4-10-17 Consent Item A

Janice Ireland

From:	Mindi Messmer <mmessmer@me.com>
Sent:	Sunday, April 2, 2017 1:15 PM
To:	Janice Ireland
Cc:	david@davidbordennh.com; Nancy Stiles; reprennycushing@gmail.com
Subject:	Coakley Landfill Superfund Site Legislative Correspondence - Rye Select Board
Attachments:	3-22-2017 letter to EPA DES.pdf; ATT00001.htm; Response to Coakley 4th 5-year review.pdf; ATT00002.htm; EPA letter to CLG re new monitoring wells and decomisioning.pdf; ATT00003.htm; NW GMZ Well Locations (002).pdf; ATT00004.htm

Dear Rye Select Board -

Please find the attached copies of two correspondences to the EPA regarding Coakley Landfill. We are providing this information as relevant background information. We have received acknowledgement of receipt by the Agency.

At our last Subcommittee meeting, NHDES and EPA informed us that now they have a bedrock hydrogeologist involved with the project for the regulators and I have attached a copy of recent correspondence provided to me by the NHDES that was sent to CLG. NHDES said this was done because a full bedrock evaluation had never been done at Coakley Landfill Superfund Site. I am encouraged that this is a step in the right direction, however, it has further delayed progress for installation of new sentinel wells between Coakley and that Falls Way development (proposed locations shown on attached figure).

Also of note, is the identification of a monitoring well, shown on the attached map provided by NHDES, on the proposed 10-lot subdivision planned for development that has not been sampled for PFCs (Chinburg well).

We hope that this information is helpful to you. If you have any questions regarding this information, please feel free to contact Mindi Messmer at 603-498-8847.

Best,
Mindi

Mindi Messmer, PG, CG
ITRC Per- and Polyfluoroalkyl Substances (PFASs) Team
ITRC Characterization and Remediation in Fractured Rock Team
Health, Human Services & Elderly Affairs Committee
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State of New Hampshire

HOUSE OF REPRESENTATIVES

CONCORD

March 22, 2017

Mr. Gerardo Millán-Ramos
Remedial Project Manager
USEPA Region 1
5 Post Office Square Suite 100
Boston, MA 02109-3912

Re: Coakley Landfill Superfund Site, Greenland, NH

Dear Mr. Millán-Ramos:

Please find the attached document which summarizes current issues and a request for assistance with addressing them relating to the Coakley Landfill Superfund Site.

We appreciate your attention to this matter. We feel that providing safe and reliable drinking water to those who live around the landfill is of utmost importance and thank you for your request. If you have any questions about this summary, please feel free to contact Representative Mindi Messmer at 603.498.8847 or mmessmer@me.com.

Sincerely,

Rep. Mindi Messmer
Rep. Renny Cushing

Cc: Senator Martha Fuller-Clark
U.S. Senator Jeanne Shaheen
U.S. Senator Maggie Hassan
Congresswoman Carol Shea-Porter

Attachments: (1)

Coakley Landfill Superfund Site

Current Situation

- Coakley Landfill onsite monitoring wells are testing over 1000 parts per trillion (ppt) for PFOA and PFOS and many other PFCs (i.e., PFHxS, PFNA) are detected. The NHDES AWQS is now 70 ppt.
- Some nearby private drinking wells have tested at or about 20 ppt, indicating migration of contaminated water to private drinking wells near and around the Coakley site (Vermont standard is 20 ppt, NJ is 40, but going to 14 ppt.)
- PFCs have been detected in public drinking water supplies at approximately 15 to 20 ppt (i.e., Rye water district and Aquarion wells in Hampton).
- Surface water tests near Coakley show up to 1250 ppt contamination. Surface water eventually becomes groundwater, i.e., well water.
- DES and EPA informed us that they now have a bedrock hydrogeologist involved on behalf of the regulators which is good. However, the assessment to the west needs to move forward rapidly due to the presence of homes to the west. There have been several delays for the well installations.

