2	Substitute reporting limit (quantification limit recommended) for nondetects.	
3	Y = **sum[X]** = **4.0**	Compute sum of concentrations and/or reporting limits.
4	alpha = min[(1-.95$^{1/\mathbf{K}}$)^{½}, .01] = min[(1-.95$^{1/\mathbf{20}}$)^{½}, .01] = **0.01**	Adjusted per comparison false positive rate. Pass initial or 1 resample.
5	PL = **Y**/**N** + **Z**^{2}/2**N** + (**Z**/**N**)(**Y**(1+**N**) + **Z**^{2}/4)^{½} = **4.0**/**4** + **2.329**^{2}/(2***4**) + (**2.329**/**4**)(**4.0**(1+**4**) + **2.329**^{2}/4)^{½} = **4.369**	Compute Poisson prediction limit and express result in original metric (*e.g.* ppb or ppm). Z is the alpha percentage point of the normal distribution.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Di(2-ethylhexyl)phthalate (ug/L) at SP-1
Poisson Prediction Limit

Step	Equation	Description
1	Transform ppm to ppb if required.	
2	Substitute reporting limit (quantification limit recommended) for nondetects.	
3	Y = **sum[X]** = **88.0**	Compute sum of concentrations and/or reporting limits.
4	alpha = min[(1-.95$^{1/\mathbf{K}}$)^{½}, .01] = min[(1-.95$^{1/\mathbf{20}}$)^{½}, .01] = **0.01**	Adjusted per comparison false positive rate. Pass initial or 1 resample.
5	PL = **Y**/**N** + **Z**^{2}/2**N** + (**Z**/**N**)(**Y**(1+**N**) + **Z**^{2}/4)^{½} = **88.0**/**4** + **2.329**^{2}/(2*__4__) + (**2.329**/**4**)(**88.0**(1+**4**) + **2.329**^{2}/4)^{½} = **34.912**	Compute Poisson prediction limit and express result in original metric (*e.g.* ppb or ppm). Z is the alpha percentage point of the normal distribution.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Lead (ug/L) at SP-1
Poisson Prediction Limit

Step	Equation	Description
1	Transform ppm to ppb if required.	
2	Substitute reporting limit (quantification limit recommended) for nondetects.	
3	Y = **sum[X]** = **12.0**	Compute sum of concentrations and/or reporting limits.
4	alpha = min[(1-.95$^{1/\mathbf{K}}$)^{½}, .01] = min[(1-.95$^{1/\mathbf{20}}$)^{½}, .01] = **0.01**	Adjusted per comparison false positive rate. Pass initial or 1 resample.
5	PL = **Y**/**N** + **Z**^{2}/2**N** + (**Z**/**N**)(**Y**(1+**N**) + **Z**^{2}/4)^{½} = **12.0**/**4** + **2.329**^{2}/(2*4) + (**2.329**/**4**)(**12.0**(1+**4**) + **2.329**^{2}/4)^{½} = **8.24**	Compute Poisson prediction limit and express result in original metric (*e.g.* ppb or ppm). Z is the alpha percentage point of the normal distribution.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Mercury (ug/L) at SP-1
Normal Control Limit

Step	Equation	Description
1	$\bar{X}$ = **sum[X] / N** = **0.372 / 4** = **0.093**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2} **/N**) / (**N**-1))^{½} = ((**0.042** - **0.138**/**4**) / (**4**-1))^{½} = **0.051**	Compute background sd.
3	SCL = $\bar{\mathbf{X}}$ + **F** * **S** = **0.093** + **4.5** * **0.051** = **0.321**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **4** * (**4**-1) / 2 = **6**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **5.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**6** - **2.326** * **5.0**^{½}) / 2 = **0.399**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.287**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
RDX (ug/L) at SP-1
Poisson Prediction Limit

Step	Equation	Description
1	Transform ppm to ppb if required.	
2	Substitute reporting limit (quantification limit recommended) for nondetects.	
3	Y = **sum[X]** = **4.0**	Compute sum of concentrations and/or reporting limits.
4	alpha = min[(1-.95$^{1/\mathbf{K}}$)^{½}, .01] = min[(1-.95$^{1/\mathbf{20}}$)^{½}, .01] = **0.01**	Adjusted per comparison false positive rate. Pass initial or 1 resample.
5	PL = **Y/N** + **Z**^{2}/2**N** + (**Z/N**)(**Y**(1+**N**) + **Z**^{2}/4)^{½} = **4.0/4** + **2.329**^{2}/(2***4**) + (**2.329/4**)(**4.0**(1+**4**) + **2.329**^{2}/4)^{½} = **4.369**	Compute Poisson prediction limit and express result in original metric (*e.g.* ppb or ppm). Z is the alpha percentage point of the normal distribution.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Di(2-ethylhexyl)phthalate (ug/L) at SP-2
Poisson Prediction Limit

Step	Equation	Description
1	Transform ppm to ppb if required.	
2	Substitute reporting limit (quantification limit recommended) for nondetects.	
3	Y = **sum[X]** = **88.0**	Compute sum of concentrations and/or reporting limits.
4	alpha = min[(1-.95$^{1/\mathbf{K}}$)^{½}, .01] = min[(1-.95$^{1/\mathbf{20}}$)^{½}, .01] = **0.01**	Adjusted per comparison false positive rate. Pass initial or 1 resample.
5	PL = **Y**/**N** + **Z**^{2}/2**N** + (**Z**/**N**)(**Y**(1+**N**) + **Z**^{2}/4)^{½} = **88.0**/**4** + **2.329**^{2}/(2*__4__) + (**2.329**/**4**)(**88.0**(1+**4**) + **2.329**^{2}/4)^{½} = **34.912**	Compute Poisson prediction limit and express result in original metric (*e.g.* ppb or ppm). Z is the alpha percentage point of the normal distribution.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Lead (ug/L) at SP-2
Poisson Prediction Limit

Step	Equation	Description
1	Transform ppm to ppb if required.	
2	Substitute reporting limit (quantification limit recommended) for nondetects.	
3	Y = **sum[X]** = **12.0**	Compute sum of concentrations and/or reporting limits.
4	alpha = min[(1-.95$^{1/\mathbf{K}}$)^{½}, .01] = min[(1-.95$^{1/\mathbf{20}}$)^{½}, .01] = **0.01**	Adjusted per comparison false positive rate. Pass initial or 1 resample.
5	PL = **Y**/**N** + **Z**^{2}/2**N** + (**Z**/**N**)(**Y**(1+**N**) + **Z**^{2}/4)^{½} = **12.0**/**4** + **2.329**^{2}/(2*4) + (**2.329**/**4**)(**12.0**(1+**4**) + **2.329**^{2}/4)^{½} = **8.24**	Compute Poisson prediction limit and express result in original metric (*e.g.* ppb or ppm). Z is the alpha percentage point of the normal distribution.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Mercury (ug/L) at SP-2
Normal Control Limit

Step	Equation	Description
1	$\bar{X}$ = **sum[X] / N** = **0.421 / 4** = **0.105**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2} **/N**) / (**N**-1))^{½} = ((**0.061** - **0.177**/**4**) / (**4**-1))^{½} = **0.075**	Compute background sd.
3	SCL = $\bar{\mathbf{X}}$ + **F** * **S** = **0.105** + **4.5** * **0.075** = **0.444**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **4** * (**4**-1) / 2 = **6**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **5.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**6** - **2.326** * **5.0**^{½}) / 2 = **0.399**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.426**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
RDX (ug/L) at SP-2
Poisson Prediction Limit

