The Office of Vince Ryan
County Attorney

May 1, 2014

National Remedy Review Board
United States Environmental Protection Agency
1200 Pennsylvania Avenue, N.W.
MC 5204P
Washington, D.C. 20460

Subject: Request for Harris County's Recommendation for Remedy of San Jacinto River Waste Pits Superfund Site

To the National Remedy Review Board:

The Environmental Protection Agency ("EPA") scheduled a National Remedy Review Board ("NRRB") meeting for the San Jacinto River Waste Pits Superfund Site ("Waste Pits Site") located in Harris County, Texas. In conjunction with that meeting, the EPA has advised that it is providing Harris County, among others, with this opportunity to prepare a summary of its recommended and preferred remedy for the Waste Pits Site for review and consideration by the NRRB. In addition to documenting Harris County's recommendations, the EPA advises that Harris County may also discuss any other issues it believes are relevant to EPA's future remedy selection for the Waste Pits Site and that EPA will submit Harris County's recommendations to the NRRB and for inclusion as part of the Administrative Record for the Waste Pits Site.

The people of Harris County are directly affected by the dioxin waste at the Waste Pits Site, and as the local government, Harris County appreciates this opportunity to explain why the remedy for cleaning up the 2,3,7,8-TCDD – referred to by EPA as being considered the most toxic of dioxins – should be alternative 6N: Draft Feasibility Study. The removal of dioxin to a pcl of >50 ppt should be required in order to protect the health of the affected community. Harris County believes that the unique circumstances surrounding this Site demonstrate that the removal of the dioxin waste from the partially submerged waste pits and the San Jacinto River sediments is the only remedy that can effectively and permanently address the continuing potential and actual threat to human health and environment it poses to Harris County. The San Jacinto River Waste Pits are located in a sensitive marsh, in an underwater and aquatic environment, in submerged sediments, in a major floodplain, in the direct path of a critical floodwater pathway, and they are subjected to frequent and severe impacts from major hurricanes, storms, tidal action, tropical depressions, flooding and continuing subsidence that are common to this area near the Gulf of Mexico. Because of this, even the interim and short-term "rock pile cap" that EPA had to require to be put into place as part of the Time Critical Removal Action ("TCRA") through the issuance of a Unilateral Administrative Enforcement Order was quickly shown to be unable to withstand the tidal forces and the most routine of storm events, further demonstrating that an in-situ or in-place remedy is not appropriate.

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Most compelling of all, it is well-documented by EPA, the State of Texas and Harris County that the dioxin waste at the San Jacinto Site is in an area of heavy recreational use by the men, women and children of Harris County – including those who continue to subsistence fish near the Waste Pits Site to feed their families and where commercial fisherman have been documented to harvest seafood destined for widespread distribution for public consumption. Based upon the unique characteristics of the Site, its locale, and the serious threat to the people of Harris County and the sensitive environments of the San Jacinto River and Galveston Bay, the only appropriate remedy to effectively and permanently address the threats to human health and the environment is the removal of the dioxin wastes from the San Jacinto River Waste Pits.

I. Site Chronology and Relevant Background

In the 1960s, Champion Paper (now merged into International Paper) contracted with the McGinnes Industrial Maintenance Corporation ("MIMC," now owned by the Waste Management family of companies) to dispose of toxic waste from Champion's paper mill in Pasadena, Texas, located on the Houston Ship Channel in Harris County.[1] The waste paper sludge produced by the mill contained dioxin and it was disposed of in three waste ponds owned by MIMC in the marshy areas adjacent to the San Jacinto River (now the San Jacinto River Waste Pits Superfund Site).[2] After filling the pits with waste, Champion requested funds on July 14, 1966 from its corporate offices in Ohio to pay MIMC to dispose of the Pasadena waste paper sludge in a different location near Galveston, Texas. The Champion official in Texas explained the need for the additional expense was because the pollution problem made it impractical to consider further dumping at the present location on the San Jacinto River.[3] Champion and MIMC moved their waste paper disposal operations from the Pasadena plant to a different location in Galveston County, and in 1968, MIMC's Board of Directors formally voted to abandon the waste-filled San Jacinto Pits as a dump site and eliminated them as an asset from the corporation's books.[4] MIMC and Champion took no steps to prevent the wastes they knew to be toxic from releasing into the San Jacinto River day after day or to warn the men, women and children who swam, fished and recreated in the area near the waste pits of their presence.

In 2004 – almost 40 years later – the Texas Commission on Environmental Quality ("TCEQ") discovered the presence of extremely high levels of dioxin contamination in the San Jacinto River near the abandoned waste pits and sampling was conducted.[5] The dioxin levels collected in the samples near

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[1] EPA's Findings of Fact, Unilateral Administrative Order For Remedial Investigation/Feasibility Study issued to International Paper Company and McGinnes Industrial Management Corporation ("responsible parties" or "RPs'), November 20, 2009.

[2] EPA's Findings of Fact, Unilateral Administrative Order For Remedial Investigation/Feasibility Study issued to International Paper Company and McGinnes Industrial Management Corporation, November 20, 2009. A September 21, 1955 Champion Texas Division memo regarding sludge disposal methods indicates that Champion chose to dispose of its waste disposal in the San Jacinto pits as the cheapest way to get rid of its paper mill sludge, after evaluating a variety of alternatives, including ocean disposal which would have required shipping the waste 150 miles out to sea and disposing it in at least 400 fathoms of water due to the known toxic nature of the material being disposed.

[3] Champion Papers July 14, 1966 Appropriation Request and Authorization.

[4] August 19, 1968 Minutes of Special Meeting of The Board of Directors of McGinnes Industrial Maintenance Corporation, obtained by EPA through a 104(e) information request to MIMC.