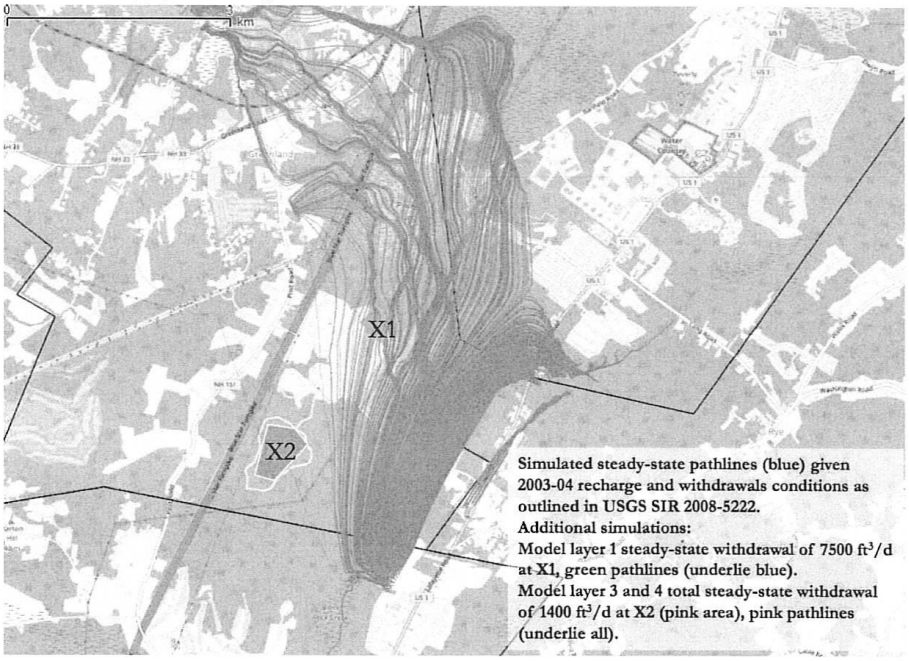
EPA and DES Action Requested

- Continue to monitor drinking water and public wells twice per year (spring and fall) where current levels tested are approximately equal or exceed 20 ppt.
- Perform initial water sample tests wells along Breakfast Hill Road that are untested and create gaps in understanding water contamination flow.
- Monitor and assess PFC concentrations in surface water in Berry's Brook, Bailey's Brook, Norton Brook, and Little River.
- Currently the rail bed is flooded with water that is overflowing from the ponds which very likely contain very high levels of PFCs. This situation needs to be remedied and public access restricted.
- Need to assess migration to the east with over 100 ppt detected in two wells located outside of the landfill footprint to the east. These wells lie directly on a potential fracture that is connected with Bailey's Brook and the Town of Rye wells.
- Need to assess contaminant migration in all directions from the landfill.
- Additional PFCs detected in drinking water including PFHxS, PFNA and PFBS need to be considered in the total load to private citizens who are drinking the water not just PFOA and PFOS. NJWQI thinks that PFNA is toxic and has proposed a separate standard for it 14 ppt. http://www.state.nj.us/dep/dsr/supportdocs/pfna/PFNA%20FINAL%20%20interim%20GW%20criterion%206_26_15.pdf

- **Notify the public about potential health hazards** including:
    - Notify homeowners where PFCs exceed 20 ppt that other states consider levels to not be safe to drink. (i.e. VT [20] and NJ [40 but will go to 14]).

- Public warning of potential contact hazard and hazard from fish consumption in Berry's Brook.

- **EPA needs to revise its plan to remediate the superfund site.** EPA's current plan calls for attenuation of PFC chemicals, but PFCs do not naturally attenuate. Remedial plans need to mitigate groundwater and surface water migration from the dump.
- **EPA has not responded to correspondence dated December 30, 2016** from State Senators and House Representatives regarding the Fourth Five-Year Review Report. This letter details requests for further characterization and need to re-assess remedial strategy for the dump.
- **EPA needs to use a version of the USGS Groundwater Model at Coakley to assess the current and potential flow of PFCs into the groundwater.** Preliminary model estimates (below) show migration from the dump to the irrigation well but also beyond the Greenland well which serves as the water supply for the City of Portsmouth.



