BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	R 25-21
PROPOSED PLACEMENT OF LIMESTONE	)	(Rulemaking – Land)
RESIDUAL MATERIAL STANDARDS:	)	
PROPOSED 35 ILL. ADM. CODE 706	)	

NOTICE

TO: Don A. Brown, Clerk
Illinois Pollution Control Board
60 E. Van Buren Street
Suite 630
Chicago, Illinois 60605
(VIA ELECTRONIC MAIL)

Daniel Pauley, Hearing Officer
Illinois Pollution Control Board
60 E. Van Buren Street
Suite 630
Chicago, Illinois 60605
(VIA ELECTRONIC MAIL)

See attached Service List

PLEASE TAKE NOTICE that I have today electronically filed with the Office of the Clerk of the Illinois Pollution Control Board PRE-FILED QUESTIONS AND ATTACHMENT "A" FOR HOLCIM US, NORTH CENTRAL REGION AND THE CITY OF AURORA, a copy of which is herewith served upon you along with this notice.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL
PROTECTION AGENCY

By: /s/ Nick M. San Diego
Nick M. San Diego
Deputy General Counsel
Division of Legal Counsel

DATED: April 16, 2025

2520 West Iles Avenue
P.O. Box 19276
Springfield, Illinois 62794-9276
217/782-5544
nick.m.sandiego@illinois.gov

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	R 25-21
PROPOSED PLACEMENT OF LIMESTONE	)	(Rulemaking – Land)
RESIDUAL MATERIAL STANDARDS:	)	
PROPOSED 35 ILL. ADM. CODE 706	)	

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY'S PRE-FILED QUESTIONS AND ATTACHMENT "A" FOR HOLCIM US, NORTH CENTRAL REGION AND THE CITY OF AURORA

Illinois Environmental Protection Agency's ("IEPA" or "Agency") Questions for Holcim US, North Central Region ("Holcim") and/or the City of Aurora ('City"):

Please note that the Agency is in the process of preparing a PDF copy of the administrative record related to the City's Class V UIC Permit (Permit No, UIC-015-COA) ("record"). The Agency believes the information contained within this record will be helpful for the Board and other participants in this rulemaking. The Agency will file this with the Clerk when the record has been completed.

1. The proposed regulations use the term "authorization" to mean "the approval by the Agency for the permanent placement of [lime residual materials] LRM in the facility." Do the proponents have any objections to replacing the term "authorization" with the term "permit"? If so, please explain why.

2. In the Statement of Reasons[1] and the pre-filed testimonies of Mr. Alex Alexandrou[2] and Mr. Robert Leible[3] for the City, the proposed regulations are characterized as an alternative means for the disposal of LRM. Section 22.63 of the Environmental Protection Act ("Act," 415 ILCS 5/22.63) requires that the proposed "rules shall be consistent with the Board's Underground Injection Control [UIC] regulations for Class V well, provided that the rules shall

[1] Holcim/City's Statement of Reasons, p. 14, Section IV ("…Because these process-based approaches did not contemplate this manner, the development of the regulations allowing the disposal of LRM in authorized mines allows entities like Holcim and the City the ability to place LRM in a facility rather than dispose in a landfill or land apply…").

[2] Alex Alexandrou Pre-filed Testimony, p. 3, Section III ("…In this way, the revised disposal method…"); p. 4, Section IV ("…LRM will be… moved to its final placement location within the mine using appropriate machinery. This method maintains the same final resting location as the initial injection plan…"); p. 5, Section V ("…The revised process allows the City to achieve substantial savings while ensuring safe and permanent disposal of LRM…").

[3] Robert Leible Pre-filed Testimony, p. 5, Section V ("The placement of LRM in underground mines represents a cost-effective alternative to landfilling and land application... This approach would provide the City with an additional, lower-cost disposal method...").

allow for the limestone residual materials to be delivered to and placed in the mine by means other than an injection well."

Given that Class V UIC rules are "disposal" regulations, please explain how the proposed rules are consistent with existing Board regulations applicable to Class V UIC wells (i.e., consistent with relevant regulations in Title 35 Ill. Adm. Code Parts 702, 704, 705, and 730).

3. Please explain the difference between "permanent placement" and "disposal" with respect to how LRM will be managed at/in the portion of the Conco Mine owned by and located in the City ("Mine").