Step	Equation	Description
1	Transform ppm to ppb if required.	
2	Substitute reporting limit (quantification limit recommended) for nondetects.	
3	Y = **sum[X]** = **4.0**	Compute sum of concentrations and/or reporting limits.
4	alpha = min[(1-.95$^{1/\mathbf{K}}$)^{½}, .01] = min[(1-.95$^{1/\mathbf{20}}$)^{½}, .01] = **0.01**	Adjusted per comparison false positive rate. Pass initial or 1 resample.
5	PL = **Y**/**N** + **Z**^{2}/2**N** + (**Z**/**N**)(**Y**(1+**N**) + **Z**^{2}/4)^{½} = **4.0**/**4** + **2.329**^{2}/(2***4**) + (**2.329**/**4**)(**4.0**(1+**4**) + **2.329**^{2}/4)^{½} = **4.369**	Compute Poisson prediction limit and express result in original metric (*e.g.* ppb or ppm). Z is the alpha percentage point of the normal distribution.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Di(2-ethylhexyl)phthalate (ug/L) at SP-4
Poisson Prediction Limit

Step	Equation	Description
1	Transform ppm to ppb if required.	
2	Substitute reporting limit (quantification limit recommended) for nondetects.	
3	Y = **sum[X]** = **88.0**	Compute sum of concentrations and/or reporting limits.
4	alpha = min[(1-.95$^{1/\mathbf{K}}$)^{½}, .01] = min[(1-.95$^{1/\mathbf{20}}$)^{½}, .01] = **0.01**	Adjusted per comparison false positive rate. Pass initial or 1 resample.
5	PL = **Y/N** + **Z**^{2}/2**N** + (**Z/N**)(**Y**(1+**N**) + **Z**^{2}/4)^{½} = **88.0/4** + **2.329**^{2}/(2***4**) + (**2.329/4**)(**88.0**(1+**4**) + **2.329**^{2}/4)^{½} = **34.912**	Compute Poisson prediction limit and express result in original metric (*e.g.* ppb or ppm). Z is the alpha percentage point of the normal distribution.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Lead (ug/L) at SP-4
Poisson Prediction Limit

Step	Equation	Description
1	Transform ppm to ppb if required.	
2	Substitute reporting limit (quantification limit recommended) for nondetects.	
3	Y = **sum[X]** = **12.0**	Compute sum of concentrations and/or reporting limits.
4	alpha = min[(1-.95$^{1/\mathbf{K}}$)^{½}, .01] = min[(1-.95$^{1/\mathbf{20}}$)^{½}, .01] = **0.01**	Adjusted per comparison false positive rate. Pass initial or 1 resample.
5	PL = **Y**/**N** + **Z**^{2}/2**N** + (**Z**/**N**)(**Y**(1+**N**) + **Z**^{2}/4)^{½} = **12.0**/**4** + **2.329**^{2}/(2*__4__) + (**2.329**/**4**)(**12.0**(1+**4**) + **2.329**^{2}/4)^{½} = **8.24**	Compute Poisson prediction limit and express result in original metric (*e.g.* ppb or ppm). Z is the alpha percentage point of the normal distribution.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Mercury (ug/L) at SP-4
Normal Control Limit

Step	Equation	Description
1	$\bar{X}$ = **sum[X] / N** = **0.374 / 4** = **0.093**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2} **/N**) / (**N**-1))^{½} = ((**0.043** - **0.14/4**) / (**4**-1))^{½} = **0.052**	Compute background sd.
3	SCL = $\bar{\mathbf{X}}$ + **F** * **S** = **0.093** + **4.5** * **0.052** = **0.326**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **4** * (**4**-1) / 2 = **6**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **5.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**6** - **2.326** * **5.0**^{½}) / 2 = **0.399**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.293**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
RDX (ug/L) at SP-4
Poisson Prediction Limit

Step	Equation	Description
1	Transform ppm to ppb if required.	
2	Substitute reporting limit (quantification limit recommended) for nondetects.	
3	Y = **sum[X]** = **4.0**	Compute sum of concentrations and/or reporting limits.
4	alpha = min[(1-.95$^{1/\mathbf{K}}$)^{½}, .01] = min[(1-.95$^{1/\mathbf{20}}$)^{½}, .01] = **0.01**	Adjusted per comparison false positive rate. Pass initial or 1 resample.
5	PL = **Y**/**N** + **Z**^{2}/2**N** + (**Z**/**N**)(**Y**(1+**N**) + **Z**^{2}/4)^{½} = **4.0**/**4** + **2.329**^{2}/(2***4**) + (**2.329**/**4**)(**4.0**(1+**4**) + **2.329**^{2}/4)^{½} = **4.369**	Compute Poisson prediction limit and express result in original metric (*e.g.* ppb or ppm). Z is the alpha percentage point of the normal distribution.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Di(2-ethylhexyl)phthalate (ug/L) at SP-5
Poisson Prediction Limit

Step	Equation	Description
1	Transform ppm to ppb if required.	
2	Substitute reporting limit (quantification limit recommended) for nondetects.	
3	Y = **sum[X]** = **84.0**	Compute sum of concentrations and/or reporting limits.
4	alpha = min[(1-.95$^{1/\mathbf{K}}$)^{½}, .01] = min[(1-.95$^{1/\mathbf{20}}$)^{½}, .01] = **0.01**	Adjusted per comparison false positive rate. Pass initial or 1 resample.
5	PL = **Y**/**N** + **Z**^{2}/2**N** + (**Z**/**N**)(**Y**(1+**N**) + **Z**^{2}/4)^{½} = **84.0**/**4** + **2.329**^{2}/(2*__4__) + (**2.329**/**4**)(**84.0**(1+**4**) + **2.329**^{2}/4)^{½} = **33.632**	Compute Poisson prediction limit and express result in original metric (*e.g.* ppb or ppm). Z is the alpha percentage point of the normal distribution.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Lead (ug/L) at SP-5
Poisson Prediction Limit

Step	Equation	Description
1	Transform ppm to ppb if required.	
2	Substitute reporting limit (quantification limit recommended) for nondetects.	
3	Y = **sum[X]** = **12.0**	Compute sum of concentrations and/or reporting limits.
4	alpha = min[(1-.95$^{1/\mathbf{K}}$)^{½}, .01] = min[(1-.95$^{1/\mathbf{20}}$)^{½}, .01] = **0.01**	Adjusted per comparison false positive rate. Pass initial or 1 resample.
5	PL = **Y**/**N** + **Z**^{2}/2**N** + (**Z**/**N**)(**Y**(1+**N**) + **Z**^{2}/4)^{½} = **12.0**/**4** + **2.329**^{2}/(2*__4__) + (**2.329**/**4**)(**12.0**(1+**4**) + **2.329**^{2}/4)^{½} = **8.24**	Compute Poisson prediction limit and express result in original metric (*e.g.* ppb or ppm). Z is the alpha percentage point of the normal distribution.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
Mercury (ug/L) at SP-5
Normal Control Limit

Step	Equation	Description
1	$\bar{X}$ = **sum[X] / N** = **0.35 / 4** = **0.087**	Compute background mean.
2	S = ((**sum[X^2]** - **sum[X]**^{2} **/N**) / (**N**-1))^{½} = ((**0.035** - **0.122**/**4**) / (**4**-1))^{½} = **0.04**	Compute background sd.
3	SCL = $\bar{\mathbf{X}}$ + **F** * **S** = **0.087** + **4.5** * **0.04** = **0.266**	Compute combined Shewhart-CUSUM normal control limit.
4	N' = **N** * (**N**-1) / 2 = **4** * (**4**-1) / 2 = **6**	Number of sample pairs during trend detection period.
5	S = **0.0**	Sen's estimator of trend.
6	var(S) = **5.0**	Variance estimate for slope.
7	M_1(S) = (**N'** - **Z**$_{.99}$ * **var(S)**^{½}) / 2 = (**6** - **2.326** * **5.0**^{½}) / 2 = **0.399**	Ordinal position for one-sided lower confidence limit for slope. The LCL is the M_1^{th} largest slope estimate. When M_1 is not an integer, interpolation is used.
8	LCL(S) = **-0.225**	One-sided lower confidence limit for slope.