[5] EPA's Findings of Fact, Unilateral Administrative Order For Remedial Investigation/Feasibility Study issued to International Paper Company and McGinnes Industrial Management Corporation, November 20, 2009.

the San Jacinto Waste Pits were the highest values recorded in the entire Houston Ship Channel.[6] Fish and shellfish tissue samples collected near the MIMC waste pits indicated that the health-based standard was exceeded in 97% of fish samples and in 95% of the crab samples.[7] The EPA placed the San Jacinto Waste Pits Site on the Superfund National Priorities List effective March 19, 2008.[8] EPA documented that contaminants from the Waste Pits containing dioxins were entering the San Jacinto River, that a large portion of the pits were continually inundated by the San Jacinto River and contaminated sediments within the source area were in direct contact with the river water as documented by aerial photographs taken in 1987, 1989, 1992, 1998, 1999, 2002, 2003 and 2005.[9] Surveyors retained by Waste Management and MIMC have written reports stating that at least 14 of the 20 acres of the Waste Pits Site have been submerged below the San Jacinto River since 1989.[10]

EPA found that both human and ecological health were threatened by releases of hazardous substances from the Site, and that ecological health was also threatened by bioaccumulation of hazardous substances released from the north tract/source area at every trophic level of the food chain.[11] EPA's findings in connection with the San Jacinto Site documented that the type of dioxin released from the San Jacinto Waste Pits – 2,3,7,8-TCDD – is considered the most toxic of the dioxins, that in certain animal species, this dioxin is especially harmful and can cause death after a single exposure, that the U.S. Department of Health and Human Services has determined that 2,3,7,8-TCDD may reasonably be anticipated to cause cancer, and that the World Health Organization has determined that 2,3,7,8-TCDD is a human carcinogen.[12]

By December 9, 2008, EPA had provided McGinnes Industrial Maintenance Corporation and International Paper Company as the successor by merger to Champion Papers, Inc. with formal written notice of their designation as responsible parties for the San Jacinto Site.[13] On July 17, 2009, EPA sent a Special Notice Letter to the Respondents offering them an opportunity to negotiate and enter into an Administrative Order on Consent ("AOC") covering the performance of a Remedial

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[6] EPA's Findings of Fact, Unilateral Administrative Order For Remedial Investigation/Feasibility Study issued to International Paper Company and McGinnes Industrial Management Corporation, filed November 20, 2009.

[7] EPA's Findings of Fact, Unilateral Administrative Order For Remedial Investigation/Feasibility Study issued to International Paper Company and McGinnes Industrial Management Corporation, November 20, 2009.

[8] EPA's Findings of Fact, Unilateral Administrative Order For Remedial Investigation/Feasibility Study issued to International Paper Company and McGinnes Industrial Management Corporation, filed November 20, 2009.

[9] EPA's Findings of Fact, Unilateral Administrative Order For Remedial Investigation/Feasibility Study issued to International Paper Company and McGinnes Industrial Management Corporation, filed November 20, 2009.

[10] Report of Texas Licensed State Land Surveyor Nedra J. Foster, October 4, 2013; also see Report of Texas Licensed State Land Surveyor William E. Merten, August 16, 2013 (15 acres of the Site have been below the line of Mean Higher High Water since at least 1987).

[11] EPA's Findings of Fact, Unilateral Administrative Order For Remedial Investigation/Feasibility Study issued to International Paper Company and McGinnes Industrial Management Corporation, filed November 20, 2009.

[12] EPA's Findings of Fact, Unilateral Administrative Order For Remedial Investigation/Feasibility Study issued to International Paper Company and McGinnes Industrial Management Corporation, filed November 20, 2009.

[13] EPA's December 9, 2008 Combination General Notice Letter and 104(E) Information Request Letter to International Paper Company and McGinnes Industrial Maintenance Corporation.

Investigation/Feasibility Study ("RI/FS") of the Site.[14] EPA's records state, however, that EPA never received a Good Faith Offer in which to begin negotiations of an RI/FS for the Site.[15]

In September 2009, the Texas Department of State Health Services published information to educate the public about the health effects of dioxin associated with the San Jacinto River Waste Pits Superfund Site entitled "*Are You Eating Fish & Blue Crab from the San Jacinto River*?"[16] The State of Texas pamphlet provided information to the public on the San Jacinto Site, dioxins from paper mill waste believed to have been disposed of at the Site, and advised the public of the existence of some evidence that exposure to relatively low levels of dioxins over long periods of time is linked to reduced liver function, increased risk of cancer, changes in the immune system or the body's ability to fight disease, and reproductive and development defects in children whose mothers are exposed during pregnancy.[17]

On November 20, 2009, EPA issued an enforcement order in the form of a Unilateral Administrative Order to International Paper and MIMC ordering them under CERCLA §106 to conduct the RI/FS study to identify remedial alternatives to clean up the Site. In the interim, EPA also documented the need for a Time Critical Removal Action at the Site to stabilize the site and temporarily abate the release of dioxins into the waterway until the site could be fully characterized by the RI/FS and a permanent remedy could be selected in the future.[18] EPA's April 2, 2010 request for approval of a Time Critical Removal Action found that there was no containment to prevent the migration of hazardous substances from the waste pits into the San Jacinto River, confirmed through chemical analysis that dioxin contaminants were entering the San Jacinto River, and found that both human and ecological health was threatened by releases from the Site.[19] In May 2010, International Paper and MIMC entered into an Administrative Settlement Agreement and Order on Consent, in which EPA found that they were "responsible parties under CERCLA", that the Site conditions described "constitute an actual or threatened release of hazardous substances" and that "the removal action required by the Settlement Agreement is necessary to protect the public health, welfare or the environment."[20] Despite enforcement through a Unilateral Order and the negotiation of an Administrative Settlement Agreement and Order on Consent, EPA had to issue numerous violation notices and documentation of the responsible parties' non-compliance with those Orders.[21]

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[14] EPA's Findings of Fact, Unilateral Administrative Order For Remedial Investigation/Feasibility Study issued to International Paper Company and McGinnes Industrial Management Corporation, filed November 20, 2009.

[15] EPA's Findings of Fact, Unilateral Administrative Order For Remedial Investigation/Feasibility Study issued to International Paper Company and McGinnes Industrial Management Corporation, filed November 20, 2009.

[16] September 2009, Texas Department of State Health Services publication, "Are You Eating Fish & Blue Crab from the San Jacinto River?"

[17] September 2009, Texas Department of State Health Services publication, "Are You Eating Fish & Blue Crab from the San Jacinto River?"

