3701-39-02.1 **Standards for handling radioactive material.**

(A) In accordance with section 3748.21 of the Revised Code, this rule does not apply to any person to the extent that the person is subject to regulation by the United States nuclear regulatory commission. As used in this rule, naturally occurring radioactive material (NORM) means any nuclide that is radioactive in its natural physical state, but does not include source material, byproduct material, or special nuclear material. As used in this rule, technologically enhanced means the chemical properties or physical state of natural sources of radiation have been altered or the potential exposure pathways of natural sources of radiation to humans have been altered to increase the human radiation exposure. In all cases where special nuclear material is referenced, that term shall refer to quantities not sufficient to form a critical mass.

(B) The following activities are exempt from licensure, unless the director determines that the dose received by an average member of the critical group would exceed the dose limit specified in rule 3701:1-38-22(B) of the Administrative Code:

(1) The handling, distribution, or processing of:

(a) Soil containing technologically enhanced radium-226 or radium-228 with a radon emanation rate less than 0.74 becquerels (twenty picocuries) per square meter per second, provided that the concentration of technologically enhanced radium-226 or radium-228 in the soil, averaged over any one hundred square meters, and averaged over the first fifteen centimeters of soil below the surface, does not exceed one becquerel (twenty-seven picocuries) per gram;

(b) Soil containing technologically enhanced radium-226 or radium-228 with a radon emanation rate equal to or greater than 0.74 becquerels (twenty picocuries) per square meter per second provided that the concentration of technologically enhanced radium-226 or radium-228 in the soil, averaged over any one hundred square meters, and averaged over the first fifteen centimeters of soil below the surface does not exceed 0.185 becquerel (five picocuries) per gram;

(c) Media, other than soil, containing technologically enhanced radium-226 or radium-228 with a radon emanation rate less than 0.74 becquereis (twenty picocuries) per square meter per second provided that the concentration of technologically enhanced radium-226 or radium-228 does not exceed one becquerel (twenty-seven picocuries) per gram;

(d) Media, other than soil, containing technologically enhanced radium-226 or radium-228 with a radon emanation rate is equal to or greater than 0.74 becquereis (twenty picocuries) per square meter per second provided that the concentration of technologically enhanced radium-226 or radium-228 does not exceed 0.185 becquerel (five picocuries) per gram;

(e) Soil containing NORM other than technologically enhanced radium-226 or radium-228 provided that the concentration of NORM averaged over any one hundred square meters, and averaged over the first fifteen

centimeters of soil below the surface is five becquerels (one hundred thirty-five picocuries) per gram or less;

(f) Media, other than soil, containing NORM other than technologically enhanced radium-226 or radium-228 provided that the concentration of NORM is five becquerels (one hundred thirty-five picocuries) per gram or less; or

(g) Materials in the recycling process contaminated with scale or residue not otherwise exempted or other equipment containing NORM with a radiation exposure level that does not exceed 0.25 micrograys (twenty-five microrads) per hour above background at any accessible point.

(2) The manufacture, wholesale or retail commercial distribution, use, or disposal of the following products or materials, or the recycling of equipment used to produce, contain, or transport the following:

(a) Potassium or potassium compounds that have not been isotopically enriched in the radionuclide potassium-40;

(b) Fossil fuel or byproducts from fossil fuel combustion, including bottom ash, fly ash, and flue-gas emission control byproducts; or

(c) Material used for building construction, industrial processing, sandblasting, metal casings, or other NORM in which the radionuclide content has not been concentrated to a level higher than is found in its natural state, or zirconium-bearing sands and products produced from those sands provided that the radioactive constituent is consistent with the radioactive levels stated in the material safety data sheet accompanying the zirconium-bearing materials,

(3) The wholesale and retail commercial distribution, including custom blending, possession, and use of the following products or materials or the recycling of equipment or containers used to produce, contain, or transport these products as follows:

(a) Phosphate or potash fertilizer;

(b) Phosphogypsum for agricultural uses if such commercial distribution and uses meet the requirements of 40 C.F.R. 61.204, 40 C.F.R. 61.207, and 40 C.F.R. 61.208 as specified in appendix E to this rule; or

(c) Materials used for building construction if the materials contain NORM that has not been concentrated to higher levels than found in its natural state.

The exemptions contained in this paragraph do not apply to the manufacture of phosphate or potash fertilizer.

(4) The possession, storage, use, transportation, or commercial distribution of natural gas and natural gas products or of crude oil and crude oil products containing NORM. The exemptions contained in this paragraph do not apply

to the processing of natural gas or crude oil or the manufacture of natural gas products or crude oil products containing NORM.