Worksheet 2 - Intra-Well Control Charts / Prediction Limits
RDX (ug/L) at SP-5
Poisson Prediction Limit

Step	Equation	Description
1	Transform ppm to ppb if required.	
2	Substitute reporting limit (quantification limit recommended) for nondetects.	
3	Y = **sum[X]** = **4.0**	Compute sum of concentrations and/or reporting limits.
4	alpha = min[(1-.95$^{1/\mathbf{K}}$)^{½}, .01] = min[(1-.95$^{1/\mathbf{20}}$)^{½}, .01] = **0.01**	Adjusted per comparison false positive rate. Pass initial or 1 resample.
5	PL = **Y**/**N** + **Z**^{2}/2**N** + (**Z**/**N**)(**Y**(1+**N**) + **Z**^{2}/4)^{½} = **4.0**/**4** + **2.329**^{2}/(2***4**) + (**2.329**/**4**)(**4.0**(1+**4**) + **2.329**^{2}/4)^{½} = **4.369**	Compute Poisson prediction limit and express result in original metric (*e.g.* ppb or ppm). Z is the alpha percentage point of the normal distribution.

Table 1

Upgradient Data

Constituent	Units	Well	Date		Result	Adjusted	
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	06/26/2014	ND	20.0000	21.0000	**
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	09/04/2014	ND	23.0000	21.0000	**
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	11/19/2014	ND	22.0000	21.0000	**
Di(2-ethylhexyl)phthalate	ug/L	IRP-52	03/12/2015	ND	21.0000		
Lead	ug/L	IRP-52	06/26/2014	ND	3.0000		
Lead	ug/L	IRP-52	09/04/2014	ND	3.0000		
Lead	ug/L	IRP-52	11/19/2014	ND	3.0000		
Lead	ug/L	IRP-52	03/12/2015	ND	3.0000		
Mercury	ug/L	IRP-52	06/26/2014	ND	0.0675		
Mercury	ug/L	IRP-52	09/04/2014		0.1500		
Mercury	ug/L	IRP-52	11/19/2014		0.2970		
Mercury	ug/L	IRP-52	03/12/2015	ND	0.0675		
RDX	ug/L	IRP-52	06/26/2014	ND	1.0000		
RDX	ug/L	IRP-52	09/04/2014	ND	1.0000		
RDX	ug/L	IRP-52	11/19/2014	ND	1.0000		
RDX	ug/L	IRP-52	03/12/2015	ND	1.0000		

* - Outlier for that well and constituent.
** - ND value replaced with median RL.
*** - ND value replaced with manual RL.
ND = Not detected, Result = detection limit.

Table 2

Most Current Downgradient Monitoring Data

Constituent	Units	Well	Date		Result	Pred. Limit
Di(2-ethylhexyl)phthalate	ug/L	SP-1	06/25/2024	ND	5.0000	33.6317
Lead	ug/L	SP-1	06/25/2024	ND	50.0000	8.2396
Mercury	ug/L	SP-1	06/25/2024	ND	0.2000	0.8655
RDX	ug/L	SP-1	06/25/2024	ND	1.2000	4.3693
Di(2-ethylhexyl)phthalate	ug/L	SP-2	06/25/2024	ND	4.9000	33.6317
Lead	ug/L	SP-2	06/25/2024	ND	50.0000	8.2396
Mercury	ug/L	SP-2	06/25/2024	ND	0.2000	0.8655
RDX	ug/L	SP-2	06/25/2024	ND	1.1000	4.3693
Di(2-ethylhexyl)phthalate	ug/L	SP-4	06/25/2024	ND	4.9000	33.6317
Lead	ug/L	SP-4	06/25/2024	ND	50.0000	8.2396
Mercury	ug/L	SP-4	06/25/2024	ND	0.2000	0.8655
RDX	ug/L	SP-4	06/25/2024	ND	1.1000	4.3693
Di(2-ethylhexyl)phthalate	ug/L	SP-5	06/25/2024	ND	4.9000	33.6317
Lead	ug/L	SP-5	06/25/2024	ND	50.0000	8.2396
Mercury	ug/L	SP-5	06/25/2024	ND	0.2000	0.8655
RDX	ug/L	SP-5	06/25/2024	ND	1.2000	4.3693

* - Current value failed - awaiting verification.
** - Current value passed - previous exceedance not verified.
*** - Current value failed - exceedance verified.
**** - Current value passed - awaiting one more verification.
***** - Insufficient background data to compute prediction limit.
ND = Not Detected, Result = detection limit.

Table 3

Detection Frequencies in Upgradient and Downgradient Wells

Constituent	Upgradient Detect	Upgradient N	Upgradient Proportion	Downgradient Detect	Downgradient N	Downgradient Proportion
Di(2-ethylhexyl)phthalate	0	4	0.000	0	92	0.000
Lead	0	4	0.000	0	92	0.000
Mercury	2	4	0.500	4	92	0.043
RDX	0	4	0.000	0	94	0.000

N = Total number of measurements in all wells.
Detect = Total number of detections in all wells.
Proportion = Detect/N.

Table 4

Shapiro-Wilk Multiple Group Test of Normality

Constituent	Detect	N	Detect Freq	G raw	G log	G cbrt	G sqrt	G sqr	G cub	Crit Value	Dist Form	Model Type
Di(2-ethylhexyl)phthalate	0	4	0.000	1.125	1.125					1.645	normal	poisson
Lead	0	4	0.000	1.125	1.125					1.645	normal	poisson
Mercury	2	4	0.500	0.898	0.603					1.645	normal	normal
RDX	0	4	0.000	1.125	1.125					1.645	normal	poisson

* - Distribution override for that constituent.
Fit to distribution is confirmed if G <= critical value.
Model type may not match distributional form when detection frequency < 50%.

Table 5

Summary Statistics and Prediction Limits

Constituent	Units	Detect	N	Mean	SD	alpha	Factor	Pred Limit	Type
Di(2-ethylhexyl)phthalate	ug/L	0	4	21.0000		0.0100		33.6317	poisson
Lead	ug/L	0	4	3.0000		0.0100		8.2396	poisson
Mercury	ug/L	2	4	0.1117	0.1485	0.0100	5.0758	0.8655	normal
RDX	ug/L	0	4	1.0000		0.0100		4.3693	poisson

* - Insufficient Data.
** - Calculated limit raised to Manual Reporting Limit.
*** - Nonparametric limit based on ND value.
For transformed data, mean and SD in transformed units and prediction limit in original units.
All sample sizes and statistics are based on outlier free data.
For nonparametric limits, median reporting limits are substituted for extreme reporting limit values.

