OSi SPECIALTIES

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September 29, 1995

Regulatory Reinvention Pilot Projects
FRL-5197-9
Water Docket
Mail Code 4101
USEPA
401 M. Street, SW
Washington, DC 20460

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Dear Sir or Madam:

OSi Specialties, Inc. is pleased to submit the attached proposal for consideration in USEPA's recently announced Project XL program. On May 23, 1995 the USEPA published an article in the Federal Register requesting proposals from industry for Project XL. We believe that we have proposed just the type of project which the program is soliciting.

The project proposed for our Sistersville, WV plant will result in a much greater reduction of emissions to the atmosphere at a substantially lower cost than planned compliance alternatives. Organic emissions could be reduced from one production unit by over 371,000 lb/yr if capital funds planned for compliance projects could be used to either modify or replace the unit. Emissions controls on surface impoundments and modifications of hazardous waste tanks to comply with 40 CFR Subpart CC will result in substantially less reduction in emissions (less than 90,000 lb/yr).

After reviewing the attached proposal please contact me at (304) 652-8131 to discuss its potential inclusion in Project XL.

Sincerely,

Okey Tucker

Okey Tucker
Environmental Protection Manager

cc: D.R. Heintzman
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OSi Specialties, Inc.
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6 pp

Project XL Proposal
OSi Specialties, Inc.
Sistersville, WV

Introduction

On May 23, 1995 the USEPA published an article in the Federal Register (60 FR 27282) soliciting proposals from industry for Project XL. The purpose of Project XL is to produce greater environmental benefits through strategies to replace or modify regulatory requirements. In return, the regulated entity must make a commitment to achieve better environmental results than would have been attained through full compliance with all applicable regulations.

OSi Specialties, Inc. feels the project proposed herein meets the intent of Project XL. The company has a strong desire to work with the USEPA to implement a project under the program.

OSi Specialties, Inc. is a specialty chemical manufacturer producing many different silicon based products for use as intermediates in other manufacturing industries. Because the facility is primarily a batch processor and its products have very stringent quality specifications, the production units must do thorough cleanups of equipment between product campaigns. Various solvents (both RCRA listed and nonlisted) are used for these cleanups. These spent solvents are stored in several less than 90 day and permitted tanks and incinerated onsite in a permitted incinerator.

Discharges from the incinerator's air pollution control equipment are treated in one of two lined, permitted minimum technology requirement (MTR) impoundments. The ash from the incinerator (which is now listed due to the derived from rule) is disposed of in the facility's onsite permitted hazardous waste landfill. Other miscellaneous listed hazardous wastes have also been disposed of over the years in the onsite landfill.

As a result of the treatment and disposal of these listed hazardous wastes, the onsite wastewater system is considered a hazardous waste treatment system. The system treats approximately 5.5 MGD of wastewater and discharges via an NPDES permit to the Ohio River. Both tanks and surface impoundments are included in the treatment system. The impoundments, installed in 1988, meet all MTR standards. These impoundments are each approximately 1 million gallons in size.

Project Description - Regulatory Relief Being Sought

OSi Specialties Inc. is seeking relief from recently finalized regulations (40 CFR 264 and 265 Subpart CC) which address emissions from hazardous waste tanks, containers and surface impoundments. The regulations require, among other things, the control of volatile organic compound (VOC) emissions from hazardous waste impoundments and storage tank

vents. The regulations require that emissions from the impoundments and the entire upstream wastewater collection system as well as the tank vent emissions be controlled with 95% efficiency.

OSi Specialties Inc. also requests that future regulations, such as the proposed 40 CFR 60 Subpart YYY, be adequately addressed to prevent similar control requirements from being placed on the wastewater system. Subpart YYY is the SOCMI wastewater regulation under the Clean Air Act which would require control of organic emissions from certain wastewater treatment systems. It is not clear at this time if Subpart YYY would apply to our facility, but it is obvious that its application would yield little net gain for the environment.

Project Description - Justification

After evaluation of several options to control emissions from the wastewater system to comply with Subpart CC, OSi Specialties, Inc. is considering replacement of the Sistersville plant's permitted hazardous waste surface impoundments with above ground tanks, even though the impoundments would continue to meet the needs of the facility in an environmentally sound manner for many years to come. These tanks to be installed would be exempted from the requirements of Subpart CC due to the wastewater treatment unit exemption found in 40 CFR 264. Should this Project XL project not be implemented, emissions from the new wastewater tanks will be addressed as appropriate to comply with future Clean Air Act regulations.