4. In proposed Section 706.110, the proposed term "facility" is defined to mean "the location where any placement of LRM for permanent storage occurs (including land or appurtenances thereto) that is subject to this Part."

a. On page 4 of Randi Wille's pre-filed testimony (Section V), testimony will be provided regarding "the construction of one 6-foot diameter, steel lined drop shaft in [Holcim's] mine." As a follow-up to the Hearing Officer's Question No. 16,[4] please describe other surface structures, roads, etc. that are associated with the LRM operations contemplated by the proposed rules.

b. Please explain or describe how LRM operations and the active limestone and dolomite mining operations (both underground and related surface activities) will occur simultaneously at the facility.

5. Section 22.36(a) of the Act prohibits the Agency from "issuing any new permit for the construction or development of any solid waste disposal facility that is proposed to be located above an active or inactive shaft or tunneled mine or within 200 feet of a fault that has had displacement within Holocene time, unless engineering measures have been incorporated into the facility design to ensure that the integrity of the structural components of the facility will not be disrupted by geological processes." For purposes of Section 22.36, "structural components" means liners, leachate collection systems, final covers, run-on and run-off systems, and any other component used in the construction and operation of a solid waste disposal facility that is necessary for protection of human health and the environment." 415 ILCS 5/22.36(b).

Please explain how the proposed rules provide for the incorporation of engineering measures into facility design to ensure that the integrity of the structural components of the facility will not be disrupted by geological processes.

[4] See April 14, 2025 Hearing Officer Order, Attachment A, page 5.

6. According to the City's April 28, 2015 (Revision 2.0) UIC permit application Exhibit A, Section 1.2, page 5 (see Attachment A), several contaminants were found during testing of the solid fraction of the lime sludge at the dewatering lagoon, including benzene, cis-1,2 Dichloroethene, MTBE, and phenol. In addition, chloroform and 2,4-D were found during testing of the liquid fraction of the lime sludge.

a. Has the lime sludge been tested since the testing referenced in the permit application? What testing prior to 2012?

b. If so, how often and for what parameters? Does this include per- and polyfluoroalkyl substances ("PFAS")?

c. Can the City provide copies of all laboratory results of the testing conducted including, but not necessarily limited to, lime sludge exiting the filtration system and lime sludge after the drying time in the dewatering lagoon?

7. Section 1.2 of the same document (Attachment A, Page 6) goes on to conclude that the contaminants found in the lime sludge solid fraction of the sludge were likely from a surface source and were picked up during the time the lime sludge was in the dewatering lagoons.

a. Have the sources of any these contaminants been identified?

b. What is the period of time will the lime sludge spend in the dewatering lagoons prior to being transported to the Mine for disposal?

c. Does the City plan to remove any contaminants from the lime sludge prior to its disposal in the Mine?

d. Does the City plan any testing of the lime sludge for contamination prior to its disposal in the Mine?

e. What type of testing, including parameters and frequency, and results prior to and since 2012?

8. Per page 2 of the Statement of Reasons (Section II.a.) and page 2 of Randi Wille's pre-filed testimony (Section III):

> "…mine stabilization operation for completed portions of the mine, using bottom ash and limestone screening fines. After mining was completed in segments of the site, bottom ash, a Coal Combustion By-Product ("CCB"), was delivered to the site in dump trucks, mixed with limestone screening fines from on-site crushing operations, and then hauled underground by mining trucks to designated mined-out locations. This mix was first used as a structural fill embankment to facilitate mining activities, but then at full depth added

structural support to mitigate the potential for long-term mine subsidence or collapse. To conduct this operation, the facility was classified and regulated by the Agency."

Please explain how this operation was classified and regulated by the Agency.

9. Per the pre-filed testimony of Robert Leible (City), page 2, the City's Water Protection Division purchases calcium oxide ("CaO") from the Mississippi Lime Company, which operates a limestone quarry/mine operations in Ste. Genevieve, Missouri.

a. What is the source of the lime precursor material (calcium carbonate "CaCO3") that is converted to calcium oxide ("CaO")?

b. Are either the calcium carbonate or calcium oxide tested for contaminants prior to use?
   i. If so, what is the frequency and for what parameters?
   ii. Can the City provide copies of the analytical results?

10. What are the sources of the raw water entering the water treatment plant (WTP)?

11. Page 3 of the Statement of Reasons states that groundwater and surface water are blended together and receive water treatment, which includes unslaked lime (aka "CaO"). Please provide more detail on the water blending and treatment process, including use of the lime and anything that is introduced into the process other than the raw water and lime.

12. Is the raw water tested prior to coming into contact with the lime?

a. If so, what frequency, what parameters, and what results?

b. Can the City provide copies of the analytical results?