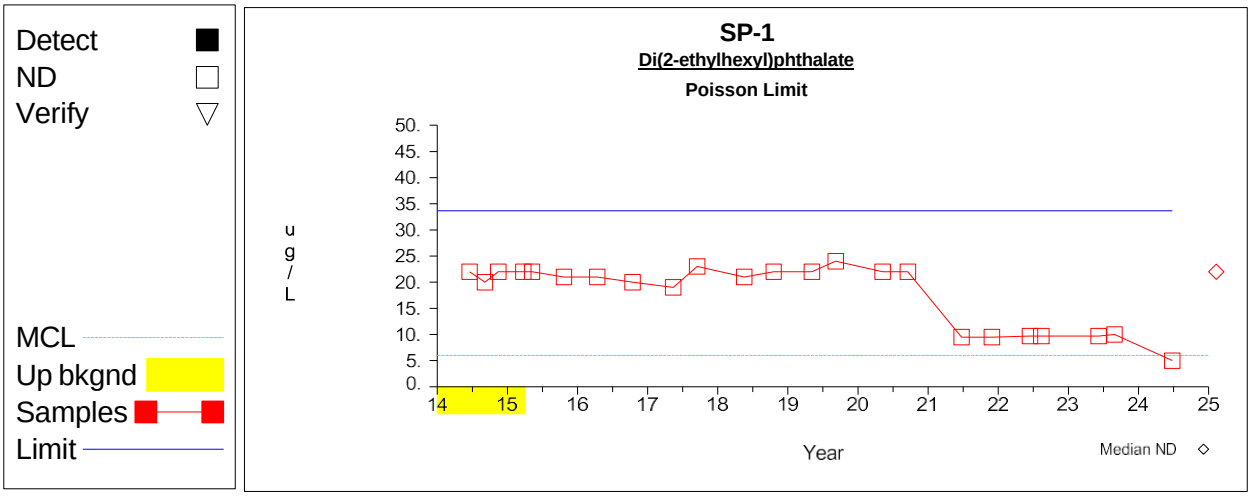
Table 6

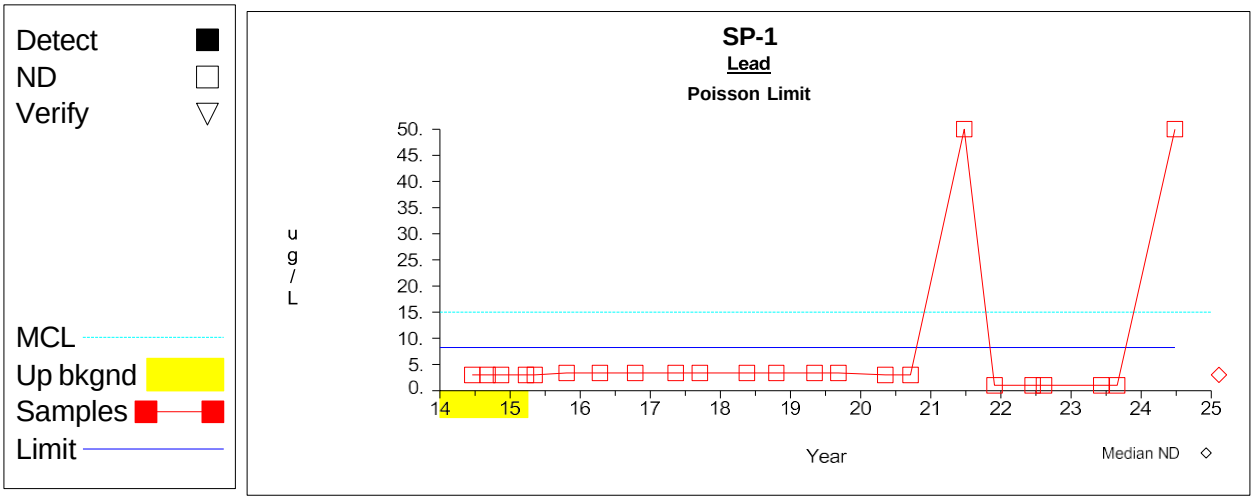
Dixon's Test Outliers
1% Significance Level

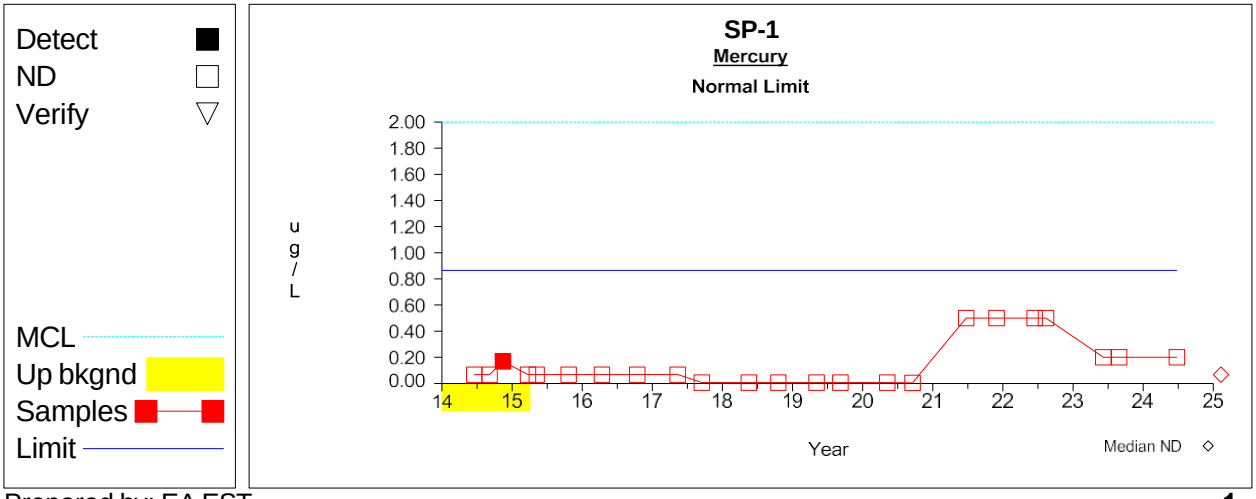
Constituent	Units	Well	Date	Result	ND Qualifier	Date Range	N	Critical Value

N = Total number of independent measurements in background at each well.
Date Range = Dates of the first and last measurements included in background at each well.
Critical Value depends on the significance level and on N-1 when the two most extreme values are tested or N for the most extreme value.