(5) Possession of produced waters from crude oil or natural gas production provided that the produced waters are reinjected in a well approved by the United States environmental protection agency or discharged under the authority of the United States environmental protection agency.

(6) The possession, storage, use, transportation or commercial distribution of compressed gases and compressed gas products containing NORM. The exemptions contained in this paragraph do not apply to the processing of compressed gas or compressed gas products containing NORM.

(C) Information provided by a licensee or applicant for a license or license renewal that constitutes a "trade secret" as defined in section 1333.61 of the Revised Code is not subject to public disclosure in accordance with sections 1333.61 to 1333.69 of the Revised Code.

Effective:	12/22/2008
R.C. 119.032 review dates:	09/15/2008 and 12/01/2013

CERTIFIED ELECTRONICALLY

Certification

12/12/2008

Date

Promulgated Under:	119.03
Statutory Authority:	3748.02
Rule Amplifies:	3748.04
Prior Effective Dates:	6/6/1997, 10/19/98, 7/22/01, 10/20/02, 4/14/03, 8/15/05, 2/6/06

TENORM

DOE pulled codes from all states
CRCPD recommended regulation
ODH – Current Draft of TENORM Regulation including 3701-39 Exemptions

NY – has proposed rigger on this (new regulation does not apply to their licensing agency)
- 60 pCi/liter Radium 226 effluent licensable
- The NRC equivalent for discharge limits

PA – has guidance – planning more regulation
- Landfills have action plan must include
- <50 uR/hr is ok
- <5pCi/gram for Radium 226 or 228

- <25 mRem General Public
- <10 mRem in Air
- <4 mRem in water

LA – Have regulations — MOU with DNR and Environmental Quality
- General License (GL) — Pipe yards 50 uR/hr
- How tracked — Unrestricted use if < 5pCi/gram
- Do not allow NORM to local landfills
- Only to subtitle C landfills
- Regulations don't really address Bryne Issue

TX – DNR licenses NORM
- Rail Road Commission regulates NORM in Oil and Gas
- Permits for — Injections
- Norm regulations for — Disposal
- RRC study on Norm — 5900 wells (most were below 50 uR/hr level)

WY – Not much regulation
- MOU between Environmental Quality and State Engineers
- State Engineers owns all water

OH – 3701-39.02.1

1. Chuck covered communication with OEPA NE office
2. The classification under DOT is that is coming and "radioactive material"
    a. Limited Quantity – look at 49CFR 173.436 and perhaps 433
    b. Consider concentration trigger – who characterizes
    c. Consider volume trigger – who characterizes
3. Draft TENORM regulation could be or may be rolled into 3701:1-40
    a. Somewhat silent on water head issues – who monitors well heads
    b. Somewhat silent on oil/brine issues
4. Recommend going through OEPA and ODNR Liaison to discuss ODH regulation
5. ODH could include General License only see page 10
    a. See A: GL issued to possess, use, transfer, distribute or dispose of TENORM without regard to quantity
    b. See C : decontamination of equipment, facilities, and land shall be performed only by person specifically licensed
        i. Service provider
        ii. Waste handler
    c. Enforced by ODNR perhaps through their permitting
    d. See D: GL shall notify the department within sixty days of the effective date of this chapter
    e. Concern is how do you know when you have a problem
    f.
6. Issues with page 9 (D) and page 12 (C)
7. What is the concentration trigger
8. What is the volume trigger

Robert Leidy

From: Donna Kniss [donna.kniss@epa.state.oh.us]
Sent: Monday, March 15, 2010 2:20 PM
To: Robert Leidy
Cc: Chris Moody; Erm Gomes; Greg Orr
Subject: Re: Warren WWTP Brine

Robert:

We would like to leave NEDO around 7:30 am on Wednesday, if that would work for you. NEDO is on Rt. 82 just east of the Chrysler plant; it's in the Carol Building, and there is a light at our east entrance. The entry to the office is on the east side of the building.

I will be out tomorrow nut will try to check my e-mail in the morning and evening.

Donna

Donna J. Kniss
Ohio Environmental Protection Agency
Division of Surface Water
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087
330-963-1285
fax 330-487-0769

donna.kniss@epa.state.oh.us

>>> Robert Leidy <Robert.Leidy@odh.ohio.gov> 3/12/2010 11:32 AM >>>
Hi, Donna-

My name in Robert Leidy and I work for the Ohio Department of Health in the Bureau of Radiation Protection and work out of the Akron office. I am contacting you based on the e-mail I have pasted below. I am currently scheduled to be out of the office and on inspections Monday and Tuesday the 15th, 16th but could rearrange my schedule if this conflicts with your plans. Please let me know how you would like to coordinate this.

