CLG CAMELBACK LAW GROUP

MEMORANDUM

CONFIDENTIAL & PRIVILEGED
ATTORNEY-CLIENT COMMUNICATION

To:	Mayor Matthew Fenn; Vice Mayor Terry Nolan; Council Members Jason Chisholm, Michael Donovan, Tom Mallette, Denise Rogers and Jeremiah Barron; Dan Field, Town Manager; William J. Sims, Town Attorney
From:	James J. Hamula
Date:	May 20, 2025
Subject	The "Super Leach" Reprocessing Option for the IKM Tailing Pile

This Memorandum responds to Mayor Fenn's and Council Member Barron's request for a report on the "Super Leach" option for reprocessing of the Iron King Mine tailing pile, following their May 6, 2025, meeting with the principals of Super Leach Explorations, LLC (Super Leach) at their facility in Stanton, Arizona.

1. Background:

a. Following the new EPA Administrator's declared intention in February 2025 to implement deep budget cuts and broad workforce reductions[1] and the introduction of bills in Congress about the same time to rescind the Superfund chemical excise tax funding Superfund cleanups,[2] the Town's elected officials, staff, advisors, and citizens began expressing concern that EPA's "waste repository" remedies at the Iron King Mine (IKM) and Humboldt Smelter (HS) sites could be significantly delayed or not constructed at all.

b. Accompanying these national developments, there has been growing discussion in the community, and various proposals have come to the Town Council, Town staff, and Town

[1] See, e.g., https://www.eenews.net/articles/zeldin-65-percent-epa-budget-cut-is-a-low-number/. Notably, the White House budget plan unveiled recently calls for reducing the agency's budget 54.5% from $9.1 billion to $4.2 billion for fiscal year 2026, which would make the agency's budget its smallest since 1986. White House budget cuts include $254 million for Superfund cleanups. Significant workforce reductions in EPA also are reported to be in the final stages of preparation. In anticipation of such reductions, many EPA employees are retiring early. One such employee is Jeff Dhont, EPA's long-time Remedial Project Manager at the IKM-HS Superfund Site.

[2] Senator Ted Cruz introduced a Superfund tax rescission bill in the U.S. Senate. https://www.cruz.senate.gov/newsroom/press-releases/sen-cruz-files-bill-to-repeal-costly-chemical-tax-on-american-manufacturers. Another Superfund tax rescission bill was introduced in the U.S House of Representatives. https://www.taxnotes.com/research/federal/legislative-documents/congressional-news-releases/lawmakers-announce-bill-repeal-superfund-tax/7qndd

consultants, regarding remedial alternatives that could be implemented without EPA money or contractors. While the remedial alternatives have differed, they have had a common theme, namely reprocessing of the IKM tailing pile to remove the metal constituents of the pile that pose risk to human health and the environment.

i. For years, various parties have proposed and even attempted to reclaim the IKM tailing pile.
    1. Ironite/North American attempted to reprocess the IKM tailings into a commercial fertilizer called Ironite. The presence of heavy metals in Ironite fertilizer, however, led to its banning in Canada and lawsuits in the United States due to the potential release of its toxic metal constituents – notably arsenic and lead.
    2. Others proposed to remine the metal values in the tailings through various means, but to date such proposals could not be taken seriously, largely because of the dubious character, competence, and financial means of the parties making the proposal.

ii. EPA itself acknowledged in its 2022 Feasibility Study (FS), which surveyed possible remedial alternatives before recommending one in particular, that "reprocessing" could be a possible remedial alternative if the "reprocessing" could be designed and executed to meet CERCLA remedial action objectives and standards. However, because EPA knew of no such processing alternative when it surveyed, screened and selected remedial action alternatives for the IKM-HS Superfund site (between 2020-2022), the agency stated: "No commercial enterprise has presented a detailed plan for accomplishing this in such a manner that critical [CERCLA] conditions would be met … Because of this, there is insufficient information on which to base a commercial reprocessing alternative in [EPA's Remedial Action Feasibility Study]."

