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Summary of Meeting Between EPA's Office of Solid Waste and Representatives from DuPont, April 3, 2001

The list of attendees for this-meeting is attached. After introductions, OSW representatives ("OSW") reminded DuPont representatives that DuPont requested the meeting and that OSW staff were here to listen. OSW noted that it has identified several regulatory options for the potential regulation of non wastewater solids generated by DuPont's chloride ilmenite titanium dioxide production process. However, an Agency decision regarding a potential hazardous waste listing for these wastes has not been made, and the final listing decision would need to go through the regulatory development process at EPA. DuPont representatives ("DuPont") then provided opening statements, noting that DuPont believes that large portions of the waste being scrutinized by EPA are Bevill exempt materials. In addition, DuPont is now taking substantial actions with regard to the management of its Iron Rich™ material. The information provided by DuPont and the issues discussed are summarized below.

Level – Playing Field

DuPont believes that EPA should establish two key objectives to its evaluation and potential regulation of this material. DuPont described the first objective as "effective environmental protection," which DuPont is embracing as one goal. The second objective noted by DuPont is that an economic "level playing field" is important and EP A should avoid creating an uneven playing field by listing wastes from the chloride-ilmenite process and not listing similar wastes that are similarly managed from the chloride process. DuPont has concerns with EPA's decision to distinguish between the chloride process and the chloride-ilmenite process for producing titanium dioxide. DuPont does not believe that process differences justify different regulatory outcomes, and noted that this distinction may have the effect of imposing discriminatory economic impacts on DuPont.

DuPont's Management of "Iron Rich™" Materials

DuPont stated that it has done further analysis of Iron Rich™ material produced at its plant in Edge Moor, DE; sampling and analyses of the Iron Rich™ material have shown average concentrations of dioxins/furans in the material of 1.10 ppb WHO TEQ. DuPont attributes this to the presence of the Bevill-exempt coke and ore solids in this material. DuPont has decided not to market the Iron Rich™ material as a product, at least as the material now is formulated. DuPont currently is looking at its production process with a goal of reducing the dioxin levels in the Iron Rich™ and solid wastes. DuPont also is taking measures to reduce the potential for windblown releases of the material from the staging area used to store the material, because DuPont is concerned about potential windblown releases of Iron Rich™ from its staging facility. DuPont noted that its concerns are based on modeling, **which also suggested potential risks associated with runoff and surface water.** DuPont does not believe release of dioxins into the groundwater is a concern, however the **release of metals into the groundwater could be a concern** unless Iron Rich™ is managed and applied as suggested in previous submittals and comments to the Agency.

DuPont indicated the Edge Moor plant plans to stop placing newly-generated Iron Rich™ material on the Cherry Island site *(i.e.,* the current staging area). DuPont currently is working with the Delaware Department of Natural Resources and Environmental Control (DNREC) to develop a plan for managing Iron Rich™ material from ongoing production at the plant. DuPont is also working with DNREC to develop a closure plan for the staging area. DuPont currently plans to spray the staged pile with a **biodegradable protective coating to keep the material from being subjected to wind and water dispersion**. DuPont also plans to build or permit an existing containment structure for storage of newly-generated Iron Rich™ material.

In addition, DuPont noted that it plans to build a slurry wall between Cell One of DuPont's closed Cherry Island landfill and the impoundments located at the adjacent Delaware Solid Waste Authority sewage treatment plant. DuPont explained that the purpose of this is to reduce groundwater infiltration into Cell One and reduce subsequent seepage of leachate to the storm water col1ection system. DuPont stated that infiltration to the landfil1 is being caused by the impoundments next to the DuPont landfill. DuPont said that groundwater infiltration due to the changed hydrogeologic conditions may cause potential runoff of leachate from Cell One after the contaminated groundwater seeps into the storm water collection culverts. DuPont believes that the slurry wall will correct the infiltration problem. DuPont noted that there were no concerns associated with the contamination of groundwater from staged Iron Rich™ material and the other two closed landfill cells, but only from the infiltration of Cell One.

Economic Impact

DuPont stated that its decisions with regard to reducing the dioxin/furan content of its Iron Rich™ via process changes and treatment, halting the marketing of the material as currently formulated, and reducing the potential for releases of the Iron Rich™ from the staging area, represent a: major change in corporate position and will result in major cost impacts for DuPont.

DuPont said it has concerns regarding the potential economic costs that the company may incur should the Agency decide to list its wastes as hazardous. In addition, DuPont has concerns that a hazardous waste listing could result in impacts to DuPont's competitive position in the market for titanium dioxide. In particular, DuPont noted that the hazardous waste listing might threaten the economic viability of the Edge Moor, DE plant. DuPont also reaffirmed that it believes that much of the waste material it generates and concerns the Agency is Bevill exempt material.