The fractured bedrock in this region creates pathways where these toxic chemicals migrate. Tracking the migration of PFCs will enable us to predict and prevent private and public water well contamination. Particular concern is:

- East migration in line with Town of Rye wells,

- West caused by enhanced pumping of wells in neighborhoods, Breakfast Hill Golf and the Greenland well and other residences along Breakfast Hill Road.
- North to Stone Meadow development and residences along Breakfast Hill Road.
- south migration toward Aquarion wells that serve Hampton and North Hampton.

State of New Hampshire

HOUSE OF REPRESENTATIVES

CONCORD

December 30, 2016

Jim Murphy
USEPA Region 1
5 Post Office Square – Suite 100
Boston, MA 02109-3912

Re: Comments on Fourth Five-Year Review Report for Coakley Landfill Superfund Site, Rockingham County, New Hampshire, dated 9/26/16

Dear Mr. Murphy:

Please find the enclosed comments that I respectfully submit comments regarding the referenced document. Some of the comments are based on information learned through investigation conducted as part of the Subcommittee of the Governor's Task Force to focus on Coakley Landfill. Although there is no formal comment period for this document I hope that you will consider these comments.

General Comments

1- We agree that data gaps exist to the south resulting in the conclusion that EPA cannot make a determination regarding protectiveness of OU-2 at this time. However, the same can be said about areas to the east, northeast and southeast where data gaps exist. There is no control on the southeast, east and northeast of OU-1 or OU-2 to conclude that a determination can be made on protectiveness for this side of the landfill. Wells are not sampled which are located directly downgradient from existing wells that exhibit concentrations of 1,4-dioxane at or above the cleanup level (CL). Additionally, since groundwater flows radially from OU-1 and elevated concentrations of perfluorinated chemicals (PFCs) were detected in wells located on the southeast, east and northeast the full extent of PFCs in these directions has not been defined (see #7, below).

2- ***Page 30, VI. Issues/Recommendations, OU-2 Issue Category: Institutional Controls***- Institutional Controls have been ineffective due to lack of implementation, therefore are not protective. Coakley Landfill was cited as a failed attempt to implement ICs (Pham, 2010).

3- **Page 32, *VI. Issues/Recommendations OU-2 under Issue Category: Monitoring* –** EPA concludes that arsenic and manganese concentrations may be "reflective of background conditions or result of mobilization due to reducing conditions created by the landfill." Arsenic concentrations in groundwater samples, seeps and sediment samples have historically exceeded cleanup criteria at the Site. As stated by deLemos, et al., (2006) the landfill is in the very least contributing significantly to the reduction of arsenic from waste and possibly natural soil and sediment. The same is likely for manganese. The full extent of impact of this is unknown in Berry's Brook and Little River and should be assessed in lieu of a background study. Historically and currently this situation continues to prove that the current RA is not protective or effective to control migration from the Site.

4- **Page 32, *VI. Issues/Recommendations OU-2 under Issue Category: Monitoring* -** EPA concludes data gaps also exist for hexavalent chromium in OU-1 and OU-2 monitoring wells but also for Berry's Brook and Little River for hexavalent chromium. Additionally, the lateral extent of impacts of site-related contaminants outside of the Groundwater Management Zone (GMZ) in Berry's Brook and Little River continue to represent a data gap that should be addressed to further assess the protectiveness of OU-2. This is supported by the detection of PFCs in samples collected from Little River (10.8 ppt) and Berry's Brook (~195 ppt) in samples collected by the Conservation Law Foundation in November 2016 (see Attachment A).

5- ***Page 31, VI. Issues/Recommendations OU-2 under Issue Category: Monitoring*** EPA discusses the need to expand the GMZ to incorporate an area northwest of the existing GMZ along Berry's Brook. The need to expand the GMZ again is due to the uncontrolled migration of groundwater contamination from OU-1 caused by the lack of ICs for the private and commercial wells. This fact supports the conclusion that the current Remedial Alternative (RA) of monitored natural attenuation is not protective for OU-1 or OU-2 and is not adequate. PFCs and 1,4-dioxane are not amenable to natural attenuation in groundwater (NEWMOA, 2016). Due to inherent PFC chemical characteristics, PFCs are concluded to migrate farthest and prior to other contaminants therefore PFC plumes are more extensive than other contaminant plumes (NEWMOA, 2016).