I will be leaving the office today at 12:45 but can be reached by cell (440.221.6198) all weekend. I will also be periodically checking my e-mail.

I look forward to hearing from you,

Robert Leidy
Ohio Department of Health
Bureau of Radiation Protection
161 S. High Street, Suite 400
Akron, OH 44308
330.643.3290

From: Donna Kniss [mailto:donna.kniss@epa.state.oh.us]
Sent: Thursday, March 11, 2010 12:43 PM
To: Chuck McCracken
Cc: Virginia Wilson
Subject: Re: Warren WWTP Brine

Yes, someone from the Akron district could come; that would be great. We were going to leave from NEDO, and were going to take a meter to do pH, dissolved oxygen, conductivity, and have the capability to collect samples if we decide it's necessary. You can have the Akron person contact me and we will work out travel arrangements.

I forwarded your additions to the monitoring table to Warren the day they said they were restarting. One of the things we'll check is if they are doing those and the other analyses.

Donna

Donna J. Kniss
Ohio Environmental Protection Agency
Division of Surface Water
Northeast District Office
2110 East Aurora Road
Twinsburg, Ohio 44087
330-963-1285
fax 330-487-0769

donna.kniss@epa.state.oh.us

>>> Chuck McCracken <Chuck.McCracken@odh.ohio.gov> 3/11/2010 12:32 PM >>>
03.11.2010

Donna:

Someone here will contact Stallion directly.

weekly

As far as a site visit - As you should recall, ODH asked that the required analysis be updated to include weekly analysis of the 001 effluent discharge for ALL radiological parameters. ODH would be interested in seeing these weekly effluent results.

Additionally, would you have any objections to one of our staff from our the Akron District office accompanying you to the site?

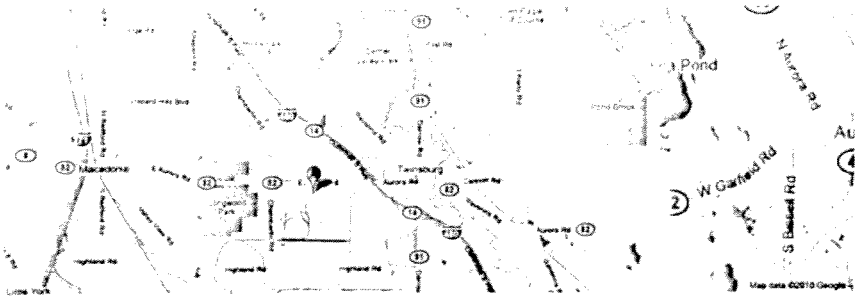
Please advise.

Thanks,
Charles D. McCracken

Supervisor, Bureau of Radiation Protection
Ohio Department of Health

Ph: 614.466.5136
Fx: 614.466.0381

 Ohio EPA Logo



EAST SIDE OF CAROL DR

E-MAIL

Robert Leidy

From: Chuck McCracken
Sent: Monday, March 15, 2010 3:23 PM
To: Robert Leidy
Cc: Stephen Helmer; Kenneth Barnhart; Michael Snee; David Lipp; Jim Colleli
Subject: Warren WWTP Study
Attachments: OAC 3701-39-02.1.pdf; Request for Reg Concurence.pdf; Warren WWTP Test Study.pdf

03/15/2010
Rob:

Thanks for making time to do this visit with OEPA-NEDO.

One of the things I would like you to check on is if the Warren WWTP is using the updated test parameters (see attached Warren WWTP Test Study.pdf).

Assuming they are, there should be "Parameter 001" liquid discharge beginning (B) rad data to review and weekly (W) liquid data to review as well.
In addition, there should be beginning (B) Sludge rad analysis to review. If possible, get copies of all rad analysis for our review back here as well.

If they are NOT using the updated parameters, then OEPA needs to find out why they are not.

Another issue that Donna may ask about (since there are multiple locations in the process) is where we want the sludge sampled. I already advised her that wherever OEPA is requiring sludge to be sampled for Chlorides, Fluorides and Metals (see WWTP test study) is where we would want rad analysis done as well. Based on what you see when you're there, you may have a different opinion – let us know. That being said, it important to note there is a difference between the WWPT Test Study and the OAC 3701-39-02.1 requirement for any and all sludge leaving the facility. The test study is to determine the effect of introducing radioactivity in the brine on the subsequent sludge, thus wherever OEPA is requiring sampling works for us. The OAC requirement is for determining whether any of the sludge leaving the facility is licensable. Clear as mud?