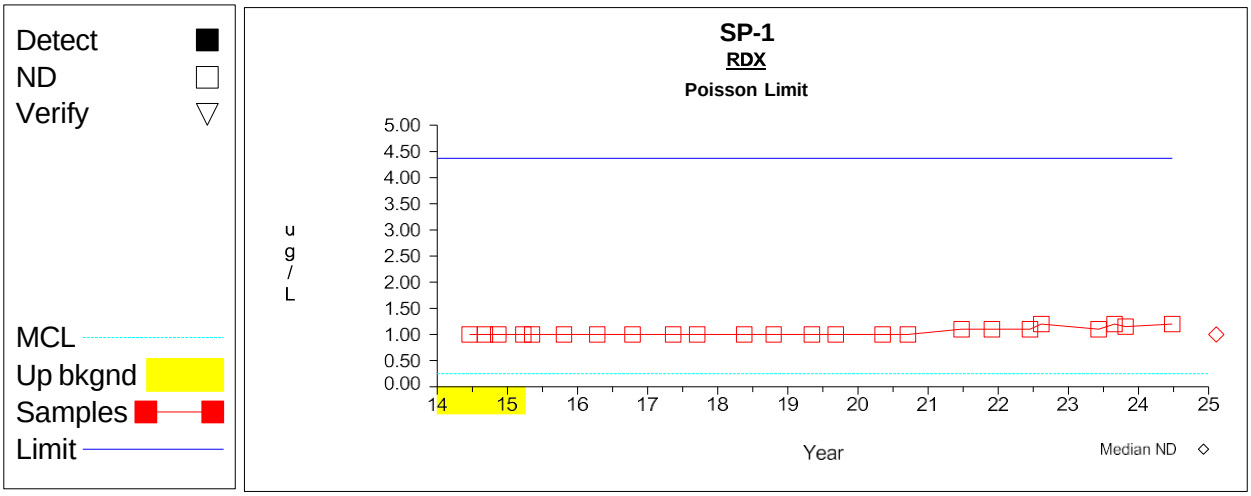
Up vs. Down Prediction Limits

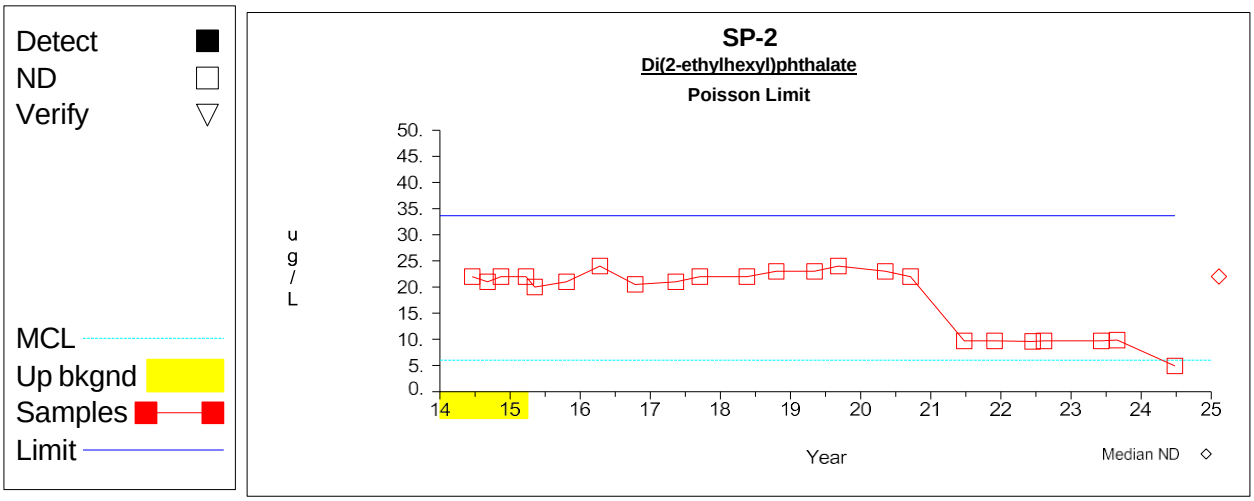


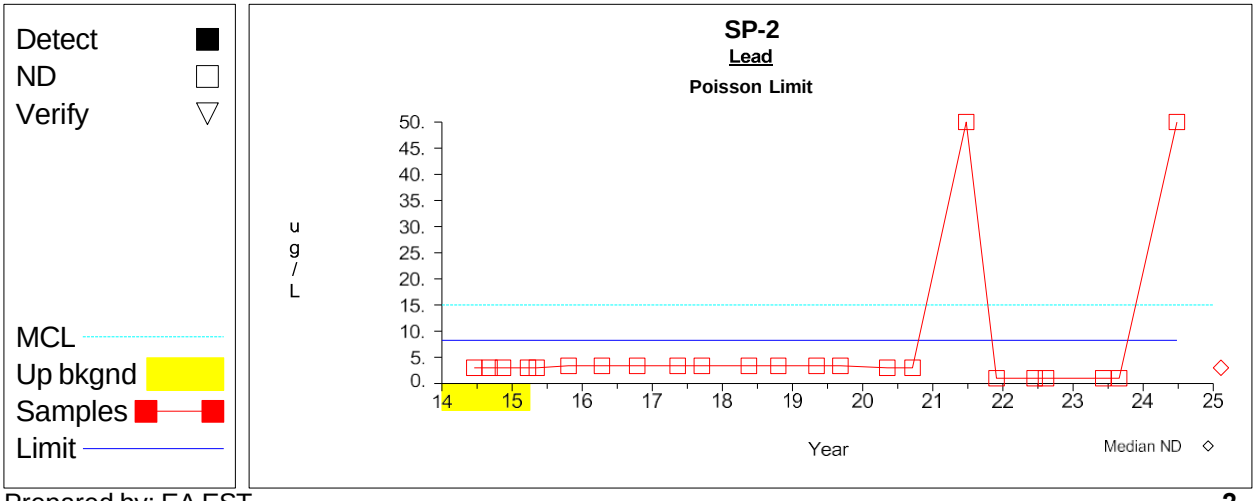




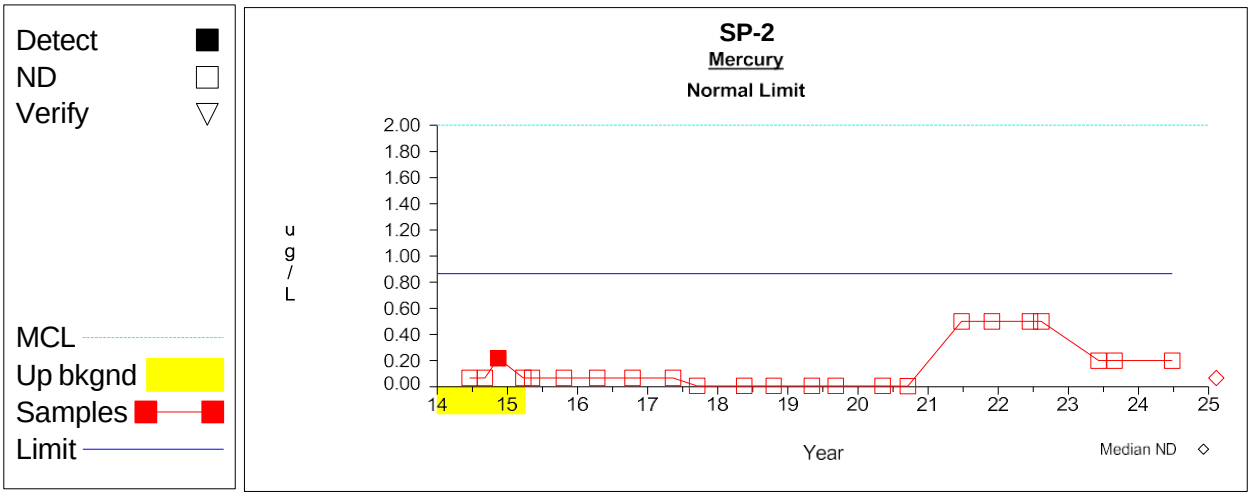
Up vs. Down Prediction Limits

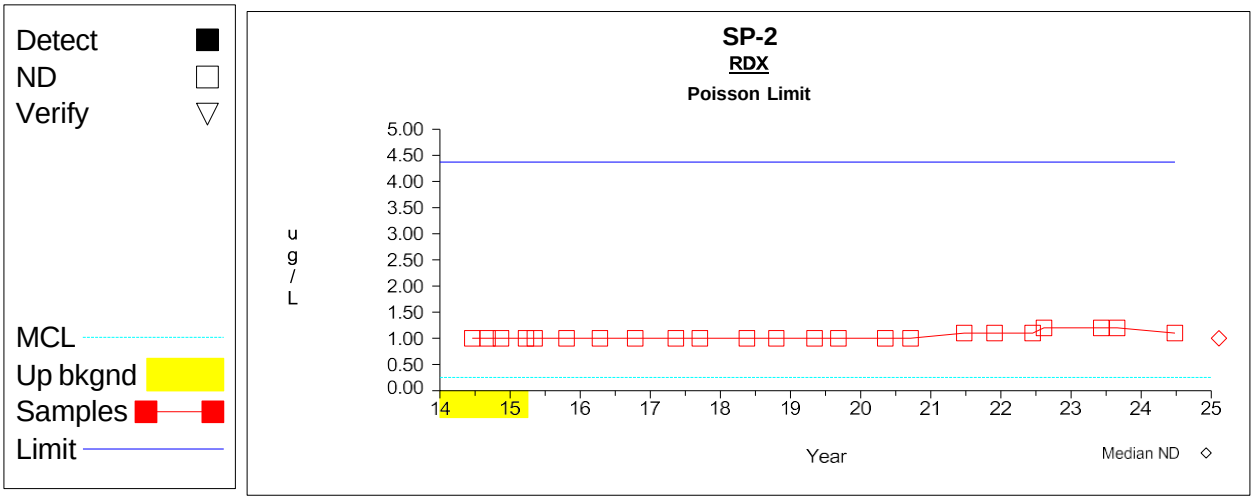


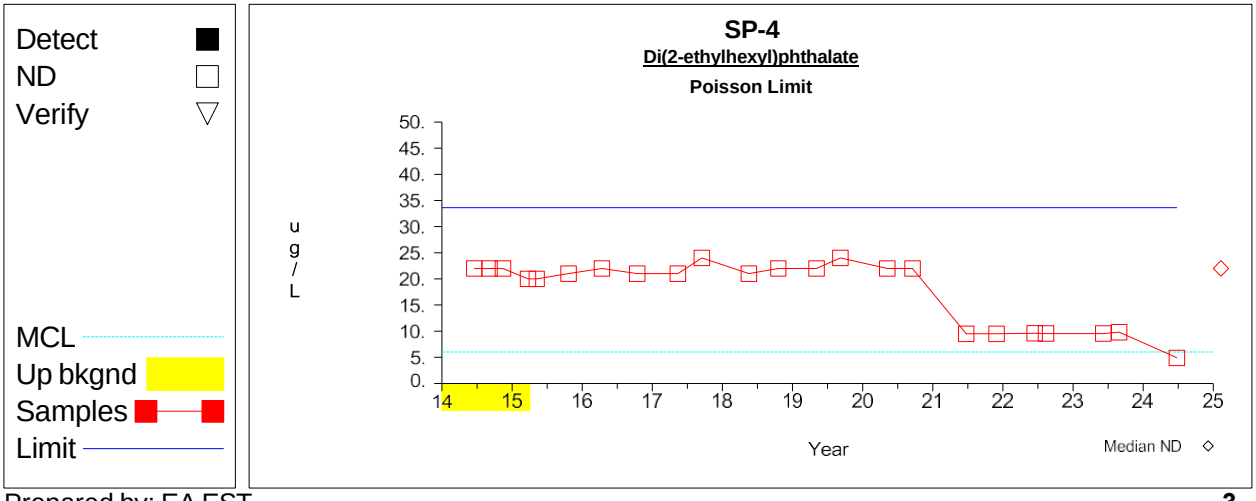




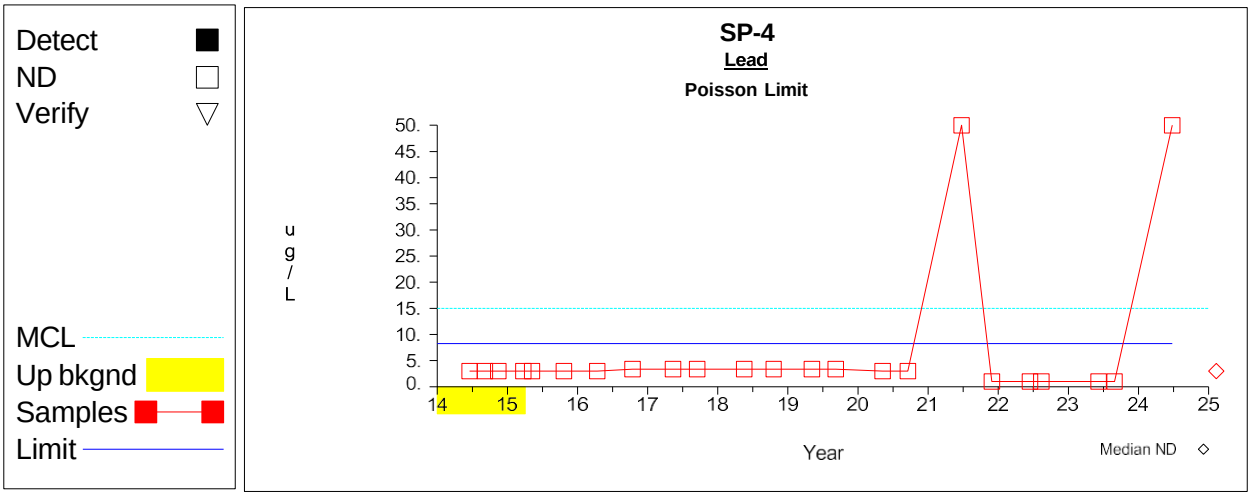
Up vs. Down Prediction Limits

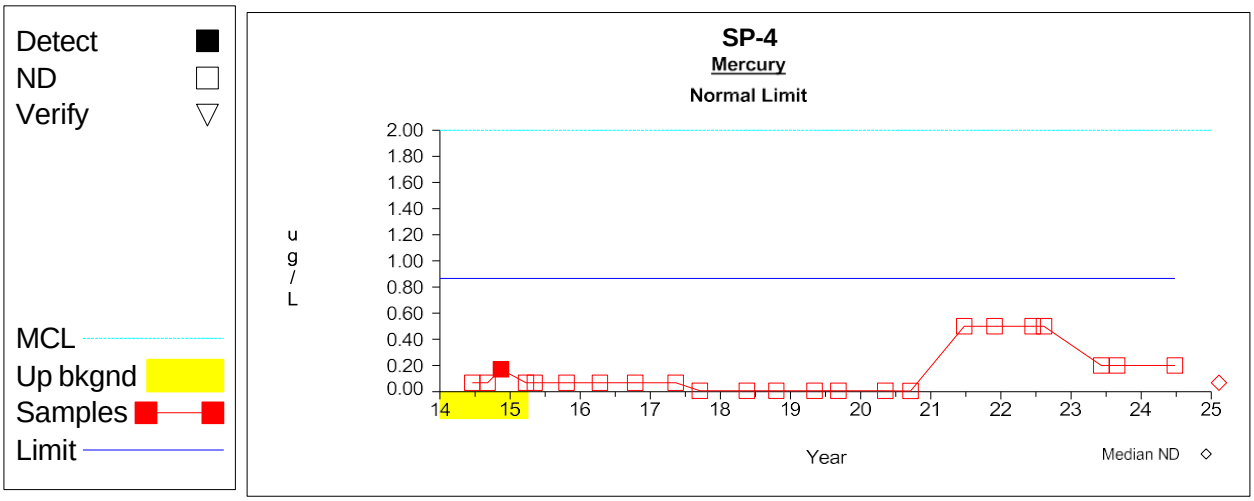


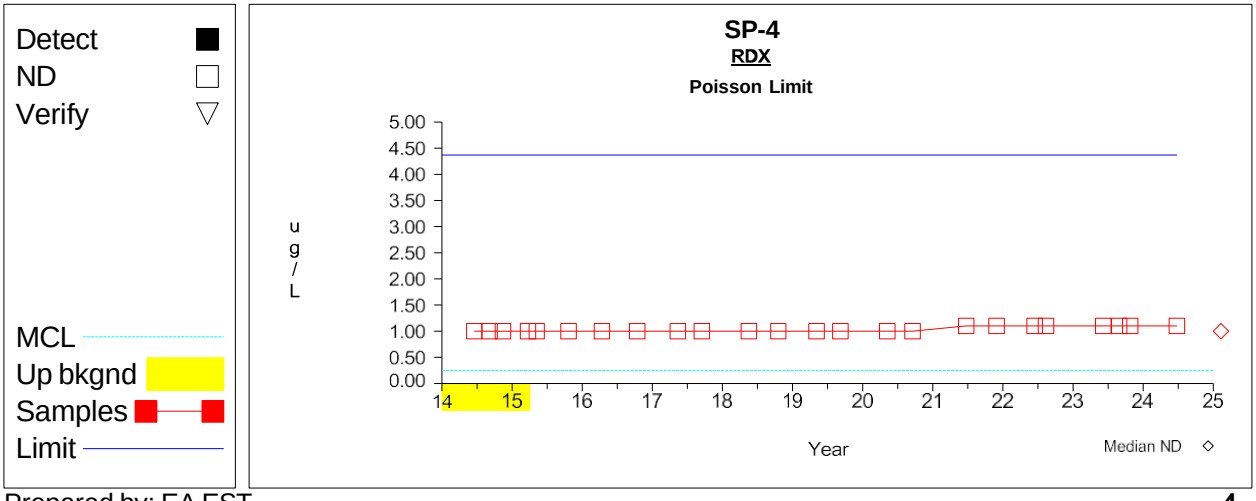




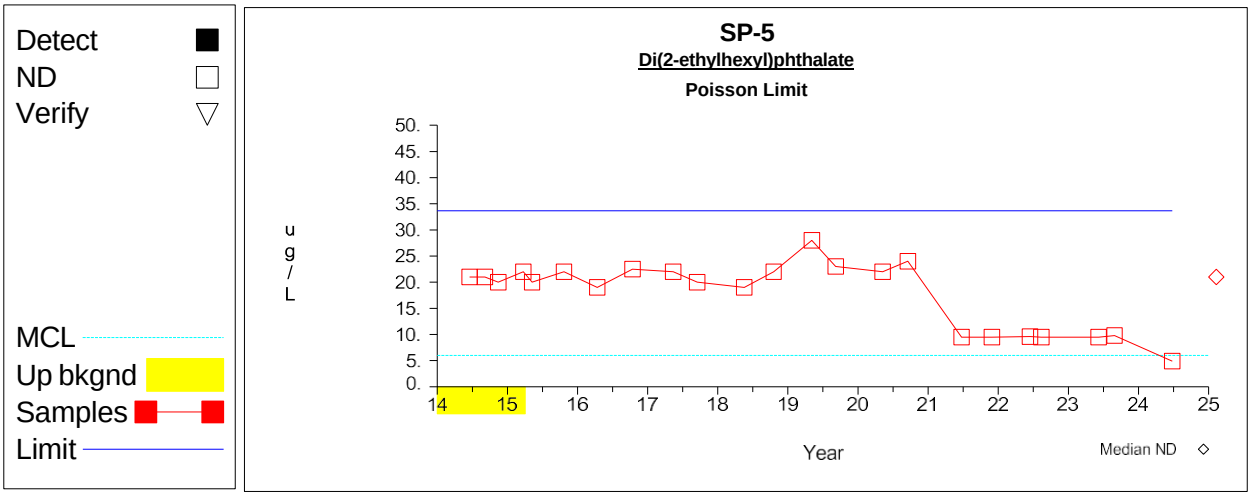
Up vs. Down Prediction Limits

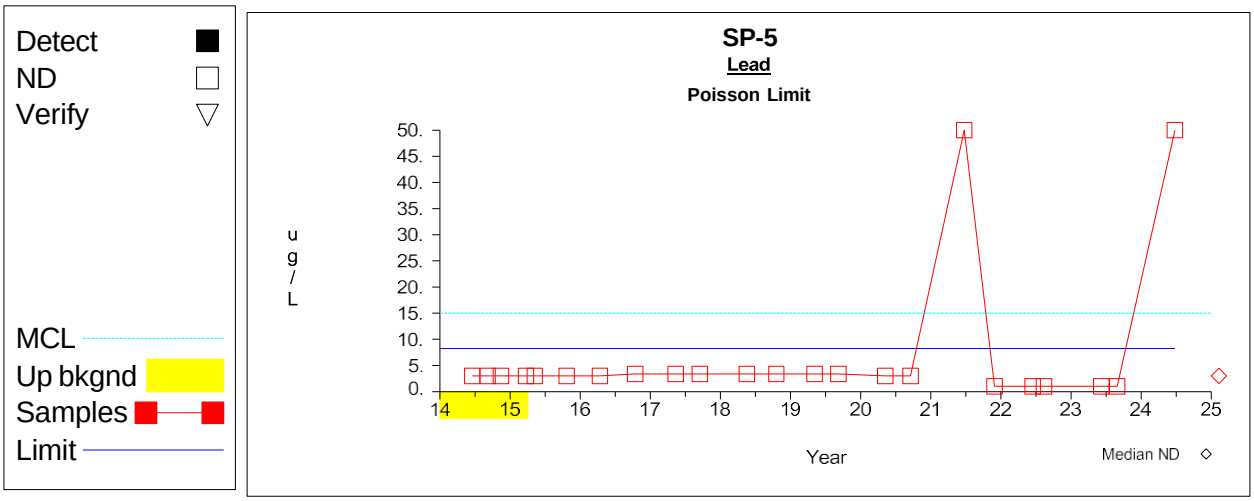


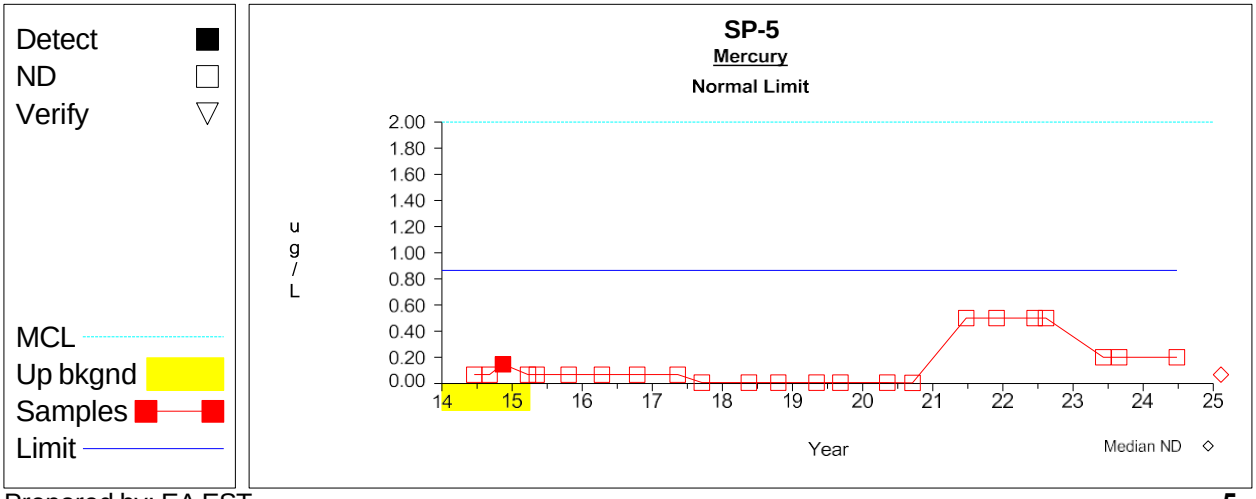




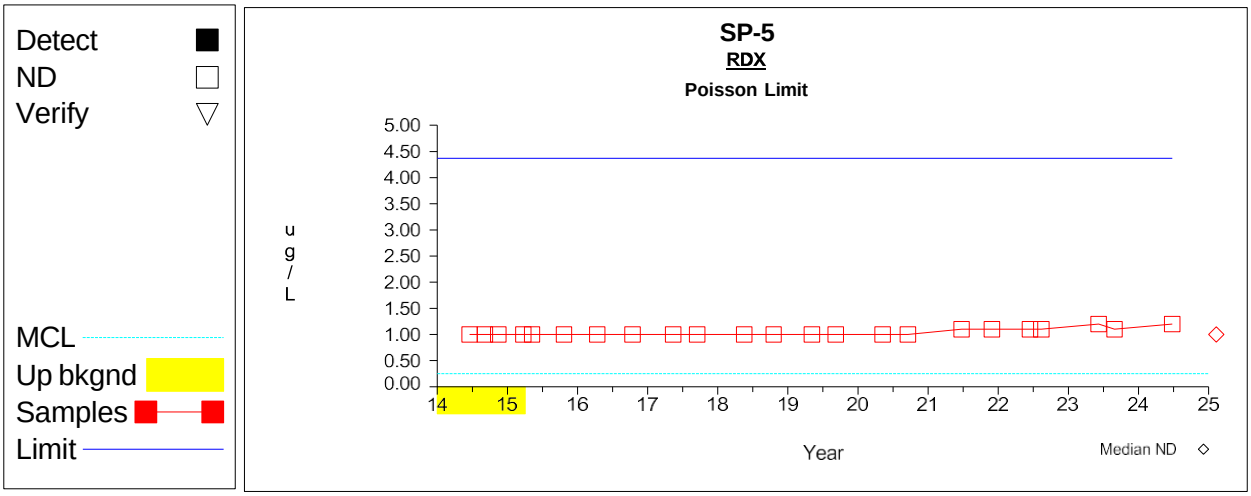
Up vs. Down Prediction Limits







Up vs. Down Prediction Limits



Worksheet 1 - Upgradient vs. Downgradient Comparisons
Di(2-ethylhexyl)phthalate (ug/L)
Poisson Prediction Limit

Step	Equation	Description
1	Transform ppm to ppb if required.	
2	Substitute reporting limit (quantification limit recommended) for nondetects.	
3	Y = **sum[X]** = **84.0**	Compute sum of concentrations and/or reporting limits.
4	alpha = min[(1-.95$^{1/K}$)^{½}, .01] = min[(1-.95$^{1/\mathbf{16}}$)^{½}, .01] = **0.01**	Adjusted per comparison false positive rate. Pass initial or 1 resample.