[18] April 2, 2010, EPA Request for a Time Critical Removal Action at the San Jacinto River Waste Pits Site.

[19] April 2, 2010, EPA Request for a Time Critical Removal Action at the San Jacinto River Waste Pits Site.

[20] May 2010 Administrative Settlement Agreement and Order on Consent for Removal Action.

[21] For example, on October 7, 2010, EPA issued a letter documenting that International Paper and MIMC had violated the Unilateral Order for the RI/FS work in connection with deficiencies for failing to provide data to the EPA as required by the Order. On October 10, 2010, EPA issued a letter documenting that International Paper and MIMC had violated the Unilateral Order for the RI/FS work in connection with deficiencies in sampling activities. On January 12, 2010, EPA issued a letter notifying International Paper and MIMC that they were in violation of

In addition to the continued issues with non-compliance with the EPA Orders, on September 10, 2010, International Paper and MIMC formally contested the provision in the Administrative Settlement Agreement and Order on Consent in which EPA required a granulated cover that could withstand a storm event with a return period of 100 years, contending that EPA's requirement for protection against such storms was arbitrary and capricious and invoking the Dispute Resolution process. On September 23, 2010, EPA responded to their allegations, documenting that the EPA's requirement of a cover protective of storm events was necessary given the dynamic meteorological conditions of the area, the high toxicity of the hazardous substances in the waste pits and the vulnerability of those hazardous substances to the environment and was necessary to protect human health and the environment. Subsequently, EPA continued to issue numerous letters to International Paper and MIMC documenting repeated deficiencies and violations of the Settlement Agreement in connection with the work and delays associated with the installation of the temporary cap. Ultimately, the interim cap that International Paper and MIMC eventually did install was compromised within a relatively short period by a routine storm event and/or tidal influences.

Recently, Harris County has learned of relevant information from correspondence among the responsible parties dated shortly after EPA notified them that they were in violation of the Administrative Order requiring them to perform the TCRA. This correspondence calls into question their good faith participation in the Superfund process and the objectivity of their investigation and reporting to EPA. On March 9, 2011, officials from Waste Management (the owner of MIMC) and International Paper corresponded with each other to discuss work on what they called a "global plan" to build consensus with the community action group members "to view the TCRA [temporary rock cap] as part of the permanent remedial action at the site."[22] The communication is troubling because it raises questions about how the responsible parties' and their consultants' work was conducted in light of their apparent pre-selection of the rock pile cap as the final remedy they intended to advance for the Site, years before the FS was even completed. Waste Management also wrote that "we need to control our message and build consensus [are] we may be facing a dig and haul/burn as part of the final remedy."[23] They discussed the need to have their consultant from Anchor Environmental -- one of the consultants who authored the Feasibility Study and the Baseline Risk Assessment reports that were submitted to EPA, among other reports -- present at the community meetings "to control our message," noting that the EPA project manager "will not speak out of turn when the Anchor representative is present because he knows he will be called out immediately." Additional correspondence shows that although the Remedial Investigation was not even complete, Waste Management officials had already preselected the remedy, internally discussing in May of 2011 that their "big plan is to sell this cap (TCRA) as part of the final remedy for the old cell area."[24]

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the Unilateral Order in connection with failure to use best efforts to obtain access. On January 24, 2011, EPA notified International Paper and MIMC that they were in violation of the Administrative Settlement Agreement and Order requiring them to install the temporary removal action and were subject to stipulated penalties. On February 16, 2011, EPA issued a letter notifying International Paper and MIMC that they were in violation of the AOC for stopping all TCRA Work activities.

[22] March 9, 2011 emails from and to Waste Management's Director of Closed Sites to International Paper Company's Senior Environmental Remediation Project Manager and the District Manager of Waste Management's Closed Sites Management Group.

[23] March 9, 2011 emails from and to Waste Management's Director of Closed Sites to International Paper Company's Senior Environmental Remediation Project Manager and the District Manager of Waste Management's Closed Sites Management Group.

[24] May 31, 2011 emails from Waste Management's District Manager of Waste Management's Closed Sites Management Group.

EPA Region 6 also documented that upon completion of the temporary rock cap, the responsible parties prepared a draft final removal report describing the temporary work as a permanent remedy for the Site. EPA strongly objected to this wording and insisted that the work be described as a temporary action until a permanent remedy could be selected. The responsible parties refused, and EPA decided to take over the completion of this final removal completion report and properly described the removal action as temporary. Thus, in 2011, the responsible parties had already pre-determined what they – and not EPA – were deciding was the permanent remedy, attempting to bypass the entire legal process required by law to evaluate alternatives that the EPA would review and that the Agency would select as a permanent remedy. EPA had to take over the final report and clarify that the rock cap was not the final remedy. As seen below, EPA's intervention was fortuitous and led to the identification of problems with the cap and its inability to withstand the river and storm conditions even as an interim, temporary measure.

On July 31, 2012, EPA issued written documentation to International Paper and MIMC of the deficiencies regarding their cap construction and the failure of the western cap. EPA again documented its significant concerns regarding the cap stability in storm events, as well as the overall effectiveness and design of the temporary cap. EPA also made a finding that the problems with the cap had actually increased potential threats to human harm and the environment. Because of EPA's concerns with the cap design and construction process, EPA retained a third party [the U.S. Army Corps of Engineers] to conduct an overall review of the cap design and construction process.[25]

In October 2012, Harris County met with Captain Frederick G. Ruiz, the Game Warden for the Law Enforcement Division of the Texas Parks & Wildlife in charge of patrolling the San Jacinto River near the waste pits, to follow up on the EPA's findings of the increased potential threats to human health and the environment identified as a result of the temporary cap's documented deficiencies.[26] Captain Ruiz confirmed that the San Jacinto Waste Pits area where the rock pile cap was located is still a popular fishing area and people fish in that area almost daily. From his personal knowledge of patrolling the area, he identified the biggest users of the River near the San Jacinto Waste Pits as the bank fishermen, and it was clear to him that many of them are subsistence fishing and using the fish they catch to feed their families. Even more disturbingly, Captain Ruiz said it was evident that some fish are caught or shellfish are harvested from the impacted areas of the San Jacinto River for sale to the public, as he had recently detained a Vietnamese fisherman with multiple crates of clams being harvested from the San Jacinto River. Captain Ruiz stated that it was clear that the seafood being harvested from the San Jacinto Waste Pits area was destined for commercial sale and ultimate consumption by humans and that people continue to be exposed to the dioxin-contaminated fish every day. Harris County also documented that seafood being commercially harvested near the Site was being sold to commercial fish distributors who sold seafood to many large restaurants in Houston and Galveston.[27]

In January of 2013, Harris County provided this information to EPA. By letter dated January 25, 2013, EPA approved Harris County's request to ask the responsible parties to undertake specific actions to educate the public regarding the dangers of fishing and consuming seafood in the area of the San Jacinto Waste Pits. The responsible parties did not undertake the actions requested by Harris County.