If you have any questions about this email, you can call me. Or, If you'd like to have a teleconference where you, Steve Helmer and the other members of our team can talk, let Steve know.

Thanks,

Charles D. McCracken
Supervisor, Bureau of Radiation Protection
Ohio Department of Health
Ph: 614.466.5136
Fx: 614.466.0381

From: Chuck McCracken
Sent: Thursday, February 25, 2010 3:03 PM

3/16/2010

To: 'donna.kniss@epa.state.oh.us'
Cc: Stephen Helmer; Michael Snee; Jim Colleli; David Lipp; Kenneth Barnhart
Subject: Warren WWTP Study

02.25.2010

Donna:

After discussing the issue with other members of our team, we came to the conclusion that although it would be a more concise study of the radiological effect of introducing Oil & Gas Well Production Wastewater into the Warren WWTP, it was not necessary to make them clean out the sludge tank before restarting the test study. The premise of using "real life scenario" test conditions to do the study under is indeed justified.

That said, we a requesting that the radiological parameters be modified (see attached Warren WWTP Test Study.pdf) to help us better determine the radiological consequence (if any) of the addition of this waste stream.

Also attached is a copy of the criteria that must be met in order for the sludge to be considered "exempt from licensure" by ODH (see attached OAC 3701-39-02.1.pdf). Warren WWTP will need to have the post test sludge analyzed to demonstrate compliance with rule OAC 3701-39-02.1 (B)(1)(c) or OAC 3701-39-02.1 (B)(1)(d).

Finally, to help with your requests for approval of use of a waste stream (i.e., incinerator ash), I have attached a document that we provide to waste brokers and/or Ohio landfill permit holders that outlines the process that they must use to request our official regulatory position on the exempt disposal of a waste stream. If your requestor was directed to get ODH's regulatory position, this would be the process they would follow.

Any questions on any of the above, please call.

Charles D. McCrachen

Supervisor, Bureau of Radiation Protection
Ohio Department of Health
Ph: 614.466.5136
Fx: 614.466.0381

3701-39-02.1 Standards for handling radioactive material.

(A) In accordance with section 3748.21 of the Revised Code, this rule does not apply to any person to the extent that the person is subject to regulation by the United States nuclear regulatory commission. As used in this rule, naturally occurring radioactive material (NORM) means any nuclide that is radioactive in its natural physical state, but does not include source material, byproduct material, or special nuclear material. As used in this rule, technologically enhanced means the chemical properties or physical state of natural sources of radiation have been altered or the potential exposure pathways of natural sources of radiation to humans have been altered to increase the human radiation exposure. In all cases where special nuclear material is referenced, that term shall refer to quantities not sufficient to form a critical mass.

(B) The following activities are exempt from licensure, unless the director determines that the dose received by an average member of the critical group would exceed the dose limit specified in paragraph (B) of rule 3701:1-38-22(B) of the Administrative Code:

(1) The handling, distribution, or processing of:

(a) Soil containing technologically enhanced radium-226 or radium-228 with a radon emanation rate less than 0.74 becquerels (twenty picocuries) per square meter per second, provided that the concentration of technologically enhanced radium-226 or radium-228 in the soil, averaged over any one hundred square meters, and averaged over the first fifteen centimeters of soil below the surface, does not exceed one becquerel (twenty-seven picocuries) per gram;

(b) Soil containing technologically enhanced radium-226 or radium-228 with a radon emanation rate equal to or greater than 0.74 becquerels (twenty picocuries) per square meter per second provided that the concentration of technologically enhanced radium-226 or radium-228 in the soil, averaged over any one hundred square meters, and averaged over the first fifteen centimeters of soil below the surface does not exceed 0.185 becquerel (five picocuries) per gram;

(c) Media, other than soil, containing technologically enhanced radium-226 or radium-228 with a radon emanation rate less than 0.74 becquerels (twenty picocuries) per square meter per second provided that the concentration of technologically enhanced radium-226 or radium-228 does not exceed one becquerel (twenty-seven picocuries) per gram;

(d) Media, other than soil, containing technologically enhanced radium-226 or radium-228 with a radon emanation rate is equal to or greater than 0.74 becquerels (twenty picocuries) per square meter per second provided that the concentration of technologically enhanced radium-226 or radium-228 does not exceed 0.185 becquerel (five picocuries) per gram;

(e) Soil containing NORM other than technologically enhanced radium-226 or radium-228 provided that the concentration of NORM averaged over any one hundred square meters, and averaged over the first fifteen centimeters of soil below the surface is five becquerels (one hundred thirty-five picocuries) per gram or less;

(f) Media, other than soil, containing NORM other than technologically enhanced radium-226 or radium-228 provided that the concentration of NORM is five becquerels (one hundred thirty-five picocuries) per gram or less; or

(g) Materials in the recycling process contaminated with scale or residue not otherwise exempted or other equipment containing NORM with a radiation exposure level that does not exceed 0.25 micrograys (twenty-five microrads) per hour above background at any accessible point.