5	PL = **Y**/**N** + **Z**^{2}/2**N** + (**Z**/**N**)(**Y**(1+**N**) + **Z**^{2}/4)^{½} = **84.0**/**4** + **2.329**^{2}/(2*4) + (**2.329**/**4**)(**84.0**(1+**4**) + **2.329**^{2}/4)^{½} = **33.632**	Compute Poisson prediction limit and express result in original metric (*e.g.* ppb or ppm). Z is the alpha percentage point of the normal distribution.

Worksheet 1 - Upgradient vs. Downgradient Comparisons
Lead (ug/L)
Poisson Prediction Limit

Step	Equation	Description
1	Transform ppm to ppb if required.	
2	Substitute reporting limit (quantification limit recommended) for nondetects.	
3	Y = **sum[X]** = **12.0**	Compute sum of concentrations and/or reporting limits.
4	alpha = min[(1-.95$^{1/\mathbf{K}}$)^{½}, .01] = min[(1-.95$^{1/\mathbf{16}}$)^{½}, .01] = **0.01**	Adjusted per comparison false positive rate. Pass initial or 1 resample.
5	PL = **Y**/**N** + **Z**^{2}/2**N** + (**Z**/**N**)(**Y**(1+**N**) + **Z**^{2}/4)^{½} = **12.0**/**4** + **2.329**^{2}/(2*4) + (**2.329**/**4**)(**12.0**(1+**4**) + **2.329**^{2}/4)^{½} = **8.24**	Compute Poisson prediction limit and express result in original metric (*e.g.* ppb or ppm). Z is the alpha percentage point of the normal distribution.