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[25] July 31, 2012 Letter from EPA to Anchor QEA on behalf of Respondents International Paper and MIMC; November 1, 2013 Letter to EPA to Anchor QEA Re USACE Armor Cap Reassessment of Western Berm.

[26] Affidavit of Captain Frederick G. Ruiz, Game Warden for the Law Enforcement Division of the Texas Parks & Wildlife Department, Harris County, Texas, dated October 22, 2012.

[27] Affidavits of commercial fishermen, Cyndi Nguyen, Cuong Kim, Duong V. Nguyen, Tang H. Nguyen and David Phan, dated October 26, 2012.

On November 1, 2013, EPA notified International Paper and MIMC that the Army Corps of Engineers' third-party review had confirmed that the responsible parties' temporary cap design and construction were not adequate. The responsible parties were ordered to undertake immediate action to address the deficiencies in the construction, design and stability of the interim cap and the considerable loss or movement of the armor materials, among other concerns.

Despite the documentation of significant concerns regarding even an interim temporary cap in the aquatic, tidally and storm-influenced San Jacinto River, the responsible parties submitted to EPA a draft Feasibility Study Report in 2013 that recommended an in-situ capping remedy that would leave the dioxin in place in the San Jacinto River as the permanent alternative. They contend that leaving the dioxin in the river under a cap of rocks is the best alternative as it is among the least expensive. The responsible parties also take the position that permanent remedies such as removal or treatment each offer less environmental benefit, among other reasons why they think the dioxin contamination is better left capped in the river than removed from the environment. The EPA, State of Texas and Harris County all submitted comments that disagreed with and/or pointed out significant flaws in the draft Feasibility Study, with EPA requiring the responsible parties to remove their conclusions that found that leaving the dioxin in place under a rock pile cap was the recommended remedy.

The Texas Commission on Environmental Quality provided critical comments regarding the responsible parties' urging that a capping remedy would not be appropriate.[28] The TCEQ noted the requirement that "Technologies used to withstand forces sustained by the river must be structurally sufficient to withstand a storm event with a return period of 100 years…." "However, the TCRA cap was breached within a year of its construction, apparently by a routine storm event, exposing the underlying geomembrane. The FS does not sufficiently demonstrate that an enhanced version of the same technology (the preferred remedy) would be able to withstand a 100-year storm."

Similarly, Harris County provided comments opposing the responsible parties' recommended remedy of capping and leaving the dioxin contamination in the San Jacinto River, noting that the recommended remedy was defective on its face and did not comply with the requirements of CERCLA. CERCLA requires and prefers remedies that permanently and significantly reduce the volume, toxicity or mobility of the hazardous substances, so that they do not migrate to cause substantial danger to present or future public health or welfare or the environment.[29] Leaving such toxic material in place in a marsh and major floodplain and flood pathway is not a permanent or appropriate solution given the frequency and severity of tropical storms, floods, tidal action and hurricanes that affect the area, as well as subsidence activity. There is also an issue regarding the requirement for treatment of principal threat wastes, which a capping remedy completely ignored. Harris County believes it is clear that the dioxin contamination should be removed from the River ecosystem, thus eliminating the continued possibility of redistributing the contamination into the Houston Ship Channel, San Jacinto River and Galveston Bay system where it can continue to threaten human health and the environment.

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[28] November 14, 2013 TCEQ Remediation Division, Superfund Section, Letter to EPA transmitting comments to the Responsible Parties' August 2013 Draft Feasibility Study Report.

[29] See USC Title 42, Chapter 103, Section 9621, Cleanup Standards (CERCLA Section 121); USC Title 42, Chapter 103, Section 9601, Definitions (CERCLA Section 101), requiring that "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."

On January 15, 2014, EPA sent the responsible parties a letter providing its comments on the Draft Feasibility Study Report conducted as a result of the Unilateral Administrative Order issued to the RPs. In those comments, EPA required the Responsible Parties to revise the draft FS to include a detailed discussion of all problems noted with the cap. EPA also asked them to remove their own statements regarding their recommended alternative of leaving the dioxin in place, advising that EPA – and not the responsible parties – will recommend a preferred alternative in the Proposed Plan for public comment. EPA pointed out that the draft FS contained no discussion of floodplain management, flood control, river pathway and water flow issues and obstructions in navigable waters. EPA also required the responsible parties to delete their statement that their preferred alternatives 1N, 2N and 3N (leaving the waste in place) provided greater long-term effectiveness than did alternatives 4N, 5N, 5aN and 6N (removal or treatment of the waste), noting that Alternatives 1N, 2N and 3N do not include any reduction volumes or mobility, nor any treatment or removal/disposal, as do Alternatives 4N, 5N, 5aN and 6N. EPA advised the responsible parties that treatment and removal remedies have been successfully designed, implemented and monitored/maintained to ensure remedial action objectives are met at Superfund sites across the U.S. EPA also pointed out that their draft FS describes the drawbacks to Alternatives 4N, 5N,5aN, and 6N but does not discuss their benefits, and explained that the purpose of the FS is to evaluate the pros *and* cons of the alternatives so their relative merits can be weighted and the best overall alternative can be selected based on the nine CERCLA criteria. EPA instructed the responsible parties to go back and include a discussion of the merits of Alternatives 4N, 5n, 5aN, and 6N (treatment, removal, long-term protectiveness). Finally, the EPA required the RPs to change their statement that "the no further remedial action alternative would be protective of human health and the environment." Rather, the EPA required the responsible parties to change that statement to relate that the no further action alternative is protective for the *short term* provided corrections identified by the USACE are completed, noting that the TCRA cap is a temporary measure put in place until the final remedy can be selected.