(2) The manufacture, wholesale or retail commercial distribution, use, or disposal of the following products or materials, or the recycling of equipment used to produce, contain, or transport the following:

(a) Potassium or potassium compounds that have not been isotopically enriched in the radionuclide potassium-40;

(b) Fossil fuel or byproducts from fossil fuel combustion, including bottom ash, fly ash, and flue-gas emission control byproducts; or

(c) Material used for building construction, industrial processing, sandblasting, metal casings, or other NORM in which the radionuclide content has not been concentrated to a level higher than is found in its natural state, or zirconium-bearing sands and products produced from those sands provided that the radioactive constituent is consistent with the radioactive levels stated in the material safety data sheet accompanying the zirconium-bearing materials,

(3) The wholesale and retail commercial distribution, including custom blending, possession, and use of the following products or materials or the recycling of equipment or containers used to produce, contain, or transport these products as follows:

(a) Phosphate or potash fertilizer;

(b) Phosphogypsum for agricultural uses if such commercial distribution and uses meet the requirements of 40 C.F.R. 61.204, 40 C.F.R. 61.207, and 40 C.F.R. 61.208 as specified in appendix E to this rule; or

(c) Materials used for building construction if the materials contain NORM that has not been concentrated to higher levels than found in its natural state.

The exemptions contained in this paragraph do not apply to the manufacture of phosphate or potash fertilizer.

(4) The possession, storage, use, transportation, or commercial distribution of natural gas and natural gas products or of crude oil and crude oil products containing NORM. The exemptions contained in this paragraph do not apply to the processing of natural gas or crude oil or the manufacture of natural gas products or crude oil products containing NORM.

(5) Possession of produced waters from crude oil or natural gas production provided that the produced waters are reinjected in a well approved by the United States environmental protection agency or

discharged under the authority of the United States environmental protection agency.

(6) The possession, storage, use, transportation or commercial distribution of compressed gases and compressed gas products containing NORM. The exemptions contained in this paragraph do not apply to the processing of compressed gas or compressed gas products containing NORM.

(C) Information provided by a licensee or applicant for a license or license renewal that constitutes a "trade secret" as defined in section 1333.61 of the Revised Code is not subject to public disclosure in accordance with sections 1333.61 to 1333.69 of the Revised Code.

APPENDIX E

See Appendix at http://www.registerofohio.state.oh.us/pdfs/3701/0/39/3701-39-02$1_PH_FF_A_APP2_20081212_1117.pdf

Effective: 12/22/2008

R.C. 119.032 review dates: 09/15/2008 and 12/01/2013

Promulgated Under: 119.03

Statutory Authority: 3748.02

Rule Amplifies: 3748.04

Prior Effective Dates: 6/6/1997, 10/19/98, 7/22/01, 10/20/02, 4/14/03, 8/15/05, 2/6/06

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THE PLAIN DEALER

Require testing of oil- and gas-well sites for radioactivity

By Other Voices

February 18, 2010, 4:03AM

There's a potential problem when drilling for gas, other than the possibility of well-water contamination by methane, brine or "fracking" chemicals (Plain Dealer, Sunday).

In 1995, a national organization called the State Review of Oil and Natural Gas Environmental Regulations (STRONGER) reviewed state regulations on gas and oil wells. One recommendation it made was that the state should test for naturally occurring radioactive material at oil and gas exploration and production sites. In the 2000 and 2005 reviews, the same recommendation was made. Now, 15 years later, legislation requiring the testing has not even been proposed.

Is there a reason to be concerned? Yes. An Environmental Protection Agency map of the radioactive gas radon shows statewide distribution. The gas slowly percolates through soil as a decay product of radium, so the potential for bringing both radon and radium to the surface during drilling exists. Additionally, gas-well borehole "cuttings" are normally buried on-site at completion of the drilling. Do those "cuttings" contain radioactive material, which would continue to expose local residents to radiation after completion of the drilling? When is legislation addressing this potential problem going to be proposed and adopted?

