


PFOA/PFOS ON SAIPAN

EPA HEALTH ADVISORY ON PFOS/PFOA AND HOW THAT AFFECTS SAIPAN

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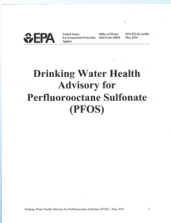
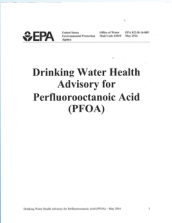
PFOS/PFOA HEALTH ADVISORY

- RELEASED ON THURSDAY MAY 19, 2016
- PRESS RELEASE FROM JOEL BEAUVAIS
- OFFICIAL ANNOUNCEMENT
 - LIFETIME HEALTH ADVISORIES
 - HEALTH EFFECTS SUPPORT DOCUMENTS
 - PFOS – PERFLUOROOCTANE SULFONATE
 - PFOA – PERFLUOROOCTANOIC ACID



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PFOA / PFOS



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PRE-MAY 19, 2016

- WEDNESDAY MAY 18, 2016 – EPA CALLS BECQ
 - TELLS BECQ ABOUT PFOS/PFOA HEALTH ADVISORIES TO BE ANNOUNCED MAY 19
 - PFOS/PFOA WERE DETECTED ON SAIPAN IN 2015 DURING UCMR3
 - WE NEED TO INFORM THE GOVERNOR
 - CUC NEEDS TO HAVE A PLAN FOR INFORMING THE PUBLIC AND TAKING ACTION

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WHAT IS UCMR3?

- UNREGULATED CONTAMINANT MONITORING RULE (ROUND 3)
- FOUND AT 40 CFR 141.40 MONITORING REQUIREMENTS FOR UNREGULATED CONTAMINANTS
- APPLIES TO:
 - TRANSIENT NON-COMMUNITY SYSTEM IF NOTIFIED BY EPA OR STATE – LIST 3 (EPA PAYS)
 - COMMUNITY WATER SYSTEMS/NTNC – LARGE OVER 10,000 PEOPLE
 - ASSESSMENT MONITORING – LIST 1 – LARGE OVER 10,000 PEOPLE (REQUIRED)
 - SCREENING SURVEY – LIST 2 OVER 100,000 (REQUIRED)
 - PRE-SCREEN TESTING – LIST 3 IF NOTIFIED BY EPA
 - SMALL SYSTEMS – IF SELECTED, ONLY 1 LIST AND EPA PAYS

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UCMR CONTAMINANT LIST

- LIST 1: ASSESSMENT MONITORING CHEMICALS
 - VOCS – 7 COMPOUNDS
 - SOCS – 1 COMPOUND (1,4-DIOXANE)
 - METALS – VANADIUM, MOLYBDENUM, COBALT, STRONTIUM
 - CHROMIUM 6
 - OXYHALIDE ANION – CHLORATE
 - PERFLUORINATED COMPOUNDS – PFOS, PFOA, PFNA, PFHXS, PFHPA, PFBS

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UCMR CONTAMINANT LIST

- LIST 2: SCREENING SURVEY
 - HORMONES – 7 COMPOUNDS
- LIST 3: PRE-SCREEN TESTING
 - MICROBIOLOGICAL CONTAMINANTS – ENTEROVIRUSES, NOROVIRUSES
 - TOTAL CHROMIUM

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CUC – LIST 1

- FREQUENCY:
 - FOR GROUNDWATER – TWICE IN A CONSECUTIVE 12 MONTH PERIOD –
 - MUST OCCUR 5-7 MONTHS APART
- LOCATION
 - ENTRY POINTS TO THE DISTRIBUTION SYSTEM
- REPORTING
 - ELECTRONIC – PWS REPORTS DIRECTLY TO EPA, NO BECQ INVOLVEMENT

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CUC

- SAMPLED IN FEBRUARY 2015
 - 5 MONTHS LATER IS JULY
- AUGUST 2, 2015 – **TYPHOON SOUDELOR!**
- NEXT ROUND IN FINALIZED IN OCTOBER 2015
 - SOME SAMPLES NOT GOOD
 - RESAMPLED IN FEBRUARY 2016
- FINAL RESULTS IN APRIL 2016

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SO WHAT WERE THE RESULTS?