After these sets of comments on the responsible parties' FS report were submitted by Harris County, the TCEQ and EPA, Harris County identified the 2011 correspondence between the responsible parties identifying that the remedy they recommended in the 2013 Feasibility Study Report – the least expensive remedy possible – was in essence the same remedy they had sought to advocate before even conducting the Feasibility Study work, thus calling into question the objectivity and validity of the conclusions in the FS report submitted to the EPA. Harris County also recently questioned the objectivity of the responsible parties' RI/FS reports, questioning Integral's project manager for the RI/FS for the Site. Integral's project manager testified that in fact, the reports "prepared by" Integral Consulting and Anchor QEA did not mean that they agreed with or adopted the statements in the report.[30] The consultant was instructed not to answer questions regarding the input that the responsible parties' lawyers had into the reports.[31]

In March 2014, the RPs submitted a revised Draft Final Interim FS Report to the EPA. Harris County was provided with a copy of the revised document and asked to provide comments, which it has done. In addition, on March 24, 2014, EPA advised Harris County of this opportunity to prepare a summary of the remedy that Harris County recommends and prefers for the Waste Pits located in Harris County's San Jacinto River, for review and consideration by the NRRB. As noted above, Harris County's recommended and preferred remedy for the Waste Pits is removal of the dioxin contamination from the San Jacinto River. This same remedy has been successfully utilized for other similar sediment

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[30] Oral and Videotaped Deposition of Jennifer Sampson White of Integral Consulting, April 17, 2014, pages 110-111.

[31] Oral and Videotaped deposition of Jennifer Sampson White of Integral Consulting, April 17, 2014, pages 95-96.

contamination in this same watershed and is proven technology with the demonstrated benefit of permanently removing contamination to protect human health and the environment.

II. Harris County believes that removal of the dioxin from the Waste Pits and the San Jacinto River is the only alternative that would permanently and effectively address the danger and exposure of the dioxin to human health and the environment.

Protection of human health and the environment must be the foremost consideration and the serious impacts of the dioxin contamination from the San Jacinto River Waste Pits have been well-documented, in fishing advisories of fish and crabs tested from the pits found to be heavily laden with high levels of dioxin and with the pits themselves being a prime area for fishing, swimming and recreating by the men, women and children of Harris County. 2,3,7,8-TCDD -- one of the most highly toxic dioxin compounds known to man -- should be removed from the San Jacinto River where there are serious consequences of exposure. The site conditions themselves clearly dictate that removal is the only way that would permanently and effectively eliminate exposure to humans and the environment at a site like this where the dioxin contamination is located in a dynamic tidal river environment, with significant portions of it underwater, in a floodplain, in a floodwater pathway, subject to severe impacts from hurricanes, storms, tidal action, tropical depressions and flooding that **will** unquestionably and repeatedly occur, and in an area of heavy recreational use, including subsistence fisherman who will continue to fish at the Site to feed their families because they need to do so to survive.

Capping even on an interim, temporary basis has already proven to be problematic in an area with such severe tidal and storm action. EPA has already documented failure issues with the interim western cap and had to order the responsible parties to reassess their temporary cap to include consideration of the impact of waves, and documenting bulging and structural stability issues among other things.[32] The Agency was clear that "[i]t is the EPA's position that the observations listed above have increased potential threats to human health and the environment."[33] A capping remedy that leaves dioxin contamination in the San Jacinto River – an area of subsidence, severe storm action, flooding, and tidal and wave influence -- is not appropriate at this Site. This is particularly true when removal of such source and principal threat material is an obvious, proven and most protective way to remove the contamination from the River and ensure that it does not continue to risk exposure to humans, the seafood they are consuming and the environment.

A. Extreme Weather Events, Storms Surges and High-Flow Events.

EPA has already documented that the area where the dioxin contamination is located is prone to extreme weather events, hurricanes, storms, floods and high-flow events that occur at the site location, including Hurricane Ike in 2008, Tropical Storm Allison in 2001 and the October 1994 Flood, just to name a few of the devastating storms that frequent the tropical climate of the Texas Gulf Coast. EPA's October 18, 2010 letter to the responsible parties advised them that Hurricane Ike had a flow of 63,100 cubic feet per second, Tropical Storm Allison had a flow of 126,000 cubic feet per second, and the October 1994 Flood had a flow of 344,348 cubic feet per second. The proven exposure of the Site to severe flooding and high-flow tidal action would make any remedy that leaves the dioxin contamination in place in the river at risk to the impacts of such severe weather and dangerous tidal conditions. These storms will continue, are predictable and foreseeable, and the highly toxic dioxin material is located directly in the path of the floodplain where the storms surges will race through at great force. Removal –

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[32] See EPA July 31, 2012 letter to David Keith at Anchor QEA regarding TCRA Cap Repair.

[33] EPA July 31, 2012 letter to David Keith at Anchor QEA regarding TCRA Cap Repair.

and not a cap or containment – is the only sure way to defend against the inevitable forces of nature of the strength and magnitude of the hurricanes, tropical storms and floods that occur in this coastal environment.

B. Floodplain Issues.

The San Jacinto River Waste Pits are located in one of the major pathways for floods in Harris County – one of the most frequent kind of natural disasters visited upon this Gulf Coast area. Harris County has retained an expert hydrologist who has written a report establishing that there have been 27 major flood events in Harris County since 1965. The idea of trying to construct a cap or other in-place remedy in such a floodplain, which could impact, impair and alter the floodwater pathway routes of the river, and risk structural damage and failure due to severe storm and tidal action, among many other dangers, would not be a responsible or appropriate recommendation. To avoid altering the floodplain and pathway routes of the river, an in-situ remedy should not be implemented in this location. Due to the severity and force of floods and flash floods that hit the coastal area where the Waste Pits are located, the risk of breach, damage and tidal forces on treated or capped material or structures would be an unacceptable risk, which could lead to the even more widespread dispersal and transport of the 2,3,7,8-TCDD up and down the river, as well as upon residences and properties in the area impacted by flooding.