George Skipper, Bentleyville

From Robert Leidy

Date Thursday, March 18, 2010 8:36:00 AM

To Sang Chung

Cc

Subject Warren samples

Warren WWTP.pdf (278 KB HTML)

Hi Sang,

I was out at the Warren Waste Water Treatment Plant yesterday. While there I was attempting to verify that are performing a weekly radioisotopic analysis of the effluent discharge and a beginning sludge sample. Andy Blocksom from Patriot Water Treatment indicated they were but they only had the attached results available. As you can see they are using your lab. I'm hoping you can confirm whether weekly effluent samples are being submitted and has any sludge been submitted? Lastly, if they have are any other results available besides what is attached.

Thanks

Rob

Ohio Department of Health, Division of Prevention
ODH Laboratory Report

Ohio Department of Health Laboratory
Radiochemistry Section, Building 22
8995 E Main ST
Reynoldsburg, OH 43068

Ted Strickland, Governor
[illegible] M.D. Director of Health

Patriot Water Treatment (CustomerID# water & wa)
7716 Depot Road
Lisbon OH 44432
(330) 853 9321

Received Date: [illegible]/2010
Report Date: [illegible]/2010
ODH Lab Order#: R5982

Sample# R5982-01 Collector: Site
Collect Date: 2/1?/2010

Client #: [illegible]
Matrix: Other Radiological

Parameter	Result	Units	Analysis Date	Analyzed By
Gamma Scan	**All other nuclides <LLD**	pCi/L	[illegible]/2010	M Hong
K-40	**2.6E+02 +/- 2.6E+01**	pCi/L	[illegible]/2010	M Hong

Chemistry Fax: (614) [illegible] Voice: (614) 466-5400
URL: http://www.odh.ohio.gov/odhed

Attn: Andy Blocksom
Patriot Water Treatment
7716 Depot Road
Lisbon OH 44432

CITY OF WARREN, OHIO
WATER POLLUTION CONTROL DEPARTMENT
2323 MAIN AVE. S.W WARREN, OHIO 44481
PHONE 330-841-2591

CHAIN OF CUSTODY FORM

R5982-01

Sample # ______________ Address ______________

Source: ______________ Date Sample Taken ______________ Time Sample Taken ______________

Composite Sample Time Period ______________ Grab: [illegible] TOT or Free CN, Phenolics, PH, [illegible]

Date Grab Taken ______________ Investigator Sampler ______________

Date/ Time | Date/ Time

Relinquished By ______________ Accepted By ______________

Relinquished By: John [illegible] 2/21 0740 Accepted By ______________

Relinquished By ______________ Accepted By ______________

Received in Laboratory By: ______________ Analyst: ______________

PLEASE CHECK PARAMETERS FOR ANALYSIS
RESULTS IN ug/l UNLESS OTHERWISE SPECIFIED *

[illegible]	SELECTED	PARAMETER	RESULT	EPA TEST METHOD	[illegible]	SELECTED	PARAMETER	RESULT	EPA TEST METHOD
3		* NH3-N		350.2	1		SILVER		200.7
3		* TKN		351.3	1		ARSENIC		200.7, 5010B
3		* COD		410.4	1		LEAD		200.7, 5010B
1		CADMIUM		200.7, 5010B	1		ZINC		200.7, 5010B
1		CHROMIUM		200.7, 5010B	4		* TDS		160.2
1		COPPER		200.7, 5010B	4		PHENOLICS		420.1
2		* TOT CYANIDE		335.2	4		PH		150.1
2		* FREE CN		4500CN	4		HEX CHROMIUM		3500Cr-B
1		MERCURY		1631, 245.1, 7471A	1		MOLYBDENUM		200.7, 5010B
1		NICKEL		200.7, 5010B	1		ANTIMONY		200.7, 5010B
3		* OIL & GREASE		1664	1		SELENIUM		200.7, 5010B
3		* PHOSPHORUS		5010A, 4500PE	1		ALUMINUM		200.7, 5010B

PRESERVATIVES: NITRIC ACID - 1, SODIUM HYDROXIDE - 2, SULFURIC ACID - 3, UNPRESERVED - 4

Number of sample bottles used on this Chain Of Custody 1

COMMENTS: K-40 2.6E+02 +/- 2.6E+01 pCi/kg [illegible] CCCD 3/4/10 ST

LABORATORY RESULTS CERTIFIED BY: ______________ DATE ______________

DIRECT INQUIRIES AND THIS FORM TO: SAM LUDWICK, CHEMIST, CITY OF WARREN, WATER POLLUTION CONTROL FACILITY 330-841-2591 EXT 112 OR BY E-MAIL sludwick@warren.org

From Robert Leidy **Date** Thursday, March 18, 2010 3:17:00 PM
To Sang Chung
Cc
Subject Last WWTP question

Hi Sang,

Is thorium included in the group of isotopes you are looking for in the Warren WWTP samples?