Sample ID	Analyte	Sample Date	Final	Units
01249-01249EP-JF-208	Perfluoro octanesulfonic acid - PFOS	2/22/2015	7	ug/L
01249-01249EP-JF-208	Perfluoro octanesulfonic acid - PFOS	10/29/2015	4.9	ug/L
90014-01088EP-Juley Reservoir	Perfluoro octanesulfonic acid - PFOS	2/22/2015	0.17	ug/L
90014-01088EP-Juley Reservoir	Perfluoro octanesulfonic acid - PFOS	2/7/2016	0.097	ug/L
90015-01104EP-Juley Reservoir 1	Perfluoro octanesulfonic acid - PFOS	10/29/2015	0.21	ug/L
90032-01207EP-JF-28 EP	Perfluoro octanesulfonic acid - PFOS	2/22/2015	0.042	ug/L
90039-01243EP-KV 21 to 25 EP	Perfluoro octanesulfonic acid - PFOS	11/3/2015	0.042	ug/L
01249-01249EP-JF-208	Perfluoro octanoic acid - PFOA	2/22/2015	0.22	ug/L
01249-01249EP-JF-208	Perfluoro octanoic acid - PFOA	10/29/2015	0.2	ug/L

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WHAT DID THESE RESULTS MEAN?

- LIFETIME HEALTH ADVISORY
- COMBINED PFOA + PFOS

70 PARTS PER TRILLION

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HEALTH ADVISORY PFOS+PFOA

70 PARTS PER TRILLION

70 ng/l (pptr)

0.070 ug/l (ppb)

0.000070 mg/l (ppm)

0.000000070 g/l (ppth)

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- 1 SQUARE INCH IN 250 SQUARE MILES
- 1 SECOND IN NEARLY 32,000 YEARS
- 1 OUNCE IN 7.5 BILLION GALLONS OF WATER

PFOA = 0.020 ug/l (ppb)

- DISCONNECT WELL IF-208
- TELL THE PUBLIC WHAT IS HAPPENING
- DEVELOP A SAMPLING PLAN TO DETERMINE WHICH WELLS ARE CONTAMINATED

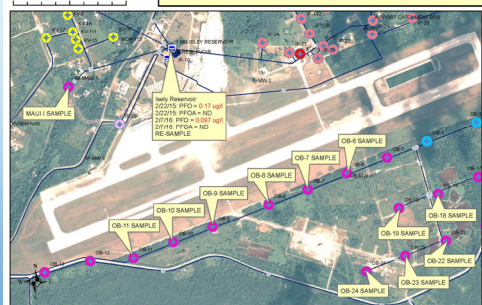
- FINALIZED ON MONDAY MAY 23, 2016
- SENT TO VARIETY AND TRIBUNE



Legend

EntryPoint

- Isley Booster 1
- Isley Booster 2
- IF-208
- IF-28
- Isley Reservoir
- KV-20
- KV-21 to 25
- KV-Sump



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- NEED TO COLLECT AT 32 LOCATIONS
 - 5 WELLS IN KOBLERVILLE
 - 12 WELLS CONTRIBUTING TO ISLEY RESERVOIR + ISLEY RESERVOIR
 - 13 WELLS CONTRIBUTING TO ISLEY BOOSTER 1 + ISLEY BOOSTER 1
- THAT IS A LOT OF BOTTLES !
- SAMPLED ON JUNE 15-16, 2016
- RESULTS FINALLY ARRIVE AROUND JULY 26, 2016

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- NO ACTION NEEDED
- ENTRY POINT BELOW LIFETIME HEALTH ADVISORY
- DETECTION AT ONLY ONE WELL AND IT IS BELOW LIFETIME HEALTH ADVISORY

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- RESULT ON 6/15/16 AT 310 pptr (HIGHER THAN BEFORE)
- EVEN AFTER IF-208 OFF
- IF-208 DROPPING
- IF-23, IF-24, IF-25 PRETTY HIGH
- IF-101 BARELY OVER & IF-11 ABOUT 2 X LHA
- MASS BALANCE ([OPEN SPREADSHEET](#))
- PLAN: REMOVE IF-23, IF-24, IF-25 FROM SERVICE, RE-SAMPLE IB-1