C. Subsidence Issues.

The responsible parties and their consultants, Anchor QEA and Integral Consulting, have drafted numerous technical documents and submittals stating that the Waste Pits are located in an area where the lowering and movement of land and sediments from subsidence activities have contributed to the exposure of dioxin into the San Jacinto River. A remedy that contemplates leaving the dioxin in the same area subject to such subsidence would not be protective. Removal of the dioxin waste from areas prone to subsidence would protect against this risk and remove concerns regarding leaving dioxin in place in the water, subsurface and sediment that may be subject to instability concerns of the type raised by the Anchor and Integral reports, including subsidence issues they identified in the draft FS.

D. Significant Human Risk from Recreation, Fishing and Seafood Consumption.

The Waste Pits are located in an area of the San Jacinto River that is the locale of heavy subsistence and recreational use from boating, swimming, camping and fishing. Removal of the source material from the Waste Pits and the river sediment is the only way to ensure that humans and biota are no longer exposed to 2,3,7,8-TCDD. As has been demonstrated, even an interim in-situ remedy could not withstand the environmental forces of storms and tides for long. Given the heavy subsistence and recreational use of the area, the dioxin waste should simply be removed so that there can be no question about continued human exposure now and in the future. The very real dangers to humans and the environment from allowing 2,3,7,8-TCDD to remain in the environment are highlighted by EPA's own findings in connection with the San Jacinto Site. EPA documented that the type of dioxin released from the San Jacinto Waste Pits -- 2,3,7,8-TCDD -- is considered the most toxic of the dioxins, that in certain animal species, this dioxin is especially harmful and can cause death after a single exposure, that the U.S. Department of Health and Human Services has determined that 2,3,7,8-TCDD may reasonably be anticipated to cause cancer, and that the World Health Organization has determined that 2,3,7,8-TCDD is a human carcinogen.[34] Fishing and shellfish tissue samples collected near the San Jacinto Waste Pits indicated that the health-based standard was exceeded in 97% of fish samples and in 95% of the crab

[34] EPA's Findings of Fact, Unilateral Administrative Order For Remedial Investigation/Feasibility Study issued to International Paper Company and McGinnes Industrial Management Corporation, filed November 20, 2009.

samples. Because of the very real danger to the public, state and local regulatory agencies have actively tried to reduce exposure by educating the community about the dangers from fishing and eating seafood in the area around the San Jacinto Waste Pits. Among other public education efforts and news media warnings, The Texas Department of Health, the Houston-Galveston Area Council and TCEQ have published and distributed "Dioxin for Dinner? Why Catfish & Blue Crab Can Be Harmful to Your Health." The Texas Department of State Health Services, Health Assessment & Toxicology Group, have published and distributed "Are You Eating Fish & Blue Crab from the San Jacinto River?" Fishing bans have been put in place. However, fishing and consumption of seafood from the Waste Pits area continues, including commercial sale of seafood into the public food chain. Given the extremely toxic nature of the dioxin, and the continued fishing and seafood consumption from the area, removal of the dioxin is the most protective option to human health and the environment under these circumstances.

E. High Toxicity of Dioxin Wastes Dictate Removal.

Because of the extreme toxicity of 2,3,7,8-TCDD, a permanent remedy would eliminate the volume, toxicity and mobility of dioxin to the maximum extent possible. EPA has already advised the responsible parties of the 40 C.F.R. 300.430(a)(1)(iii) principal threats posed by dioxin that trigger treatment – not capping – remedies, at a minimum.[35] However, because of the location and conditions of the Site in a dynamic river environment in a floodplain and floodwater pathway subject to severe impacts from hurricanes, storms, tidal action, tropical depressions and flooding that will unquestionably occur, treatment alone is not sufficiently protective in light of those impacts. EPA has recognized the technical limitations to the long-term reliability of containment remedies – and the serious consequences of exposure should a release occur – in connection with principal threat wastes. Such wastes should be removed from the San Jacinto River because long-term source removal will eliminate the threat of exposure in a way that in-situ containment remedies – no matter how robust – cannot.

F. Four Decades of Dioxin in the River is Enough.

This situation exists because the responsible parties wanted to leave their waste in the pits on the San Jacinto River more than 40 years ago. Now, 40-plus years and one Superfund Site later, it should not be an option for them to leave their dioxin wastes in the River again – in any form. This is not an orphaned Superfund Site and the same parties who left their wastes here 40-plus years ago are still here, still in existence and can fund a removal remedy. They should be required to remove their material from the sensitive eco-system in the San Jacinto River once and for all and dispose of it permanently so that the public does not have to worry about it in the future or bear the risks associated with leaving it in place in a storm-prone, aquatic environment. As documented in their March 2011 correspondence, both Waste Management and International Paper clearly recognized the likelihood of a removal and/or incineration remedy for this Site, although they discussed focusing their efforts instead to work on a global plan to build consensus with the community to view the rock pile cap as part of the permanent remedial action at the site so that the waste could be left in place. The community has made it clear to Harris County that it does not want the waste to be left in the San Jacinto River. Forty years of dioxin in the River is enough. It should be removed to eliminate any potential for continued exposure to human health and the environment, and so the River can begin the process of regenerating itself free of this dioxin source.

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[35] See EPA October 18, 2010 letter rejecting McGinnes Industrial Maintenance Corporation and International Paper's recommendation for the 10-year design for temporary cover and rejecting the responsible parties' allegations that EPA's actions in requiring a more robust design for an interim remedy was arbitrary and capricious.