Worksheet 1 - Upgradient vs. Downgradient Comparisons
Mercury (ug/L)
Normal Prediction Limit

Step	Equation	Description
1	$\bar{X}_1 = \mathbf{sum[X_1]} / \mathbf{N_1}$ $= \mathbf{0.447} / \mathbf{2}$ $= \mathbf{0.224}$	Compute mean of N_1 detected measurements.
2	$S_1 = ((\mathbf{sum[X_1^2]} - \mathbf{sum[X^1]}^2/\mathbf{N^1}) / (\mathbf{N^1}-1))^{½}$ $= ((\mathbf{0.111}-\mathbf{0.2}/\mathbf{2}) / (\mathbf{2}-1))^{½}$ $= \mathbf{0.104}$	Compute sd of N_1 detected measurements.
3	$\bar{X} = (1 - \mathbf{N_0}/\mathbf{N}) \bar{X}_1$ $= (1 - \mathbf{2}/\mathbf{4}) \mathbf{0.224}$ $= \mathbf{0.112}$	Use Aitchison's method to adjust mean for presence of nondetects.
4	$S = [(1 - \mathbf{N_0}/\mathbf{N}) * \mathbf{S_1}^2 + (\mathbf{N_0}/\mathbf{N}) (1 - (\mathbf{N_0}-1)/(\mathbf{N}-1)) \mathbf{X_1}^2]^{½}$ $= [(1 - \mathbf{2}/\mathbf{4}) * \mathbf{0.104}^2 + (\mathbf{2}/\mathbf{4}) (1 - (\mathbf{2}-1)/(\mathbf{4}-1)) \mathbf{0.224}^2]^{½}$ $= \mathbf{0.149}$	Use Aitchison's method to adjust sd for presence of nondetects.
5	$\text{alpha} = \min[(1-.95^{1/\mathbf{K}})^{½}, .01]$ $= \min[(1-.95^{1/\mathbf{16}})^{½}, .01]$ $= \mathbf{0.01}$	Adjusted per comparison false positive rate. Pass initial or 1 resample.