6- ***Page 31, VI. Issues/Recommendations OU-2 under Issue Category: Monitoring*** This item should be revised to address concerns relating to the potential migration to the east/northeast and the proximity of the Rye Town Wellhead Protection Zone the closest edge of which lies approximately 3,000 feet from the western edge of Lafayette Road. This concern is coupled with the fact that a total concentration of 12 parts per trillion (ppt) of PFCs were detected in the Garland Well and at 6 ppt in the Cedar Run well per samples collected by Rye Water District in the spring of 2016. We request that a well couplet be installed at a location approximately half-way between Lafayette Road and the closest edge of

the Rye Town Wellhead Protection Zone to assess whether contamination has migrated toward the well field and if not, to provide a monitoring location to alert for the potential for future contamination migrating from Coakley Landfill toward the Rye well field. We request that these wells be added to the CLG monitoring network and sampled twice per year.

7- ***Page 31, VI. Issues/Recommendations OU-2 under Issue Category: Monitoring*** This item should be revised to address concerns relating to the potential migration to the northeast, east, south and southeast and impacts from the former Rye Landfill (or formerly Breakfast Hill Landfill) at the corner of Lafayette and Breakfast Hill roads. Based upon review of historical information relating to this landfill, this landfill accepted incinerator ash from the Pease Waste to Energy Program (see attached). In addition, its location and proximity to Coakley suggests that the upgradient wells be sampled for Coakley-related contaminants of concern (COCs) and PFCs. As part of the Subcommittee investigation, NHDES agreed to identify, locate and sample previously unknown private wells located in Rye and North Hampton. Select wells within the Rye Landfill GMZ should also be sampled for Coakley COCs to assess migration from Coakley and more fully address concerns for migration from Rye Landfill. Of great concern is the fact that PFOA and PFOS were detected in a sample collected from a private drinking water well located in Rye at concentrations of 33.7 ppt with an additional two PFC compounds all totaling 72.7 ppt. PFCs were also detected in three private wells located south and southeast of Coakley Landfill in North Hampton. Additionally, low levels of PFCs have been detected in Aquarion wells located to the south of Coakley Landfill for the first time in July 2016 (see Attachment B). Based on If confirmed, all of this information indicates that PFCs may have migrated between 1,600 and 4,600 feet or farther from Coakley Landfill in bedrock fractures (see Attachment C).

8- ***Page 29, Changes in Exposure Pathway -*** We concur with the EPA conclusion that the strong potential for new wells to cause groundwater contaminant migration from the Site would exist relating to the use of private drinking water wells proposed for the new 10-lot subdivision along Breakfast Hill Road. However, we feel that this same logic should be applied to existing private wells in Stone Meadow and Falls Way Developments in addition to existing commercial wells such as the golf courses located to the northwest and southeast of the Site. While direct exposure of ingestion of commercial wells used for irrigation does not exist, the substantial volume of extracted water from these locations does affect migration pathway and rate substantially. The IC should extend to existing wells in addition to the newly planned wells for the 10-lot subdivision.

9- ***Page 31, VI. Issues/Recommendations OU-2 under Issue Category: Monitoring*** We agree that seasonal sampling of all previously sampled private drinking water wells and monitoring wells to assess protectiveness of OU-2 for PFCs migration. However, this section should include a

provision for newly discovered drinking water wells not just wells that have been sampled to date. This comment is made to be inclusive of private drinking water wells identified during the well survey EPA and NHDES have begun to implement in areas south, northeast, east and southeast of Coakley Landfill as stated in the 9/14/2016 Governor's Task Force Meeting.

10-Based on the items listed above, we do not concur with the statement listed in ***VII. Protectiveness Statement*** for OU-1 is accurate.

In conclusion, EPA's decision not to collect and treat groundwater to control migration from Coakley Landfill has resulted in a RA that is not protective currently or for future conditions for the reasons outlined above. Therefore, a more active remedial approach is prudent which includes control of contaminated groundwater migrating from Coakley, combined with ICs to protect current and future potential drinking water supplies for private residents radially from the Site. In addition, a comprehensive evaluation is required to assess discharge and the extent of migration of Site contamination in surface water bodies that originate to adjacent to Coakley Landfill (i.e., Norton Brook, Little River, Bailey's Brook and Berry's Brook).