13. How is the lime that becomes lime sludge utilized in the WTP?

14. How is the lime sludge managed after its use in the WTP?

15. How much lime sludge does the City generate each year?

16. How much lime sludge does the City plan to dispose in the Mine each year?

17. What is the estimated total capacity for lime sludge disposal in the Mine?

18. Is the entire capacity of the Mine planned to be used, or something less?

19. The proposed regulations do not include any engineered barriers or protective measures to keep the disposed lime sludge from coming into contact with groundwater. Please explain this omission.

20. Proposed Section 706.340(d)(3) and (d)(4) reference potable water supply wells potable water supply well setbacks, respectively, but do not mention community water supply wells. Please comment on whether the following revisions to proposed subsections (d)(3) and (d)(4) are acceptable:

d) An application for authorization must contain a facility location map on the most recent United States Geological Survey (USGS) quadrangle of the area from the 7 ½ minute series (topographic) that clearly shows the following information:

3) All potable water supply wells and community water supply wells within 1000 meters (3300 feet) of the facility boundaries;

4) All potable water supply well and community water supply well setback zones established pursuant to Sections 14.1, 14.2, and 14.3 of the Act;

Respectfully submitted,

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

By: /s/ Nick M. San Diego
Nick M. San Diego
Deputy General Counsel
Division of Legal Counsel

DATED: April 16, 2025

2520 West Iles Avenue
P.O. Box 19276
Springfield, Illinois 62794-9276
217/782-5544
nick.m.sandiego@illinois.gov

ATTACHMENT A

Exhibit A

1.0 GROUND WATER MONITORING WAIVER REQUEST

Due to the conditions present in the mine (injection zone), the nature of the geology in the AOR and due to the characteristics of the lime sludge generated by the WTP, the City respectfully requests a waiver from ground water monitoring requirements as per instructions outlined on form 4e.

The basis of this request is as follows:

- The geology of the injection zone as visually inspected within the mine;
- Mine characteristics and sealing;
- Full modeling conducted using empirical data collected from within the mine and from the adjacent Deep Monitoring Well;
- Data collected on the lime sludge solids and the supernatant over a 12 year period consistently establishing that it is a non-contaminated waste material.

1.1 Potential for Fluid Flow

Potential fluid movement within the types of rocks comprising the injection zone can only occur along bedding planes and along post-lithification secondary porosity features (fractures/joints and dissolution features). The rock mass itself is essentially impermeable. The subsections below will discuss the geology and these potential pathways of fluid movement.

1.1.1 Geology

In most circumstances the geology of an injection zone can only be determined by vertical boreholes, with interpretation conducted between them. This case is unique in that the geology of the entire injection zone has been inspected from floor to ceiling as exposed inside of the mine. This allowed the City to map and identify fractures and joints, bedding planes and joint apertures, infillings and all other physical feature present within the injection zone.

Agapito Associates, Inc. ("AAI") was retained by Deuchler Environmental, Inc. ("DEI") to assist in the mapping of the geologic features of the mine and to collect specific data that would be required to run the hydromechanical model, with the goal being to use as much actual data from the site as possible. All of this work is outlined in Appendix A of the PA, and is also summarized in **Section 10.0** of the PA. The mine is comprised of standard room and pillar design, with each averaging about 50 feet square.

The injection zone is comprised of limestone of the Dunleith Formation of the Galena Group in Level 2 of the mine. Level 2 has a ceiling elevation of approximately 300 feet above mean sea level. DEI and AAI conducted field mapping of the mine with the following summary of results:

- Rock was comprised of limestone, with bedding planes of variable thickness;
- No faulting or vertical or horizontal off-sets, or folding was observed within the mine
- The rock mass exhibited 4 sets of through-going joints: J1 (northeast-southwest), J2 (northwest-southeast), J3 (east-west) and J4 (north-south).

The primary joint sets are J1 and J2 and the complimentary joint sets are J3 and J4. The complimentary joint sets are minor, localized and limited in size and length.

1.1.2 Joint Sets

The primary joint sets (J1 and J2) had an average length of 80 feet on Level 2. The maximum observed joint length was approximately 200 feet. The spacing of the joints (as measured perpendicular to the joint faces) averages approximately 110 feet on Level 2, with the maximum observed joint spacing ranging from 350 to over 500. AAI noted that this information is consistent with for other locations in northeast Illinois for both the Silurian System dolomite and the Galena and Platteville Groups.

Each joint set observed was speciated based upon the type of infilling presented, the speciation was as follows:

- Closed Joints with small aperture and no infilling: 69 total (23%);
- Simple clay infilling: 227 total (75.4%);
- Clay pods: 2 total (0.60%); and
- Calcite/Breccia: 3 total (1.0%).