6	$PL = \bar{\mathbf{X}} + \mathbf{tS}(1+1/\mathbf{N})^{½}$ $= \mathbf{0.112} + (\mathbf{4.54}*\mathbf{0.149})(1+1/\mathbf{4})^{½}$ $= \mathbf{0.866}$	One-sided normal prediction limit (t is Student's t on N-1 degrees of freedom and 1-alpha confidence level).

Worksheet 1 - Upgradient vs. Downgradient Comparisons
RDX (ug/L)
Poisson Prediction Limit

Step	Equation	Description
1	Transform ppm to ppb if required.	
2	Substitute reporting limit (quantification limit recommended) for nondetects.	
3	Y = **sum[X]** = **4.0**	Compute sum of concentrations and/or reporting limits.
4	alpha = min[(1-.95$^{1/\mathbf{K}}$)^{½}, .01] = min[(1-.95$^{1/\mathbf{16}}$)^{½}, .01] = **0.01**	Adjusted per comparison false positive rate. Pass initial or 1 resample.
5	PL = **Y**/**N** + **Z**^{2}/2**N** + (**Z**/**N**)(**Y**(1+**N**) + **Z**^{2}/4)^{½} = **4.0**/**4** + **2.329**^{2}/(2***4**) + (**2.329**/**4**)(**4.0**(1+**4**) + **2.329**^{2}/4)^{½} = **4.369**	Compute Poisson prediction limit and express result in original metric (*e.g.* ppb or ppm). Z is the alpha percentage point of the normal distribution.