iii. Importantly, EPA considered the potential viability of a "reprocessing" remedial alternative because the Superfund statute requires that EPA consider and choose, whenever feasible, "treatment" remedies, rather than "containment" remedies at Superfund sites. "Remedial actions in which treatment which permanently and significantly reduces the volume, toxicity or mobility of the hazardous substances, pollutants, and contaminants is a principal element, are to be preferred over remedial actions not involving such treatment" (U.S.C. § 9621(b)(1)).

iv. In the absence of a then-known, viable treatment option, EPA focused in the 2022 FS on "containment", not "treatment", options for the IKM-HS Superfund site and dismissed "treatment" as infeasible. It was for this reason that EPA proposed a "containment" option in its March 2023 Proposed Remedial Action Plan and finally chose a "containment" option as the final remedy in its October 2023 Record of Decision.

2. <u>The "Super Leach Option":</u>

a. In late February 2025, Brian Beck, a 30-plus year registered geologist and consultant in mineral resource exploration, mine engineering and permitting, and environmental remediation - and a local resident with deep understanding of the mineralogy and historic

operations of the IKM - advised Dr. Steve Speyer of extensive historic exploration and assay work in the IKM tailing pile, the potential recoverability of the metal constituents in the tailings, the potential economic value of the metals in the pile if recovered, and the technical and economic limitations preventing others from recovering the metals in the past. Mr. Beck advised Dr. Speyer, however, of a new proprietary, environmentally friendly, high-efficiency leaching technology developed by Super Leach that could recover up to 95% of the known metals in the IKM tailing pile and that would likely generate little, if any, waste material. Seeing the Super Leach technology as a potentially preferred remedial alternative to EPA's "containment" remedy for the IKM tailing pile, a possible generator of significant funds for the Town from the recovery of the pile's metals, and a possible pathway for accomplishing remediation of the IKM tailing pile without federal funds, Dr. Speyer further investigated the Super Leach technology with Mr. Beck to determine its technical viability.

b. In early March 2025, having found the Super Leach technology technically sound and potentially usable at the IKM site, Dr. Speyer presented the "Super Leach option" to Jim Hamula for general legal and regulatory review and ultimately Town Council consideration. After assessing the technical merits and potential utility of the technology and the potential legal and regulatory viability of the technology, Mr. Hamula called Mayor Fenn on March 8 to advise him of the "Super Leach option" for remediating the IKM tailing pile, advise him of the merits and obstacles associated with the option, and evaluate the Mayor's potential interest in further investigating the option. In response, Mayor Fenn expressed interest in learning more and arranged to meet with Mr. Hamula for further discussion.
c. On March 11, Mayor Fenn and Mr. Hamula met in Mr. Hamula's offices to discuss at length the "Super Leach option" as a possible remedial alternative for the IKM tailing pile, the possible superior environmental benefits of the "Super Leach option" over EPA's containment remedy, the economic value of the metals potentially recoverable from the pile, the legal and regulatory issues that would need to be addressed and resolved, and potential political strategies for moving EPA to consider the option. At the end of this meeting, Mayor Fenn advised Mr. Hamula that the entire Town Council needed to be advised of the "Super Leach option" and asked him to do so in an upcoming meeting of the Town Council.
d. On March 18, 2025, in a special meeting of the Town Council organized by Mayor Fenn, Mr. Hamula presented to the Town Council the "Super Leach option", in concept, for remediating the IKM tailing pile. Specifically, Mr. Hamula told the Town Council the following:
    i. Super Leach had reportedly developed a "super leach" technology that recovers in an environmentally enclosed system 90-95% of the metal constituents in waste rock and/or mine tailing material.
    ii. The "super leach" system extracts commercial grade metals and yields a by-product (i.e., the residual earthen material) that itself is usable in a variety of commercial applications (e.g., fertilizer, clean fill, pig iron for steel and other iron-based product manufacturing, brick manufacturing, etc.).
    iii. Based on historic metal assays of core samples from the IKM tailing pile, the calculated volume of the IKM tailings, and the metal recovery rate of the "super leach" technology, Dr. Speyer and Mr. Beck conservatively estimated that:

1. The recoverable metal values in the IKM tailing pile would be at least $1B;
2. The construction and operational cost of the leaching facility would likely be no more than 20% of the total metal valuation;
3. The entire IKM tailing pile could be reprocessed within 3-5 years (depending on the rate of material input to the leaching system and capacity of the processing facility).

iv. Super Leach is currently operating a "super leach" facility in the Rich Hill Mining District in Stanton, Arizona, where it has been operating for the past 5 years and is deploying the same "super leach" technology at the Henrietta Mine site in Yavapai County.

v. The "Super Leach option", if implemented at the IKM site, could be a "win-win" for EPA and the Town.

1. EPA would get a remedy that --
    a. Is implementable, cost-effective, and protective of human health and the environment;
    b. Meets Congressional preference for "treatment" over "containment";
    c. Does not require expenditure of up to $400M in federal funds (that are fast-disappearing from EPA's budget);
    d. Can be implemented and completed faster than EPA's current "containment" remedy.
2. Town would get a cleanup that –
    a. Can be implemented and completed faster than an EPA-administered "containment" remedy;
    b. Is more protective of human health and the environment because of the removal of the toxic constituents of concern (i.e., lead, arsenic and other metals) from the community;
    c. Allows unrestricted reuse/redevelopment of the property after completion;
    d. Could bring enormous financial benefit to the Town (to the degree it owns, manages, and/or facilitates the reprocessing operation).

e. The Town Council expressed interest in knowing more about the "Super Leach option" and asked that the Mayor and Mr. Hamula visit with Super Leach representatives to evaluate further the metal recovery technology, Super Leach's interest in deploying its technology at the IKM site, and the potential for Super Leach to advocate use of its technology to EPA and to fund "proof of concept" work and facility construction at the IKM site.

f. Mr. Hamula initially scheduled a meeting with Super Leach on April 7, but Super Leach later asked that the meeting be rescheduled to May 6 due to pressing interest in its technology from others, including the U.S. government.

3. <u>The Super Leach Meeting and Site Visit:</u>

a. On May 6, 2025, Mayor Fenn, Council Member Barron, and Mr. Hamula met Brian Beck in Congress, Arizona and accompanied him to the Super Leach facility in Stanton, Arizona. There, they were met by Andy and John Ullrey, the principals of Super Leach.

b. At the outset, Andy Ullrey explained how John and he had gone into the mining business about 10 years ago and how John, wanting to find improved metal recovery rates from traditional leaching operations, worked for several years on his own to develop the "super leach" technology. Doubted by traditional mining experts that 90-95% leach recovery rates were possible, one expert agreed to study John's unique, innovative technology, concluded that John had achieved the "impossible," quit his job to join Super Leach, and worked with Super Leach until his untimely death during the COVID-19 pandemic.
c. Andy and John Ullrey emphasized that Super Leach prides itself on tailoring its technology to the mineralogical profile of the materials to be processed, thereby ensuring maximum recovery of the targeted metals and ensuring that every by-product, including non-targeted earthen material, has value. Their goal is zero "waste" generation and realization of maximum income. In the case of the IKM tailing pile, Andy Ullrey expressed particular interest in being able to market the non-targeted earthen material left after the metal recovery as legitimate, environmentally friendly fertilizer of considerable market value.
d. Andy and John Ullrey advised that in May 2021 Super Leach's facility in the Rich Hill Mining District received an un-announced inspection by EPA and ADEQ who had received a report of environmentally damaging activity at the facility. After a thorough inspection of the facility and its processes, EPA and ADEQ reportedly left the facility, finding no violations of federal or state law and "impressed" with Super Leach's zero-waste, no-toxic chemical, "environmentally friendly extraction and production" process.
e. Andy and John Ullrey explained that Super Leach has successfully completed many projects around the world, including Africa, and that the "super leach" technology is gaining accelerating interest from many others, including the U.S. government. He reported that the company is receiving multiple expressions of interest every week not only to deploy the technology at various sites in the United States and around the world, but also to buy the technology. To date, however, they have declined all offers to buy the technology.
f. In April, Trump Administration representatives reportedly visited Super Leach's facility to evaluate John's proprietary technology and determine its ability to recover "rare earth" and other "strategic" metals for purposes of advancing national security interests in the competition for such metals with China. (John's technology can recover such metals at high rates of efficiency, which has created great interest in the Trump Administration). Brian Beck noted that the IKM tailing pile may contain certain "strategic" metals as well, which should be evaluated in connection with any further assessment of the reprocessing option.
g. Andy and John Ullrey, with input from Brian Beck regarding historic core sampling and metal assays in Mr. Beck's possession, expressed confidence that the "super leach" technology could certainly recover all the known metal constituents in the IKM tailing pile and that, depending on the capacity of the leaching facility, the reprocessing of the pile could be completed in 3-5 years. Andy and John Ullrey indicated that "proof-of-concept" work would be required to tailor the technology to the unique metal profile of the IKM tailing material and to design and construct the leaching facility to maximize metal recovery rates.
h. However, Andy Ullrey advised that Super Leach did not have funds to do the necessary "proof of concept" work. Andy Ullrey indicated that each project it undertakes has "financial