For these types of joints, the following results were obtained through field measurement of laboratory measurement of infilled material:

- Samples that were predominately clay had a mean hydraulic conductivity of 2.7 x 10^{-8} cm/s;
- Samples with clay with dolomite and calcite fragments had a mean hydraulic conductivity of 2.5 x 10^{-7} cm/s; and
- The aperture size was measured on 15% of the joints with no infilling using a feeler gauge. All of the joints tested were smaller than the smallest gauge. Making the aperture size 0.0015-inches with an assumed hydraulic conductivity

of 6.16 x 10^{-2} cm/s. Note that for an average joint spacing of 116 ft (Table 3-1), a joint hydraulic conductivity of 6.16E-02 cm/s is equivalent to a hydraulic conductivity in a porous medium of 1.74E-05 cm/s, which is comparable to the highest hydraulic conductivities estimated from the packer tests.

1.1.3 Bedding Planes

A monitoring well was constructed on the property but outside of the mine area. The purpose of this well was to characterize the geology of the injection area from the ground surface into the USDW of concern, the St. Peter formation. As part of this process, a series of packer test were conducted within the bore hole as depicted on Figure 11.2 on page 11-6. A total of 20 tests were conducted at 20 foot intervals from the top of the Galena Group to the bottom of the Platteville Group. The average hydraulic conductivity was 9.26 x 10^{-6} cm/s. This is approximately the same as the values from within the injection zone.

1.1.4 Hydromechanical Modeling

AAI conducted hydromechanical modeling using the UDEC 4.0 model. UDEC 4.0 is a two-dimensional numeric program based upon the distinct element method for discontinuum modeling. The UDEC model was chosen because the potential flow of fluids out of the storage area in the mine will be along bedding planes and secondary porosity features and not through the rock matrix itself. This is consistent with field studies of the Galena-Platteville Groups.

Because, as discussed in **Section 9.0** of the PA narrative, the lime sludge contains no contaminants, fate and transport modeling was determined to not be necessary in order to evaluate the feasibility of the project. Therefore, the primary purposes of the modeling were to characterize and predict:

- Potential fluid flow through a solid rock matrix with secondary porosity features;
- The overall stability of the rock system in the presence of the stored lime sludge.

UDEC models fluid flow through the joints and bedding planes within the system of impermeable blocks. All of the assumptions listed in Section 1.1.2 were used in the model. Additionally, as the sludge deposits and thickens in the mine, additional sludge will be deposited and some of the water may seep downward. Therefore the hydraulic conductivity of the sludge solid was also taken into account in the model. The hydraulic conductivity of the solids was averaged to be 1.0 x 10-5 cm/sec.

The primary assumptions and boundary conditions used were:

- An assumed maximum supernatant head elevation of 6 feet above the settled lime sludge solids within the mine;
- A blanket of lime sludge solids will be allowed to deposit across the floor of the mine by alternating the injection from the four IW's;
- Lime sludge solids are assumed to eventually reach a 50-foot thickness;
- The lime sludge is assumed to have a bulk density of 144 pcf;
- Assumes no fluid flow within the rock matrix, which is assumed to be impermeable;
- Bedding planes are repeated at 20-foot vertical intervals corresponding with the spacing of the packer tests at the average measured hydraulic conductivity of the packer tests;
- Joints are assumed to be vertical;
- Based upon field mapping, lateral joint spacings are assumed to be 120-feet and joint lengths are assumed to be 200-feet (both based upon field observation and mapping;
- Joints are assumed to repeat in the same vertical plane separated by 100-feet between joint ends;
- Fluid flow is assumed to be along joints, taking into account the populational breakdown and hydraulic conductivity of the 3 different joint types mapped in the mine as listed above;
- An assumed potentiometric surface elevation of 180.40 feet above MSL;

Model results and discussion:

- The model predicts a worse case flow of 0.9 to 1.5 GPM across the entire mine. To put this in perspective, if the amount of flow predicted by the model is taken as a function of the total surface area of the floor of the mine (assuming a floor surface area of 43 acres), the worst case flow would be approximately 0.021 to 0.035 GPM/acre.
- The model predicted very low flow horizontally, and contributed almost nothing to the total flow.
- The model predicts flow will decrease over time;
- The model assumes a full 50 foot thickness of sludge on the first level of the mine; this will not occur;
- The mining company is going to seal all unfilled joints along all perimeter walls and on the floor with shotcrete or a similarly performing material;
- The aperture size of the joints is larger than the particle size of the lime solids with an average D_{50} grain size was 0.0129 mm versus the aperture of 0.038 mm;

- The mining company is planning on constructing a new Level 3 below Level 2 concurrent with the operation of sludge deposition operations. They have stated that they plan on commencing on 2019 and it will take approximately 10 years to complete the mining. Agapito states: "Only negligible flow, on the order of a few gallons *per day*, is expected to reach the water table (once Level 3 has been completed)" (AAI Report, page ix).