Ferric Chloride Filter Solids Solids

In response to a question from DuPont regarding how EPA viewed DuPont's comments and subsequent information, OSW indicated that some of the information DuPont submitted appeared to be compelling with regard to certain issues. However, **OSW said it still has concerns, particularly with regard to risks posed by the ferric chloride filter solids.**

DuPont responded that it may be able to move the point of chlorine addition in its process in order to reduce the Bevill exempt ferric chloride filter solids that are contacted upstream of filtration by chlorine injection at its Edge Moor plant. DuPont emphasized that the purpose of the chlorine addition was to convert ferrous chloride (liquid) to ferric chloride (liquid) and no solids were created, destroyed or affected by the process step. DuPont did not agree with the Agency redefining the Bevill exemption for the Bevill exempt ferric chloride solids that are contacted by the chlorine addition. DuPont indicated that this would entail significant costs, but that such a change could occur prior to the anticipated effective date of EPA's listing determination. DuPont also explained that it already intends to move away from pond management of the ferric chloride and has committed to building a tank system for storing ferric chloride. DuPont intends to close the product pond currently in use at the Edge Moor facility and replace the pond with two 400,000 gallon tanks. DuPont explained that DNREC is overseeing the closure of three additional on-site ponds that are out of service, and that this closure is being pursued under a "conciliatory agreement" with DNREC. DuPont said that, in the future, process and waste management changes could reduce the solids that contact chlorine addition and might be subjected to a listing. DuPont noted that, if EPA does not finalize a listing that applies to any ferric chloride solids subjected to chemical addition, the solids that eventually will be removed from the ferric chloride storage tanks could be managed as if they were a characteristic hazardous waste. DuPont estimated that it would cost DuPont between $500,000 and $1 million to construct piping and the necessary control systems to switch the chlorine addition point. DuPont has estimated it will cost between $4 and $5 million to install the two 400,000 gallon tanks and associated pumps and piping. Closure of the surface impoundments will cost around $7 to $8 million. DuPont agreed to supply figures regarding the estimated volume and associated costs of managing ferric chloride solids generated in the tanks as hazardous wastes and non-hazardous wastes.

Wastewater Treatment Solids

OSW asked if DuPont had plans for addressing concerns related to potential risks due to the presence of other metals that appeared in the DuPont analyses of some of its wastes (i.e., arsenic in the DeLisle, Mississippi wastewater treatment solids). DuPont stated that, at the time of initial comment submission, DuPont personnel had not had sufficient time to review the analytical data that DuPont had generated in response to EPA's proposal and submitted to EPA due to the tight timeframe for comment. Thus, when DuPont submitted these analytical results, it did not have time to thoroughly review the data and was not aware of the arsenic results until after the submittal. DuPont pointed out that arsenic is a TC metal; therefore, if sludges that are removed from the DeLisle surface impoundments exhibit the TC for arsenic, the sludges would be managed as hazardous waste. DuPont did not generate or submit TCLP data for any of the wastewater treatment sludges, but focused on SPLP testing, except for TCLP data submitted for the Hi1lside Pond sludge generated at the New Johnsonville TN TiO2 plant.

DuPont is looking at the arsenic levels in wastes generated at the DeLisle facility and will identify potential ways to reduce arsenic levels in the wastes. **DuPont believes that wastes generated at this facility may have higher levels of arsenic due to its presence in the ore processed at that facility.** If wastes generated exhibit the TC for arsenic, DuPont will explore potential process changes to reduce arsenic levels in the wastes. DuPont said that any arsenic concentrations found in wastewater treatment solids may be attributable to Bevill-exempt materials.

DuPont pointed out its belief that it is being treated differently and less favorably than other titanium dioxide (TiO2) producers in regard to evaluation of risks from arsenic. DuPont is concerned that the EPA would use arsenic as a basis for listing when the arsenic data reviewed was submitted by DuPont on a complete TiO2 manufacturing sub-sector (chloride-ilmenite) and EPA had not performed or requested the same analysis be performed on the other two sub-sectors (chloride and sulphate). DuPont stated that its openness in regard to sharing data and information it has collected with the Agency should not be used as a source for raising additional issues. DuPont said it would be unfair to discriminate against them on the basis of its own data, particularly if DuPont's competitors have not been asked or required to submit additional data, again placing DuPont at a competitive disadvantage.

DuPont asked whether EPA was now seeking to obtain a similar data package from a1l chloride process facilities and whether EPA would reevaluate risks from those facilities. OSW indicated that it was not seeking similar data from chloride-process facilities for evaluation. While OSW acknowledged that DuPont may feel this is unfair treatment, OSW indicated that it was appropriate to evaluate the data in its possession for the final listing determinations.