backers" (i.e., investors) that fund start-up of the project and expect certain financial returns. Andy and John Ullrey and Brian Beck estimated that a well-designed reprocessing project at the IKM site would probably be financially self-supporting and debt-free within 9-12 months of start-up. A well-designed reprocessing project, however, was highly dependent on a thorough "proof-of-concept" study. John Ullrey advised that the ideal volume to be processed in a "proof-of-concept" study was one metric ton. The bigger the volume, the better the design for the leaching process to be designed and constructed, according to John Ullrey.

i. Andy and John Ullrey acknowledged that they had no experience processing material at a Superfund site and that securing approval to do so would require specialized legal and regulatory expertise, which Super Leach did not have in-house. They also suggested that based on their experience, it was unlikely that any privately financed company would be willing to undertake the reprocessing of the IKM tailing pile without some form of third-party protection against Superfund liability. In addition to legal and regulatory issues needing to be addressed, Brian Beck provided a list of technical issues that would need to be addressed (see Attachment "A").

j. Following a more than 2-hour in-house discussion, the group toured the Super Leach facility, received information on the various stages of processing, and observed the absence of any on-site waste piles.

4. Concluding Observations:

a. The "Super Leach option" appears to be technically viable, meaning it appears capable of recovering 90-95% of the metal constituents in the IKM tailing pile, including gold, silver, copper, iron, zinc, and the Superfund contaminants of concern (arsenic and lead). It also appears capable of generating zero-waste through an environmentally friendly (i.e., totally enclosed) process, while also generating a by-product with additional commercial value.

b. The "Super Leach option" would appear to be potentially self-supporting financially, but this would need to be confirmed in a thorough and competent "proof-of-concept" study. Such a study would probably require one metric ton of IKM tailing material. (The cost of such a study was subsequently projected by Brian Beck to be about $150,000). Metal values recoverable from the IKM tailing pile have been conservatively estimated by Dr. Speyer and Mr. Beck to exceed $1B. A financially self-sustaining, debt-free facility could be realized in 9-12 months following start-up.

c. The "Super Leach option" could be legally and regulatorily viable, if the following issues are properly addressed:

   i. EPA is willing to amend its October 2023 Record of Decision (ROD) that chose a "waste-in-place/containment" remedy for the IKM site. A ROD amendment would require public notice and comment after EPA's receipt and acceptance of the conclusions of a CERCLA-quality "feasibility study" of the IKM reprocessing alternative (involving the Super Leach technology).

   ii. Such a "reprocessing feasibility study" would depend, in part, on the successful completion of a "proof-of-concept" study discussed above.