1.2 Characteristics of the Lime Sludge

The lime sludge once inside the mine will almost immediately separate into a solid fraction and a liquid fraction (supernatant). As the solids settle, the supernatant forms at the top. At the dewatering lagoon, samples of supernatant were obtained prior to its evaporation. After the solids had sufficient dried, samples were obtained for laboratory analysis.

The lime sludge solids have been tested a total of 15 times between June 1999 and July 2012. During this time, the following organic parameters were detected above the laboratory reporting limit:

- Benzene in the April 24, 2012 sample;
- cis-1,2 Dichloroethene in the April 24, 2012 sample;
- MTBE in the April 24, 2012 sample; and
- Phenol in the October 20, 2008, April 24, 2012, July 3, 2012 and July 19, 2012 samples.

There are no sources in the waste stream generation process that have been identified (raw river/well water or the lime powder) that can introduce these chemicals into the lime sludge. The lime sludge is stored outside of the WTP in the dewatering lagoons for several weeks at a time and these chemicals were likely imparted to the sludge from a surface source outside of the WTP or could be representative of cross contamination either in the field sampling or at the laboratory.

The supernatant has been tested a total of 7 times between August 2002 and July 2012. In that time, the following organic parameters were detected above the laboratory reporting limit:

- Chloroform in the April 24, 2012 sample; and
- 2,4-D in the July 3, 2012 sample.

All other parameters for VOC's, SVOC's, PAH's, pesticides, herbicides or PCB's were below the laboratory reporting limit in every sampling event for the sludge solids and the supernatant.

As with the lime sludge solids, there are no sources in the waste stream generation process that have been identified (raw source water or the lime powder) that can introduce these chemicals into the supernatant and is likely from a surface source while the sludge was in the dewatering lagoon.

In all sampling events on the solids and supernatant, none of the parameters that were detected exceeded any of the standards set forth in 620.410 as well as 35 IAC 611.

1.3 Characteristics of the System

The City of Aurora uses a lime treatment process. They have a blended water system that is usually 60% Fox River water and 40% well water. Once the water enters the plant, it enters the claricones which contain the lime power used in the treatment process. Lime sludge is created and is blown out of the cone at regular intervals. Currently, the lime sludge is diverted to dewatering lagoons.

Under this system proposed in the PA, the sludge will be discharged to a covered wet well, and will be pumped into a forcemain which will be fed to one of four different injection wells at the site (see **Figure 4.1**). The sludge will fall by gravity into a series of distribution pipes on the floor of Level 1 of the mine, and then will be dropped into Level 2 of the mine. From the Water Treatment Plant to the deposition into the mine, the injection system is completely closed and at no point along the length of the system is it possible for contaminants to be introduced (as opposed to the dewatering lagoons). For a more complete description of the proposed system, please refer to **Section 4.0**. Therefore, any sample taken at the pump discharge port within the proposed pump house, will represent the exact composition of the material entering the mine.

2.0 PROPOSAL FOR VARIANCE REQUEST

As was defined above, the proposed system is inherently safe and would be protective of ground water and comply with both 35 IAC 620 and 611. This is due to the following:

- The geology of the area;
- Mine preparation activities, including sealing of all unfilled joints;
- The very small amount of flow as predicted by modeling;
- The method of injection into the mine through a closed system; and
- The fact that the lime sludge isn't contaminated.

It is understood that the Illinois EPA considers monitoring as an important part of the Permit in this case. As such, the City is prepared to monitor the system, but believes

that it is more prudent to do so by sampling and analyzing samples of the lime sludge as it enters the mine, gaining a very quick feedback on these data, rather than indirectly monitoring what chemicals MAY be reaching the aquifer, perhaps decades later. There is approximately 175 feet of dolomite of the Platteville Group between the floor of the injection zone and the top of the aquifer. A network of monitoring wells would have years of delay in determining if the system is adversely impacting the aquifer.

Also, given the configuration of the site to the property boundaries, it would be very difficult to create a monitoring well network considered approvable to the Illinois EPA.