Progress has been made recently, however there are still significant data gaps which include, but are not limited to; a complete characterization of the ash deposited in the landfill to assess additional parameters that may become COCs, more fully assess groundwater migration pathways in fractures in the bedrock, assess environmental conditions north of the fenced area from the rail bed on the west to Breakfast Hill Road to the north and the former extent of the landfill operations to the east. It is also possible that PFCs and possibly 1,4-dioxane detected in GMZ monitoring wells and private wells located outside of the GMZ represent a new release condition. This idea is supported by travel calculations based on knowledge of the age of the landfill, likely travel rates of contaminants in subsurface media and concentrations observed in wells. Continued monitoring of private wells in the spring and fall each year is required to fully understand contaminant migration from Coakley Landfill.

We are encouraged that NHDES expanded PFC sampling in private wells located in the Falls Way Development and in select Breakfast Hill Road area homes to assess potential contaminant migration to the west and northwest beyond Berry's Brook. Many of the homes in this area have shallower bedrock supply wells since highly permeable zones were encountered during drilling that provided sufficient well yields to support residences. This shallower interval could represent a migration pathway for contamination from Coakley Landfill. Additionally, we believe that samples should be collected from the Breakfast Hill Golf club irrigation well for PFC analysis. Although the Breakfast Hill Golf Club well is an overburden well, yields for this well suggest that bedrock groundwater contribution is likely since the unconsolidated deposits in this area are unlikely to be able to solely support the yields observed in this location.

Additionally, an updated regional groundwater model should be used to predict localized impacts of current and future pumping schemes and their impact on drinking water resources in the Rye, Greenland and North Hampton area.

Finally, the Final Interim Progress Report from the Governor's Task Force for the Pediatric Cancer Cluster recommends that residents within 1 mile of the GMZ be provided with bottled water, until such a time that municipal water can be supplied, where groundwater flow patterns indicate private drinking water would be impacted by contaminants migrating from Coakley Landfill. This should be implemented as a proactive measure to ensure safe, reliable drinking water to residents likely affected by contaminant migration from Coakley Landfill in Rye, North Hampton and Greenland.

Finally, we recommend that USEPA re-implement public comment periods for all reviews conducted by the Agency in relation to Coakley Landfill.

Please feel free to contact us with any further questions or comments.

Sincerely;

Rep. Mindi Messmer
District 24, Rye and New Castle

Rep. Renny Cushing
District 21, Hampton

Sen. Dan Feltes
Concord, Henniker, Hopkinton, Warner

Sen. Dan Innis
District 24, Greenland, Hampton, North Hampton, Newton, Rye, Seabrook, Stratham, South Hampton, Hampton Falls, New Castle, Kensington

Cc: Mike Wimsatt, NHDES
Andrew Hoffman, NHDES
Gerardo Milan-Ramos, USEPA
Fmr Sen. Nancy Stiles
Fmr Rep. David Borden
Rep. Dennis Molloy
Fmr. Rep. Tom Sherman

REFERENCES

Jamie L. deLemos, et al., 2006. Landfill-Stimulated Iron Reduction and Arsenic Release at the Coakley Superfund Site (NH). *Environ. Sci. Technol.*, 2006, *40* (1), pp 67–73.

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Pham, Tuan. Assessment of Failures in Long-Term Management of Contaminated Sites. WPI, 2010.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION I
5 POST OFFICE SQUARE, SUITE 100
BOSTON, MASSACHUSETTS 02109-3912

March 7, 2017

Mr. Peter Britz, Environmental Planner
City of Portsmouth, Planning Department
1 Junkins Avenue
Portsmouth, NH 03801

Subject: Comments on Work Plan for Installation of New Monitoring Wells proposed for the Northwestern Portion of Current Groundwater Management Zone (GMZ), Coakley Landfill, Greenland, NH.

Dear Mr. Britz:

EPA and NHDES have reviewed the work plan submitted by CES Inc. via e-mail on January 31st, 2017. The work plan summarizes the methods for installing five monitoring wells and decommissioning one monitoring well at the Coakley Landfill Superfund Site in North Hampton and Greenland, New Hampshire. The work plan was prepared by CES, Inc. at the request of the Coakley Landfill Group (CLG). The following are a joint set of comments from both agencies on the work plan.