Thanks, and continue to have a Happy Birthday!

Rob

From Sang Chung **Date** Thursday, March 18, 2010 3:23:44 PM
To Robert Leidy
Cc
Subject RE: Last WWTP question

Hi Rob,

No, Sir!
Thorium is not our target isotope and we don't do Thorium in the lab.
We do Gross-Alpha, Gross-Beta, Ra-226, Ra-228 and U-Nat. and Gamma-spec for sludge sample.

Thank you, Sir!

Sang

-----Original Message-----
From: Robert Leidy
Sent: Thursday, March 18, 2010 3:17 PM
To: Sang Chung
Subject: Last WWTP question

Hi Sang,

Is thorium included in the group of isotopes you are looking for in the Warren WWTP samples?

Thanks, and continue to have a Happy Birthday!

Rob

Steve and Chuck,

On March 17th, I met four members from the Ohio Environmental Protection Agency (OEPA) at their North East District Office (NEDO) located in Twinsburg, OH. The members included, Donna Kniss, Chris Moody, Erm Gomes and Greg Orr. We traveled together to the Warren Waste Water Treatment Plant (WWTP) where we met with the Superintendent, Jim Wilden and Keith Folman the Pre-Treatment Coordinator. Donna provided a schematic of the plant layout and the facility provided a tour which included observing the compositor where the effluent sample is taken prior to leaving the plant and where the plant empties into the Mahoning River. OEPA performed conductivity tests at the falls into the river and at the water path entrance to the screening building.

The Main Avenue Pump Station is the area where the liquid of concern is introduced into the process. There are approximately a dozen large storage containers that are connected together and when active pump their reserve into the screening building. They are currently ramping up to 100,000 gallons a day, 5 days a week. The storage containers are replenished by shippers. When a truck arrives it is evaluated by Mr. Andy Blocksom of Patriot Water Treatment. He performs several tests on the in-coming loads including an air test, flash test and a radiological survey. He documents the tests upon completion.

The radiological survey is performed with a hand held Technical Associates Surface Contamination Monitor, model TBM-3S (cal due date 2.15.11). It has a range multiplier of three decades (1X, 10X and 100X) allowing for measurements from 1-50,000cpm (0-15mR/hr). I asked how he used the unit and Mr. Blocksom indicated he sets it to 100X and surveys the entire truck. I asked why 100X and he stated he did not know why it's just how their Rad Consultant, Tom Weber demonstrated to use it. At the time of the visit he did not have any procedures for the use of the meter. A second radiation meter was available an Atomic Producers Corp, model 069-705, but I was informed it is not utilized. It did not have a cal due date sticker or calibration paperwork. Mr. Blocksom did not anticipate any radiological concerns as the loads they have received are from the SW and it was his understanding the radiological issues were from loads originating in the NE.