Delay of Effective Date and Prospective Application

DuPont asked if EPA would consider either extending the effective date of any listing determination that would apply to wastes from chloride-ilmenite production, or making any such listings prospective only. DuPont is concerned that it may not be able to complete the closure of its on-site waste management units or the staging area at Cherry Island prior to the effective date of the final listing decision. In addition, DuPont noted that any listing determination would require reevaluation and revision of the Bevill-exempt status and the materials, and that this provided EPA with a unique basis for applying the listing only prospectively. OSW responded that EPA does not have many options for extending the effective date of a hazardous waste listing determination beyond the six-month time frame provided in the RCRA statute.

Thallium

DuPont asked if OSW still had concerns regarding potential risks due to the presence of thallium in Iron Rich™. DuPont has found that there most likely is interference when waste samples are run through ICP to measure for thallium. DuPont indicated that interference may occur due to the presence of iron or aluminum and such interference may result in false positives (for presence of thallium). DuPont completed analyses of 24 different ore samples. Although sampling results showed that the ore could contain as much as 60 ppb thallium, DuPont indicated that all the ore used at DuPont's Edge Moor facility has less than 10 ppb thallium. DuPont offered to provide OSW with documentation of its sampling and analytical efforts.

OSW staff responded that OSW reexamined EPA's sampling and analysis results and reviewed DuPont's analytical data in detail. At this time OSW continues to believe that thallium is present in the waste samples. However, OSW indicated that it found DuPont's arguments and data related to the K_d for thallium compelling.

Wastes from Chloride Process

DuPont asked if EPA intends to change its mind with regard to potentially listing as hazardous similar wastes generated from the chloride process. DuPont pointed out that it does not think it was appropriate for the Agency to split the chlorine consumers in the titanium dioxide industry into two sectors in its proposed rule, because the production processes for chloride and chloride ilmenite and the wastes generated are similarly managed. DuPont had submitted information in its comments documenting off-site management of wastes generated at facilities owned by DuPont's competitors, facilities employing the chloride process. Given the similarity of wastes and of waste management practices, DuPont reiterated that its facilities should receive a similar favorable non-listing determination to facilities in the chloride process, or at least that the chloride process facilities should have similar wastes listed.

OSW indicated that OSW staff has thoroughly investigated information provided by DuPont on potential off-site waste management practices employed by DuPont's competitors. At this time, OSW is not convinced, based on its technical analysis, that the Agency needs to change its proposal with regard to wastes generated by the titanium dioxide production using the chloride process.

Vanadium Waste Stream

DuPont asked if EPA has reviewed DuPont's arguments regarding the Bevill status of coke and ore solids generated when recycling DuPont's vanadium-containing recycle stream. OSW indicated that, based on an evaluation of new information, OSW tended to agree and found DuPont's argument regarding the Bevill status of the coke and ore solids generated when recycling the vanadium containing recycle to be compelling.

Ferric Chloride Filter Solids – Waste Volume Reduction

OSW staff asked the DuPont representatives if they could estimate what the potential volume reduction would be in ferric chloride filter solids generated, if the chlorination step was moved so that it occurred after filtration. DuPont representatives answered that moving the point of chlorine addition would not affect the amount of solids that are generated; it would only change the amount of Bevill exempt solids subjected to chlorine addition. DuPont was asked what volume of solids would drop out in the tank. **DuPont estimated that the volume of solids that settle out in the new tanks may be about 1/5O th of the current volume contained in the ferric chloride process stream.**

Future Management of Iron Rich™

When questioned on how DuPont plans to manage newly-generated Iron RichTM, DuPont said that newly-generated Iron Rich™ would be appropriately stored on-site to minimize releases and **that any Iron Rich™ materials that must be disposed of would be sent as a nonhazardous waste to an appropriate, permitted off-site landfill**. DuPont currently is looking into the availability of effective thermal treatment processes to reduce the organics contents of the material. OSW also asked if DuPont will market its Iron Rich™ as a product in the future, if the company could reduce the dioxin/furan levels in the material, regardless of the metals content of the material.

DuPont answered that it may market Iron Rich as a product in the future, but would only do so under conditions that satisfactorily addressed product stewardship requirements and regulatory concerns from the state and or EPA.

Conclusion

DuPont ended the meeting by thanking EPA for the opportunity to meet and discuss issues related to DuPont's waste generation and management practices. DuPont indicated that it appreciates the care and attention to issues developed by the EPA staff and the progress that has been made on the issues. DuPont continued to stress that it is interested in continuing to pursue a non-listing alternative for its waste materials, and that it would be willing to develop an enforceable agreement, or seek to have EPA adopt a conditional listing if it would adequately address DuPont's and EPA's concerns.

OSW said that an enforceable agreement under the federal RCRA program may not be a viable option. OSW indicated that various regulatory options would be presented to EPA management soon as part of the normal regulatory development process.

List of Attendees
Meeting Between EPA/OSW Staff and
DuPont

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