General comments:

The work plan states that the new wells are intended as "sentinel wells for future assessment of groundwater quality in the GMZ." While this is true, another more critical purpose is to insure that problematic levels of contaminants are not migrating beyond the GMZ boundary. In this respect it is critical that the wells are appropriately located to intersect key groundwater pathways which have the potential to transport contaminants out of the GMZ. In a fractured bedrock setting, a well-resolved understanding of the site-specific network of fractures comprises an essential element of a well-developed conceptual site model (CSM). At this site, it must be acknowledged that the understanding of the key fracture pathways is limited at best. Thus, the proposed locations for the wells may need to be augmented or revised in the future as additional information comes to light.

The local bedrock is characterized by a competent block of granite (Breakfast Hill Granite) with no mapped lineaments surrounded by a much less competent gneiss/schist of the Rye Formation. These rocks are separated from the Silurian phyllites of the Kittery Formation to the west by the Portsmouth Thrust Fault (PTF). That fault is mapped to the west of the site (just to the east side of I-95) and dips under the Site. But the lineament mapping done as part of the 1994 RI/FS identified a large number of NE-SW trending lineaments along Berry's Brook and the bedrock surface map shows a corresponding bedrock trough there. Those features could represent a surface expression of the PTF, or a sub-fault related to it. Thus, there could be a very transmissive zone in bedrock beneath Berry's Brook. The impact of such a transmissive zone on contaminant migration and distribution is something that needs to be explored with the new wells.

Based on this geological set of conditions, the proposed location for one of the two new couplets (MW-21) has been modified slightly (see figure attached). The new location for MW-21 would be used to assess flow and contaminant concentrations within the fault zone, while MW-20 would focus on groundwater conditions west of the fault. The location for MW-21 was moved further to the east, to the north-eastern corner of the of the GMZ extension, in order to get as close as possible to the fault trace.

Specific comments:

1. The plan refers to the installation of 2 well "couplets" at locations designated as MW-20 and MW-21. While the plan refers to methods proposed for installing bedrock wells at these locations, no mention is made regarding the method that will be used for the second well (overburden) planned for each "couplet". Please clarify what will be the expected screened intervals, installation methods, and other pertinent details for the overburden wells.

2. The technical rationale for the proposed locations MW-20 and MW-21 should be provided. Additional comments, below, provide additional considerations and recommendations based on the limited current knowledge of the bedrock aquifer at this site.

3. New bedrock sentinel wells should be drilled to the maximum depth of nearby residential/supply wells, on the order of 300 feet into bedrock. This suggestion will necessitate additional considerations for drilling and well installation methods. While the drive and wash method proposed is well suited for the overburden "couplets", consideration should be given to using air-rotary methods in a separate borehole to install the bedrock wells. The bedrock borehole should be a minimum of 4-inches in diameter; a six-inch diameter is preferred. The number and depths of hydraulically significant zones (see below), may dictate the need for more than one screened interval. Consideration should be given to installation of multiport sampling systems in lieu of the single 20-ft screen proposed in the work plan.

4. While rock cores would be useful, it is not necessary if the full complement of borehole geophysical logs included in the work plan are collected. If coring is chosen as the bedrock drilling method, a larger diameter core than NX (2.9") may be needed in order to accommodate the borehole geophysical tools and possibly multiport sampling systems. Alternatively, the borehole may need to be reamed to a larger diameter. Please clarify.

5. In addition to the suite of borehole geophysical tools proposed, 10-foot straddle packers should be used to collect specific capacity data as well as samples for groundwater quality analysis at each significant fracture zone identified from borehole geophysical or core samples. This fracture sampling should be performed after the downhole geophysics but before PVC well installation. The geophysics results should be used to identify hydraulically-active fractures/zones for packer testing. CES Inc. should expect to test 4-6 zones per well. The samples should be analyzed for VOCs, 1-4,dioxane, arsenic, manganese, PFCs, and physical parameters. Also, heat-pulse flow meter (HPFM) logging should be collected in both passive and active (pumped) modes. Together, this information will be critical to determine the appropriate sampling intervals as well as the intervals for permanent screen or sample port installation. The number and depths of such zones will dictate the preferred well installation methods.