III. The removal remedy is the alternative required by EPA's own criteria for remedy selection.

A. A removal remedy achieves overall protection of human health and the environment.

The Site conditions themselves clearly dictate that removal is the only way that would *permanently* and effectively eliminate exposure to humans and the environment in a way to achieve overall protection of human health and the environment. The risks of exposure to human health are high, since the dioxin waste at the San Jacinto Site is in an area of heavy recreational use by the men, women and children of Harris County – including those who continue to subsistence fish at the Waste Pits Site to feed their families and where commercial fisherman have been documented to harvest seafood destined for widespread distribution for public consumption. The risks of exposure to human health and the environment are real since fish and shellfish tissue samples collected near the Waste Pits indicated that the health-based standard was exceeded in 97% of fish samples and in 95% of the crab samples.[36] Removal will unquestionably remove the source so that it can no longer impact humans or the environment, unlike capping, treatment or other remedies that will allow the waste to remain in place subject to the constant and unrelenting impacts of tidal action, storms, major hurricanes, tropical depressions, floods, subsidence and its location in the direct path of a critical floodwater pathway and floodplain that will subject any in-place remedy to storms surges that will rush through the area at great force. Contrary to any in-place remedy that will be at risk of these elements, a removal remedy assures that human health and the environment will be protected from the 2,3,7,8-TCDD because it will no longer be present and subject to the elements or future risk of exposure.

The PRPs have recommended a PCL of 220 ng/kg for dioxin TEQ, which is only protective of the occasional recreational user and is not protective of the subsistence user. In addition, only their Alternative 6, would remove level in stream down to this PCL. Therefore, Alternative 6 should be the minimum that should be considered given the nature of the continued long-term risk. We believe that cleanup levels should actually be established much lower than the 220 ng/kg value, as is the case in many other dioxin superfund sites across the country, as shown in the table below. The existing fish advisories in the area are substantially a result of the waste at this site migrating downstream and contaminating the HSC, Upper Galveston Bay, and associated side bays.

Dioxin Remediation Levels in Sediment at Superfund Sites

Site	ROD Date	Dioxin TEQ (ng/Kg)	Notes
Lower Duwamish Waterway, Seattle, WA	April 2014	2 37 13 28	Top 10 cm site-wide Top 45 cm site-wide Top 45 cm in clamming areas Top 45 cm on beaches
Centredale Manor, North Providence, RI	Feb 2013	34 35	Allendale, Lyman Mill sediment Floodplain soil
Commencement Bay Nearshore; Tacoma, WA	Aug 2003	7.4 20	Site-specific background goal SQC
McCormick & Baxter, Stockton, CA	Mar 1999	21	

[36] EPA's Findings of Fact, Unilateral Administrative Order For Remedial Investigation/Feasibility Study issued to International Paper Company and McGinnes Industrial Management Corporation, November 20, 2009.

B. A removal remedy would achieve applicable or relevant and appropriate requirements (ARARS), unlike other alternatives.

Removal of the dioxin will ensure that applicable or relevant and appropriate requirements are addressed, unlike other potential remedies that leave the dioxin waste in place. For example, in-place remedies would not be able to meet ARARs such as those associated with floodplain management and waterway obstructions. Construction of an in-place remedy in the floodplain and floodwater pathways would detrimentally impact flood control measures and activities, river pathway and water flow issues and raise issues regarding obstruction of waterways and related activities. Such activities are not allowed except by permit and constructing in-place, permanent remedial structures that impact a key river and floodplain pathway would disfavor any other remedy except removal.

C. A removal remedy would be a long-term permanent solution, to which EPA gives preference as a remedy that permanently and significantly reduces the volume, mobility and toxicity of wastes.

A removal remedy is permanent in that the toxic 2,3,7,8-TCDD source material will be eliminated and no longer available as a route of exposure to humans or the environment, either from direct exposure or ingestion of dioxin-laden seafood from fishing or commercial sale to the public. Removal also reduces all of the volume and any risk of mobility by taking it out of the Waste Pits and river sediments entirely. In a location where highly toxic materials in an aquatic environment are regularly subjected to extreme storm events, flooding and tidal forces, removal is the only remedy that can provide assurance of permanence from risk of continued exposure. In addition to eliminating exposure, a permanent removal reduces the volume, risk of mobility and the issue of toxicity altogether.
The above table summarizes a number of other dioxin sites across the country and presents their associated sediment cleanup levels. It can be observed that the proposed PCL for this site is much higher than other locations. In addition, only Alternative 6 proposes to remediate the sediment even close to these other site values. If Alternative 6 is not carried out at a minimum, then the ultimate sediment cleanup level will be many times higher than what has been accepted at other sites. Should the citizens of Harris County accept less than what is required in many other parts of the country? This site is as heavily used and is exposed to just as many of the storms, floods, hurricanes, etc. as other parts of the country, thus removal is the only long-term solution to permanently removing the waste from the system.

D. A removal remedy can be accomplished in a protective manner.

Removal of the dioxin material can be accomplished in a protective manner through a variety of techniques successfully used in contaminated sediment and other aquatic sites across the country. This is particularly true in the San Jacinto River location because of the shallow water depths. Berms or sheetpiles can be used to isolate an area being excavated from the river, as well as construction of temporary earth/rock berms, or other engineering controls, around excavation areas. Cofferdams have routinely been installed around excavation areas in rivers to allow removal of water from within the cofferdam. When properly designed and installed, cofferdams made from interlocking steel sheetpiles form a watertight temporary structure. These types of structures will effectively contain any sediment that may be resuspended when dredging inside the sheetpiles. In addition, the sheetpiles can be constructed higher and with liners to avoid any such potential for washouts when larger storms move through the area. Therefore, the rationale for not removing this highly toxic material is not relevant, as sound engineering practices can be implemented. Such areas can be sequenced to work from the center of the area that is above mean tide level toward the perimeter, and the unexcavated area around the excavation can serve as a berm to contain any resuspended sediment to eliminate potential impacts to water or sediment quality.

E. A removal remedy is implementable and has been successfully accomplished at a similar site in the area.

In addition to removal through excavation, a similar aquatic site contaminated with DDT was remediated through the use of a bank-to-bank dredge to achieve a one-time removal of source material. This was in Harris County in Greens Bayou, a navigable tributary of the Houston Ship Channel. In that situation, DDT and other highly persistent organo-chlorine pesticides disposed of in the 1970s were discovered in high concentrations from historical manufacturing activities, and which had been discharged into a flood drainage ditch and submerged sediments in Greens Bayou. Fish and crabs were found to be heavily impacted with DDT. A bank-to-bank dredge was designed, with 6 separate Dredged Material Management Units (DMMUs) for sequencing purposes. A required dredging depth in feet and the payable over depth of additional sediment to be removed below the required depth was designed with calculated sediment dredge volumes identified for each DMMU to include both the required depth and over depth volume. Within 6 months after the completion of the dredging, a post-dredging sampling program was designed to confirm substantial removal of source material. This removal remedy was accomplished successfully, and avoided having to place a cap or other engineered remedy into the waterway.