iii. The "reprocessing feasibility study" itself would require a demonstration that the reprocessing option meets the following regulatory criteria established by EPA:
    1. Overall protection of human health and the environment
    2. Compliance with federal and state cleanup standards
    3. Long-term effectiveness and permanence
    4. Reduction of toxicity, mobility, or volume through treatment
    5. Short-term effectiveness
    6. Implementability
    7. Cost-effectiveness
    8. State and community acceptance

iv. More specifically, based on relevant passages in EPA's 2022 Feasibility Study (repeated in recent EPA communications), the "reprocessing feasibility study" would need to demonstrate:
    1. The reprocessing option is a Superfund "remedial action," not merely "an economic activity for the profit of a third-party enterprise";
    2. The reprocessing option achieves compliance with EPA's remedial action objectives and standards for the site, as established in the ROD;
    3. Financial assurance for completion of the reprocessing option;
    4. Assumption of responsibility for adverse environmental impacts from the reprocessing option, if any;
    5. Compliance with federal and state permitting requirements for all aspects of the project (excavation, processing, and disposal (if any));
    6. Site controls such as stormwater, dust suppression and air monitoring, and contingency plans and funds for unexpected spills and releases;
    7. Demonstration of market pricing for product and by-products from the reprocessing (to ensure legitimacy of the process);
    8. Bonding and commercial insurance for the operation;
    9. "Clean" closure of the site after the reprocessing is completed.

d. Assuming a "reprocessing feasibility study" could meet the foregoing criteria and issues, political support (from national EPA officials, members of Congress, and/or state elected officials) would probably be needed to ensure a "fair" and "balanced" hearing by EPA Region 9 staff and ultimate acceptance of the study. To garner such political support, emphasis should be placed on the saving of federal funds targeted for the IKM tailing pile cleanup in the event the IKM reprocessing option is chosen. In addition, a possible offer for reimbursement of EPA's past costs at the IKM-HS Superfund Site could be made, which could come from the proceeds of the recovery and sale of reprocessing products and by-products. Such reimbursement would also facilitate removal of the Superfund liens on the IKM property.

Key Issues

Once an EPA approval/ROD amendment has been obtained, the following must be done for this project to move forward. Any persons, operations contractor, agency or knowledgeable investor will need these issues resolved or that there is a plan in place to achieve certain required objectives before any entity could consider taking on this IKM recycling project:

Physical

I. Full physical control (ownership) of the indicated properties is required.
II. Full physical control (ownership) of a processing area is obtained and permitted (ADEQ, County and State).
III. Full physical control (ownership) of a secure area (facility) for handling recycled products.
IV. Full physical control (ownership) of a final waste disposal area is obtained and permitted (ADEQ, EPA, County and state).

Mineral Rights

A. Full mineral rights are obtained and confirmed for the mining patents.
B. Full mineral rights are obtained for the non-mining patent parcels.
C. Mining permits obtained from Arizona State Land (ASL) on the ASL area.
D. There is a potential issue of an over-riding mineral Royality that may exist with regard to the Gibbs Family and to SDMC.

Infrastructure

i. Assessment of sustained water available (this will determine the rate at which recycling can be performed).
ii. Assessment on APS engineering and installation of power or alternative power construction.

Environmental

1. Identification and handling of non-tailing materials encountered during recycling. It is known that IKM disposed of industrial wastes, cyanide and other drums into the tailings.
2. Classification of any final wastes from the recycling operation and disposal (permits & management).
3. Management of the onsite waste disposal area.
4. Long term monitoring requirements.

Product Production and Handling

There are different operating areas each with its own issues:

a. Excavation of the tailings, moving and handling.
b. Onsite real time assessment of the grade to be processed to maintain steady state recoveries.
c. Processing of the tailings – 24hours 7-days-a-week.
d. Management of the resources needed to conduct a 24-hour processing facility.
e. Identification of all recovery metals and final products.
f. Identification, management and security of produced materials.
g. Onsite assessment (assay of product) for final products disposal.
h. Management of final sale/disposal of the products.

Funding

It is critical that a full understanding of the timeframes and funds needed for each of the above issues be understood and planned for. It is expected that the Yavapai County Tax Liens and EPA environmental Liens will be paid in the very early stages of the project and have to carefully planned.