We propose installing a sampling port to the discharge line of the pump in order to facilitate the collection of representative samples of the sludge for laboratory analysis. From the sampling port location the lime sludge will be fed into the forcemain. Since the system is completely closed, the sample obtained at this point will be directly representative of the material entering the mine.

2.1 Sampling Methods and Media

Three separate media will be sampled as part of the operation of the system as follows:

- ***Sludge samples;***
- ***Solids samples: and***
- ***Liquid (supernatant) samples.***

The sampling location will be from the sampling port in the wet well pump discharge line.

The proposed sampling method is very simple. The sample will be analyzed as a sludge under United States Environmental Protection Agency ("USEPA") SW-846. The laboratory will supply three sterile 8 ounce glass jars. The sampling port will be controlled by a manual valve. During the day of sampling, after a sludge blowdown occurs it will fill the wet well at the pump house. Once the sludge reaches a certain height within the wet well level, the pumps will be activated and will begin pumping the sludge into the forcemain. At the time of sampling, one end of a plastic hose will be attached to the sampling port and the other end will be inserted into one of the jars, which will be held at an approximate 45° angle. The valve will then be slowly opened so that a manageable stream of sludge is produced and the jar will be filled. The cap will be replaced tightly, and the jar will be labeled, wrapped and placed in an ice-filled cooler for transport to a NELAC laboratory for analysis.

One jar will be used for the analysis of the sludge and the other two jars will be used for the analysis of the solids and the liquid. Upon receipt of the samples, the

laboratory will analyze the jar for sludge analysis immediately. Laboratory personnel will allow the solids and liquid to separate in the other two jars, and will obtain the liquid and solid samples for analysis.

If the laboratory that is awarded the contract for this project is unable to allow the solids and liquid to separate for sample acquisition, then this procedure will be conducted at the plant, and the liquid and solid samples will be placed in the appropriate laboratory supplied sterile containers for the analysis methods to be conducted.

Jars will be labeled with the following information:

- Date
- Time sample obtained
- Sampler(s)
- Project Number
- Sampled Media
- Sample ID
- Project ID

The process will be repeated identically for each jar.

Custody tape will be wrapped around the cooler and chain of custody sheet will be completed prior to leaving the plant. The samples will be transported immediately to the laboratory, where they will be relinquished to the laboratory for analysis.

2.2 *Parameter List and Analysis Methods*

After consultation with the Illinois EPA Permit Section, it was agreed that the parameter list would be the compounds listed in 620.410 for Class I aquifers *and for characteristic hazardous waste testing as outlined in 35 IAC 721, Subpart C, Sections 721.122 and 721.124. Based upon the characteristics of the solid fraction of the waste that were established by previous sampling, only corrosivity (Section 721.122) and toxicity (Section 721.124) would apply to this waste.*

It is agreed that the lime sludge is not a listed hazardous waste. The Illinois EPA has stated that injection into the mine cannot occur if the lime sludge exhibits characteristics for hazardous waste as outlined in 35 IAC 721. Therefore, the lime sludge will be tested for corrosivity and toxicity in accordance with the standards set forth in 35 IAC 721 for determination of whether it can be injected into the mine, or if it would need to be diverted to the dewatering lagoon as described in the contingency plan in Section 2.4 of this Exhibit.

It is proposed that the following parameter lists will be tested for the three sampling media:

- ***Liquid – Parameter list outlined in 620.410;***
- ***Sludge – Parameter list outlined in 620.410, including pH; and***
- ***Solid – Toxicity characteristic parameter list as outlined in 721.124.b.***

The most recent corresponding SW-846 test methods will be used by the laboratory and all of the parameter suites and individual parameters will be indicated on the chain of custody.

The sludge and liquid media will be tested for the compounds listed in 620.410 using the following analysis methods:

- Volatile Organic Compounds ("VOC's"): 5030B/8260B/8011;
- Semi-volatile Organic Compounds ("SVOC's"): 3510C/8270C;
- Pesticides and Polychlorinated Biphenyls ("PCB's"): 3510C/8081A/8082;
- Herbicides: 8321A;
- Metals: 3010A/6010B;
- Mercury: 7470A;
- Radium 226 and 228: 903.1/Ra-05;
- Cyanide: 335.4R1;
- Nitrate, as N: 353.2R2.0;
- Sulfate: 375.2R2.0;
- Total Dissolved Solids: 2540C;
- pH: 4500H+, B;
- Chloride: 4500Cl, E; and
- Fluoride: 4500F, C
- Perchlorate
- Total Solids Analysis
- ***Temperature***

Total solids analysis is necessary ***for the sludge media*** ~~because the sample will be analyzed as a sludge~~. Additionally, a note will be added to the notes section on the COC form saying "As received basis".