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- RESULT ON 6/16/16 SLIGHTLY HIGHER
- NOT AS MANY HIGH WELLS
- ONLY OB-6 AND OB-19
- MASS BALANCE AGAIN ([OPEN SPREADSHEET](#))
- MUST BE ANOTHER WELL(S) CONTRIBUTING CONTAMINATION
- PLAN: INACTIVATE OB-6, OB-19 AND OB-5, RESAMPLE IR

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HEALTH EFFECTS

• THE HEALTH ADVISORY IS BASED ON:

• STUDIES ON LAB ANIMALS

• STUDIES ON PEOPLE THAT WERE EXPOSED (EPIDEMIOLOGICAL STUDY)

• EXPOSURE TO PFOA & PFOS OVER CERTAIN LEVELS MAY RESULTS IN:

• DEVELOPMENTAL EFFECTS TO FETUSES DURING PREGNANCY OR TO BREASTFED INFANTS (LOW BIRTHWEIGHT, ACCELERATED PUBERTY, SKELETAL VARIATIONS)

• CANCER (TESTICULAR, KIDNEY)

• LIVER EFFECTS

• IMMUNE EFFECTS (ANTIBODY PRODUCTION)

• THYROID EFFECTS

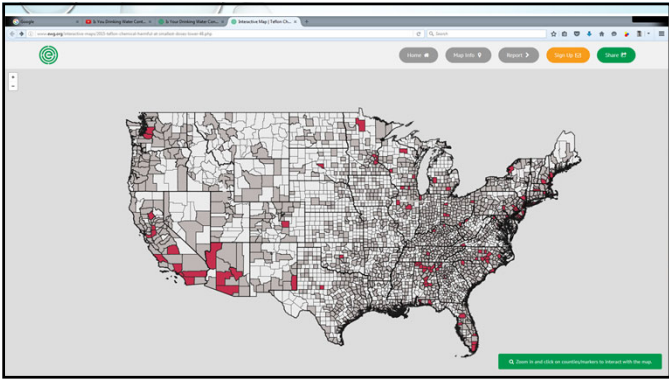
• AND OTHER EFFECTS (CHOLESTEROL CHANGES)

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WHERE ELSE?

COMPOUND	# results	detects	> 70 ppb	#PWS	detects	> 70 ppb
PFOS	36,149	285	119	4,864	94	46
PFOA	36,148	354	31	4,864	108	13

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ALABAMA

• THREE PWS HAD DETECTS ABOVE 70 PPT

• AL1092: WEST MORGAN-EAST LAWRENCE WATER AUTHORITY

- SOURCE – TENNESSEE RIVER

• MAY 20, 2016: [NEW EPA HEALTH ADVISORY ABOUT CHEMICALS IN DRINKING WATER IMPACTS SEVERAL NORTH ALABAMA WATER SYSTEMS](#) (VIDEO)

• LINK:

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HOW TO REMOVE PFOS/PFOA FROM WATER

WATER RESEARCH FOUNDATION (WRF) EVALUATED 15 WATER TREATMENT PLANTS

INEFFECTIVE (PFAS)

- AERATION
- CHLORINE DIOXIDE
- DISSOLVED AIR FLOTATION
- COAGULATION/FLOCCULATION
- SEDIMENTATION
- GRANULAR FILTRATION
- MICROFILTRATION
- ANION EXCHANGE (SOME PFAS)

MODERATELY EFFECTIVE

- ANION EXCHANGE (PFOA)

HIGHLY EFFECTIVE

- ANION EXCHANGE (PFOS)
- NANO FILTRATION
- REVERSE OSMOSIS
- GRANULAR ACTIVATED CARBON

Source: www.wateronline.com/doc/how-to-remove-pfoa-and-pfos-0001

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WHAT NOW ON SAIPAN?

• PFOA AND PFOS WILL NOT LIKELY BE “REGULATED” BY EPA IN THE FUTURE

• BECQ WILL REQUIRE CUC TO MONITOR FOR PFOA AND PFOS (QUARTERLY FOR NOW)

• CUC WILL HAVE TO EVALUATE THEIR SYSTEM

- HOW TO MAKE UP LOSS OF 7 WELLS (OUT OF ~ 138 WELLS)
- DO THEY TREAT WATER?
- GAC PROBABLY LESS EXPENSIVE THAN R/O

• AVERAGE CONSUMER – TRY TO MINIMIZE EXPOSURE

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