6. Current information concerning the bedrock fracture network is limited, yet there is clear evidence from a distinctive linear trough on the top-of-bedrock surface for a potential fracture system striking NNE

from the central portion of the GMZ (e.g., from well FPC-8 north-northeastward to well FPC-5 and beyond). The trace of Berry's Brook also appears to follow this trend, and may itself represent a surficial expression of an underlying fracture system of this strike orientation. In this regard, please confirm the present understanding of the foliation strike and dip for the MW-21 location area. Also, to the extent that mapped faults, such as the Portsmouth thrust, may extend to the subsurface beneath the site here, efforts should be taken to project such features from nearby mapped locations and to field adjust the location for MW-21 as necessary. In particular, the measured or probable dip direction and angle for suspected faults should be factored into the location for MW-21 in order to maximize penetration of key faults and fractures.

7. Well FPC-5A: It is stated that, *existing monitoring well FPC-5A will be abandoned because an obstruction in the well has precluded its use as a groundwater sampling location. A replacement well for FPC-5A (FPC-5AR) will be installed adjacent to the original location.* It is further stated that, *Monitoring well FPC-5A will be decommissioned due to an obstruction previously identified in the well. Decommissioning will be performed by a licensed New Hampshire Water Well Contractor. Following the removal of the identified obstruction, the well will be abandoned by sealing it from the bottom to the top by pressure grouting the well through a tremie line. If possible, the casing will be removed prior to sealing.* Is it possible that the existing well could be rehabilitated after the obstruction is removed? Alternatively, could the existing well be over-drilled and a new well installed in the enlarged borehole?

8. The work plan states: *The anticipated well depth for FPC-5AR is approximately 64 feet below ground surface with a ten foot long screen.* Please confirm the relationship of the screened interval with respect to the bedrock and till surfaces, e.g., will the screen be installed directly above the bedrock surface? What hydro-stratigraphic units will the screen assess?

9. The agencies understand that Chinburg Builders Inc. installed a monitoring well (well #1) in the parcel to be re-developed (approximate location shown on enclosed map). Geophysical work (*e.g.* borehole geophysical logs analyzed in order to elucidate the orientation and dip of key faults, fractures, and other geologic features of interest at that location, particularly steeply dipping fractures) at this well and the new wells to be installed, shall be used to guide the location of any future wells that may be necessary in the area. This guided location for monitoring wells will maximize the potential for intersecting key fracture pathways as they project beyond the GMZ boundary to the north and northwest.

The agencies request that CES contact Chinburg Developers and ask permission to perform geophysical work on that existing well.

10. Natural gamma logging should be added to the proposed geophysical suite. Natural gamma is used to determine rock type and changes in lithology (geologic contacts) which will be important to provide the proximity of the fault.

11. After the wells are installed, CES Inc. should install data loggers in the wells for a 2-week period with measurements every 10 minutes. This will provide data the illustrates if residential pumping influences reach the existing GMZ boundary, which would indicate a connection between the site and residential wells. Data loggers should be installed in wells FPC-5AR, FPC-6A, and the two new bedrock wells.

The agencies realize that all of the above includes additional fieldwork which will significantly impact the projected timeframe for well installation and sampling. However, in light of the current uncertainty about

the groundwater flow along the bedrock fractures in the area, the agencies understand that this work is necessary in order to obtain the most accurate and useful data.

EPA suggests that a technical meeting be held with you, CES, NHDES and the agencies hydrogeologists to further discuss the recommendations above and next steps. EPA laboratory in Chelmsford is suggested as a location. Please let me know your availability for such meeting as soon as possible, and I will coordinate the meeting arrangements.

Sincerely,

Gerardo Millán-Ramos
Remedial Project Manager
Office of Site Remediation and Restoration
EPA – New England, Region 1

Cc Andrew Hoffman, NH DES
Bill Brandon, EPA

Z/Data/GMRMydocuments/Coakley/Correspondence/EPA letter to CLG re new monitoring wells and decomisioning.doc


X
Proposed new well couplet MW-21
Approximate location of Chinburg-installed rock Well #1
GMZ Boundary
Greenland
Proposed new well couplet MW-20
Capped Collier Landfill
Proposed replacement of damaged well FPC-5AR