The percent total solids analysis is critical to know because the presence of the solids will skew the analysis results higher. The results can then be adjusted accurately using the percent solids as the conversion factor. ~~All~~ ***Results for the analysis of the sludge*** will be reported in mg/kg.

2.2.1 *Corrosivity*

The pH of the lime sludge as it exits the WTP through the blowdown line typically ranges between 8.5 and 11.5 units. Previous samples collected from the solid media and the liquid media from the dewatering lagoons is consistent with these levels (please refer to Appendix O and Appendix P). The pH levels will continue to be monitored as part of the monitoring program under the permit issued by the Illinois EPA.

2.2.2 *Toxicity*

It is proposed that the laboratory will hold two of the sample jars to allow the liquid and solid fractions of the sludge to separate. Once the solids have been separated and the samples have been prepared, they will be analyzed for toxicity characteristics using USEPA Method 1311, Toxicity Characteristic Leaching Procedure ("TCLP").

It is proposed that only the parameters in the 721.124 list that are detected in the sludge media analysis would be analyzed using the TCLP test.

2.3 *Tiered Sampling Frequency*

~~In lieu of ground water monitoring, the City proposes to analyze for all parameters listed in 620.410~~ ***The sludge, solid and liquid media will be sampled*** on the following ~~sampling~~ schedule:

- ~~Bi-monthly~~ ***Once every two months*** for the first year ***(6 sampling events)***;
- Quarterly for years 2 through 6 ***(20 sampling events)***;
- Semi-annual for years 7 and 8 ***(4 sampling events)***; and
- Annually thereafter.

Therefore, for the anticipated initial permit cycle of 10 years, there will be 1 year of ~~Bi-monthly~~ ***sampling every two months***, 5 years of quarterly sampling, 2 years of semi-annual sampling and 2 years of annual sampling.

2.4 *Applicable Regulatory Standards and Contingency Plan*

The contingency plan outlined below has been prepared for the purpose of defining the conditions under which normal sludge injection can occur. Since the sludge is not a listed hazardous waste, this determination will be based upon the sludge meeting the State of Illinois standards for the characteristics of hazardous waste. The following standards will be applied in order to make this determination:

- *Solid media: standards for the parameters listed in 721.124.b and the radium standard established by the Illinois Emergency Management Agency ("IEMA").*

In the unlikely event that the pH of the sludge exceeds the State standard of 12.5, the sludge from the WTP will be diverted into the dewatering lagoon at the WTP. The Illinois EPA will be notified of the exceedence and additional pH measurements will be taken. The diversion of the sludge will continue until sampling indicates that the pH standard is being met. Once the standard has been met, normal system operation will commence and the pumping of the sludge will resume.

Additionally, the standards that will be applied to evaluate the solid fraction of the sludge for toxicity characteristics are the levels as outlined in Section 721.124.b. If at any point one of the standards listed is exceeded in the routine TCLP testing, the sludge will be diverted as described above until it is demonstrated that the sludge meets the standards. Compliance will be demonstrated by either re-testing the sample at the laboratory for the parameter(s) of exceedence or by obtaining an additional sample for testing. Once it is demonstrated that the solid fraction meets the toxicity standards, then normal system operation will re-commence.

The solid media will also be subject to the radium standard established by IEMA in their memo dated April 7, 2014 (please refer to Exhibit D). The radium (total) standard established in the referenced memo is 25 pCi/g. If the average annual concentration of radium exceeds this standard, then injection will cease, the sludge will be diverted to the dewatering lagoon as described above and IEMA and the Illinois EPA will be notified.

~~In the event that one or more parameters exceed the State standards, the following shall apply:~~

- ~~If occurrence is during Bi-monthly sampling, continue sampling until 4 consecutive sampling events meet the standards; then proceed one year of quarterly sampling, 1 year of semi-annual sampling, and annual thereafter;~~
- ~~If occurrence is during quarterly sampling, then continue quarterly sampling until 4 consecutive quarters meet the standards, then proceed to semi-annual sampling for one year, then annual thereafter; and~~
- ~~If occurrence is either during the semi-annual or annual sampling, then sample quarterly until 4 consecutive quarters meet the standards, then semi-annual for 1 year and annual thereafter.~~

- ~~If occurrence is during quarterly sampling, then continue quarterly sampling until 4 consecutive quarters meet the standards, then proceed to semi-annual sampling for one year, then annual thereafter; and~~
- ~~If occurrence is either during the semi annual or annual sampling, then sample quarterly until 4 consecutive quarters meet the standards, then semi-annual for 1 year and annual thereafter.~~

2.5 *Reporting*

For each sampling event, a report will be generated and submitted to the Illinois EPA for review. Each report will include the following:

- A cover letter summarizing the event, with notations of any significant results
- All laboratory analysis reports
- Data in tabular form (updated)

Additionally, in the event of sludge diversion to the dewatering lagoon resulting from characteristic hazardous waste standard exceedence, the IEPA will be notified within 72-hours.