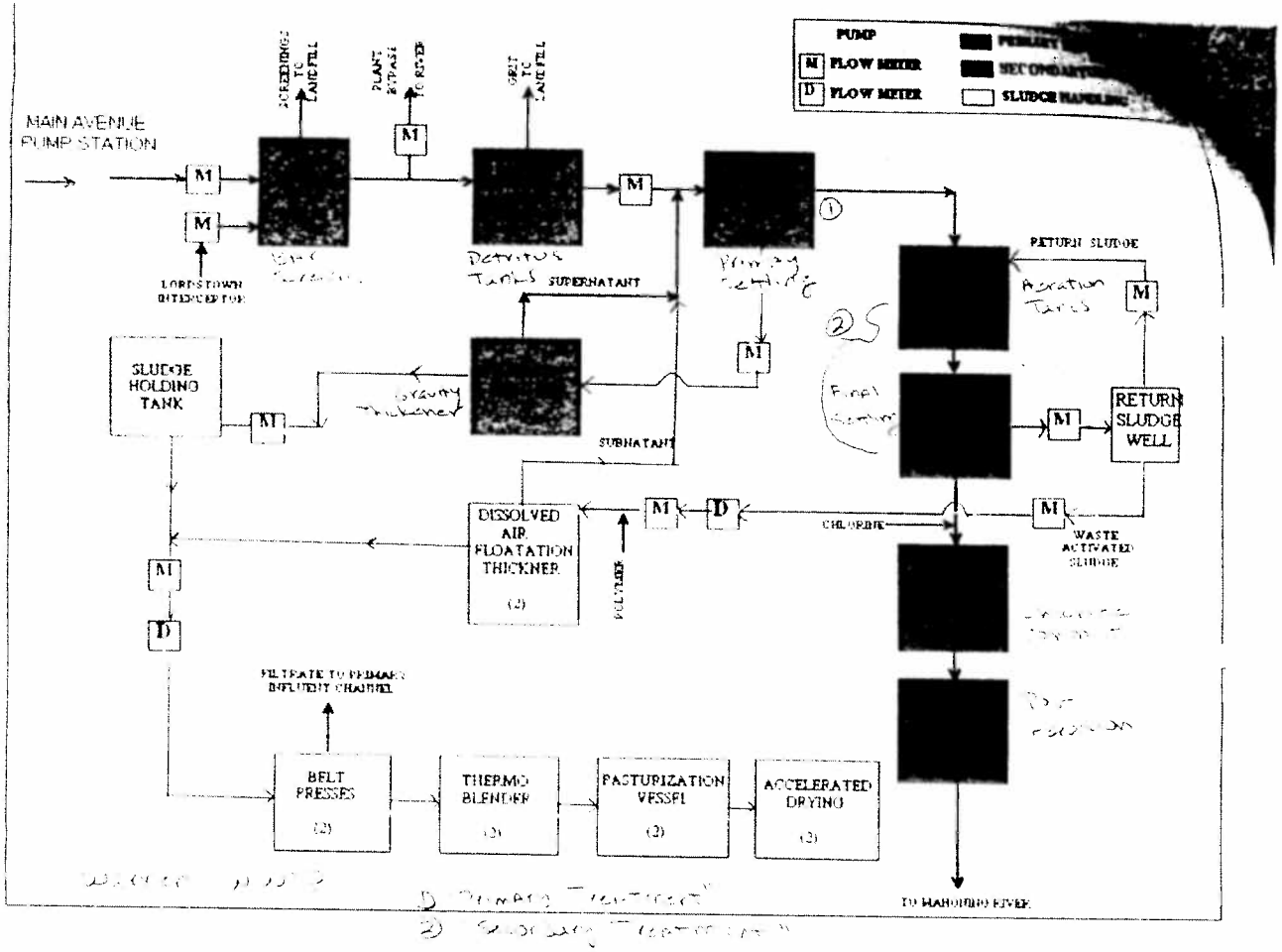
Shipping manifests were very basic with little detail. Only water type such as frack or drill water would be identified along with the load quantity. If shipments were previously surveyed for radioactivity it was not identified on the shipping manifest. They have used several different shippers but to date Stallion has not been used.

Mr. Blocksom indicated that a sludge sample and liquid samples had been taken and sent to the lab for analysis. The lab results for the sludge were available but the liquid results had not been received. I asked which lab the samples were sent to and he indicated the Ohio State Lab. The data sheet for the sludge sample confirmed the lab as The Ohio Department of Health, Radiochemistry Section. I spoke to Sang at the lab this morning and he confirmed that he had two or three water samples currently under analysis from the Warren WWTP for Patriot Water Treatment. He indicated the alphas are less then <3 and that the remaining results should be known by the end of next week.

Sang stated he did not want anymore sludge samples. He used the gamma detector and once complete could not get rid of the smell in the room or in the Marinelli sample container also he could not dump the sample down the drain. Sang feels if the samples do continue beyond the 8 week test period the evaluation could be scaled back to just gross alpha and gross beta. Radium would be captured under the gross beta and uranium under the gross alpha.

Mr. Moody was taking pictures that he is forward to me. Also, I have some pictures on my phone I need to download. I will forward once I have both.

On a personal note I am concerned if there is any possible appearance of the Department requiring specific samples then referring our lab as the company to benefit by the to performance of the analysis.


PUMP
M FLOW METER
D FLOW METER
PRIMARY
SECONDARY
SLUDGE HANDLING
MAIN AVENUE PUMP STATION
SCREENINGS TO LANDFILL
PLANT BYPASS TO RIVER
GRIT TO LANDFILL
LORDSTOWN INTERCEPTOR
SUPERNATANT
PRIMARY CLARIFIERS
RETURN SLUDGE
AERATION TANKS
SLUDGE HOLDING TANK
GRAVITY THICKENER
SUBNATANT
FINAL CLARIFIERS
RETURN SLUDGE WELL
DISSOLVED AIR FLOATATION THICKENER (2)
POLYMER
CHLORINE
WASTE ACTIVATED SLUDGE
FILTRATE TO PRIMARY EFFLUENT CHANNEL
BELT PRESSES (2)
THERMO BLENDER (2)
PASTURIZATION VESSEL (2)
ACCELERATED DRYING (2)
TO MAHONING RIVER