F. A removal remedy is cost effective to remove special threat wastes from this high-risk environment because it will be a one-time action that will eliminate continued and future exposure to known or suspected carcinogens and achieve a permanent solution that avoids risks of remedy failure and long-term O&M costs.

A removal remedy will be a one-time remediation project that will remove forever the dioxin source material that has impacted the area for more than 40 years. It will also eliminate costs associated with long-term O&M, as well as continued maintenance and repair of any in-place remedy into perpetuity. Because removal will achieve all of the central goals of a permanent remedy and eliminate toxicity, mobility and volume of the dioxin, it is also cost-effective based upon overall effectiveness. This is particularly true when, as here, the dioxin source material is in a high-risk environment subject to storms, floods and severe meteorological impacts with high risks of impacts to any in-place remedy, and located in a place that is highly utilized by humans for recreation and fishing. High risks of human exposure have already been documented and the dioxin has caused a serious public health threat associated with the distribution and ingestion of dioxin-impacted seafood. It would be surprising if a removal remedy were not selected based upon these considerations. EPA has also recognized the risk of leaving the dioxin waste in place given the conditions and location of the site noting that the "percentage is too high of a risk of failure in the long term to be considered protective of human health and the environment and in all likelihood will not make a temporary cover designed for a storm even with a return event of 100 years a viable long term remedial option."[37] The risk is simply too great to allow the 2,3,7,8-TCDD to remain in the Waste Pits and sediments of the San Jacinto River when weighing the risks of leaving highly toxic material in an aquatic environment subject to the certainty of impacts from severe storm events, and risking continued exposure to human health and the environment. The cost-effectiveness of a remedy that will forever remove the dioxin source material, achieve a permanent remedy and eliminate toxicity, mobility and volume of the dioxin and avoid remedy failure and long-term O&M into perpetuity is more than proportionate to the benefits gained, particularly since the overall goal of elimination of the continued and future exposure of the dioxin to human health and the environment is paramount and will be achieved by a removal remedy.

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[37] See EPA October 18, 2010 letter to Albert Axe on behalf of McGinnes Industrial Maintenance Corporation and International Paper Company.

Even Waste Management and International Paper identified years ago that the site would likely be subject to either a dig and haul or incineration requirement – both removal remedies. The fact that they chose instead to promote the cheapest remedy – leaving dioxin in the river covered with rocks – does not alter the basic acknowledgement that this is highly toxic material that would be expected to be removed from the environment, rather than leaving it in place subject to the elements and severe forces of nature that are well documented, will continue and will impact any remedy left in the San Jacinto River. Both Waste Management and International Paper's financial records indicate more than adequate financial capability to fund a removal remedy, with revenues reported in the multiple-billions of dollars.[38]

IV. Other Issues.

Additional issues that have been identified in a review of the latest Revised Feasibility Study will also need to be addressed.

A. Groundwater Detection Limits. It appears that the detection limits for groundwater samples that are used to support the responsible parties' conclusion that no groundwater impacts exist were too high. It appears that the detection level for 2,3,7,8-TCDD was 100 times higher than the State water quality standard for TCEQ (which includes other congeners in addition to 2,3,7,8-TCDD). This indicates that the detection level the responsible parties used would not allow them to conclude if dioxin levels were in the groundwater or constituted a potential threat.

B. PCB assessment. Another issue is that the PCB assessment was completed based on Aroclor analyses, not a high-resolution congener-specific method. This is problematic because individual congeners are needed for the risk assessment.

C. Inadequate evaluation of storms, hurricanes, floods and tidal influences. Harris County's review of the Revised Feasibility Study also identifies a critical gap in that it fails to adequately address the risks of one of the greatest threats to leaving the dioxin contamination in place – clearly the alternative being promoted by the responsible parties – the severe and violent storms, hurricanes, floods and tidal influences that have and will continue to be a threat to the integrity of any in-place remedy they seek to obtain. This is one of the central issues to evaluating an in-place remedy of principal threat wastes in an aquatic environment of the Gulf Coast which is subject to well-documented, major storm events, some of which are devastating in their violence and severity. As recently as 2008, Hurricane Ike struck the Texas coast and was so large that it caused devastation all the way from the Louisiana coastline through the coastal areas of Texas almost to Corpus Christi. In 2001, Tropical Storm Allison devastated southeast Texas, developing a tropical wave in the Gulf of Mexican that struck the upper Texas Coast and flooded Harris County. In 1994, remnants of Hurricane Rosa stalled over Texas to create the October Flood of 1994, which caused widespread and record flooding of Texas rivers and reservoirs, including impacts to the San Jacinto River. These types of storms are foreseeable, predictable and will continue to occur. It is also not yet known how much of the dioxin material from the San Jacinto pits could have been or was washed into Galveston Bay and other river systems as a result of the effect of these storms on the San Jacinto Waste Pits. The only way to ensure that risk does not occur again is to remove the material from the threat caused by such storms.

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[38] Waste Management, Inc. reported revenues of $13.6 billion in 2012. Source, Waste Management, Inc., SEC Form 10-K, year ended December 31, 2012. International Paper Company reported revenues of $27.8 billion in 2012. Source, International Paper, Inc., SEC Form 10-K, year ended December 31, 2012.

For the reasons set forth in this letter, Harris County continues to believe that the only appropriate remedy to effectively and permanently address the threats to human health and the environment is the removal of the dioxin wastes from the San Jacinto River Waste Pits and the River. Harris County extends its thanks to the EPA and the National Remedy Review Board for the opportunity to explain why removal of the dioxin from the San Jacinto Waste Pits is the preferred and recommended remedy that should be afforded to the people of Harris County.

Sincerely,

By: _____
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