The monitoring reports will be submitted within 30 of receipt of the analysis results from the laboratory. Since radium will be analyzed, the laboratory report could take as long as 6 weeks to be issued after receipt of the samples.

3.0 CONSLUSIONS

The ultimate goal of any monitoring program is to protect a resource; in this case the Ancell Group, specifically, the St. Peter Formation. The City feels strongly, that as presented in the Permit Application the project would have no chance to adversely impact this aquifer. The City is submitting this waiver request based upon what are felt to be the intrinsic elements of the project that make it protective of human health and the environment while maintaining compliance with state regulations.

The benefits of this project to the City and the State of Illinois are clear; drastic cost reduction, reduces carbon emissions through the elimination of transportation and use of heavy equipment and saves landfill space to name but a few.

The supports of this proposal are:

- In all of the sampling events conducted on the solids and supernatant, over 90% were not detected and those that were detected were below both the 620.410 and 611 standards;

- The hydromechanical model predicted very little flow out of the mine under worst case assumptions; under realistic assumptions, actual flow will most likely be much less than predicted;
- The characteristics of the mine and the mine preparation activities that will be conducted prior to the initiation of injection activities (e.g. sealing the unfilled joints); and
- The City's proposal for an aggressive sampling program for monitoring the sludge prior to its entry into the mine so that any issues that are identified can be proactively addressed.

BEFORE THE ILLINOIS POLLUTION CONTROL BOARD

IN THE MATTER OF:	)	
	)	R 25-21
PROPOSED PLACEMENT OF LIMESTONE	)	(Rulemaking – Land)
RESIDUAL MATERIAL STANDARDS:	)	
PROPOSED 35 ILL. ADM. CODE 706	)	

CERTIFICATE OF SERVICE

I, the undersigned, an attorney, state the following:

I have electronically served the attached PRE-FILED QUESTIONS AND ATTACHMENT "A" FOR HOLCIM US, NORTH CENTRAL REGION AND THE CITY OF AURORA upon the following:

See attached Service List

I affirm that my e-mail address is nick.m.sandiego@illinois.gov; the number of pages in the e-mail transmission is 23; and the e-mail transmission took place before 5:00 p.m. on April 16, 2025.

Respectfully submitted,

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY

By: /s/ Nick M. San Diego
Nick M. San Diego
Deputy General Counsel
Division of Legal Counsel

DATED: April 16, 2025

2520 West Iles Avenue
P.O. Box 19276
Springfield, IL 62794-9276
(217) 782-5544
nick.m.sandiego@illinois.gov

SERVICE LIST

Illinois Pollution Control Board Mr. Don A. Brown, Clerk of the Board Daniel Pauley, Hearing Officer 60 E. Van Buren Street Suite 630 Chicago, Illinois 60605 don.brown@illinois.gov daniel.pauley@illinois.gov	**Holcim, US North Central Region** Melissa S. Brown Alec Messina HeplerBroom LLC 4340 Acer Grove Drive Springfield, Illinois 62711 melissa.brown@heplerbroom.com alec.messina@heplerbroom.com
Illinois Department of Natural Resources Renee Snow General Counsel One Natural Resource Way Springfield, Illinois 62702 renee.snow@illinois.gov	**City of Aurora** Dennis Walsh Klein, Thorpe & Jenkins 15010 South Ravinia Avenue Suite 17 Orland Park, Illinois 60477 dgwalsh@ktjlaw.com
Office of the Illinois Attorney General Jason E. James Assistant Attorney General Environmental Bureau 201 West Point Drive Suite 7 Belleville, Illinois 62226 jason.james@ilag.gov	**Office of the Illinois Attorney General** Mallory Meade Christina Briggs Assistant Attorneys General Environmental Bureau 500 South Second Street Springfield, Illinois 62706 mallory.meade@ilag.gov christina.briggs@ilag.gov
Illinois Environmental Protection Agency Katherine A. Koehler Assistant Counsel 115 S. LaSalle Street Suite 2203 Chicago, Illinois 60603 katherine.koehler@illinois.gov	