Although replacement of the impoundments with tanks will result in no decrease in emissions from the wastewater treatment system, it is the most economical of the options evaluated. This replacement is estimated to cost $ 2,000,000 prior to the end of 1997.

To address compliance with the portion of Subpart CC dealing with tanks, hazardous waste tanks located at the plant (currently a total of 14 in service) would be modified to comply with an acceptable operating scenario under Subpart CC regulations (40 CFR 264 and 265 section 1084). This operating scenario does not require control of the vented emissions. The tanks would be operated without agitation and vent only during filling or emptying operations. This alternative is estimated to cost $600,000 in initial capital expense prior to the end of 1997. Annual maintenance costs of the new systems would also be incurred. Thus, total costs to comply with Subpart CC regulations are greater than $ 2,600,000. Costs to comply with Clean Air Act regulations will undoubtedly add substantial costs to this total (probably in the millions of dollars).

Volatile organic emissions from the wastewater system are estimated at 75,000 lb/year of methyl chloride, ethyl chloride, toluene and methanol. Volatile organic emissions (point source) in 1994 from all of the existing hazardous waste tanks at the Sistersville plant were calculated to be less than 10,000 lb. (after abatement with existing control devices). Total Sistersville plant SARA air emissions were reported as 899,830 lb. in 1994. Thus, total volatile organic emissions to the air from the wastewater system and hazardous waste tanks (point source) are less than 10 % of the total air emissions from the plant. Even if 95%

efficient emission controls were placed on the entire wastewater collection and treatment system and hazardous waste tanks, they would provide a relatively small reduction in overall air emissions.

In comparison to the emissions from the wastewater system and hazardous waste tanks, there is a single production process which, as a point source, emitted approximately 327,000 lb. of methyl chloride, 23,000 lb. of methyl ether and 29,000 lb. of methanol in 1994. These emissions are not regulated under a permit, nor does it appear that they will be regulated in the near future. OSi Specialties, Inc. has a desire to install equipment to make the process more efficient which will result in less raw material demand and reduce emissions to the air and water. Installation of emission control equipment or total replacement of the existing unit with a larger capacity unit with appropriate emission controls, will substantially lower emissions. It is estimated that either of these projects for the production unit would reduce VOC emissions (through both process efficiency and control equipment) by more than 371,000 lb/yr (at 98 % efficiency). This is 41% of the total reported SARA emissions in 1994. The installation of the necessary control equipment is estimated to cost less than $750,000.

Unfortunately, in order for OSi Specialties, Inc. to be competitive in today's climate, the capital funds to install such a pollution prevention project are not economically justifiable. Part of the reason for funds not being available is the requirement for the facility to spend capital funds on the impoundment replacements and tank modifications to stay in compliance with regulations. As is demonstrated above, this expenditure does little to reduce emissions from the facility.

OSi Specialties, Inc. would request authorization to control methyl chloride from the production process in return for exemption from emission control requirements on the plant's wastewater treatment system and hazardous waste tanks. Should OSi Specialties elect to build the new unit, the company will commit a full faith effort to achieve similar emission reductions in the new unit (through both process vent control and fugitive emissions control), so that the net benefit to the environment remains the same.

A leak detection and repair program would be implemented for fugitive emissions from the hazardous waste tank systems to the extent necessary to comply with 40 CFR 264 and 265 Subpart BB requirements.

Addition of control equipment to the production process would cost less than $2 per pound of abated emissions versus a cost of approximately $260 per pound of abated emissions per year under Subpart CC. Installation of the controls proposed under Project XL will remove 3,600% **more** VOCs (371,0000 lbs. vs 10,000 lbs.) from the environment at a comparative cost savings of at least $1,800,000.

EPA Criteria

As stated in USEPA's request for proposals, the project must be evaluated against certain criteria to determine if it is selected. The eight individual criterion and a discussion of the applicability of each are discussed.

1. Environmental Results

   As described in the project description, the proposed alternative project would yield a substantial reduction in the facility's methyl chloride emissions (91% based on 1994 data), while the options of replacing regulated impoundments with tanks and modifying existing hazardous waste tanks yield little reduction in total air emissions (2% based on 1994data). This is clearly a project which yields "cleaner results" by reinvestment of the cost savings.

2. Cost Savings and Paperwork Reduction

   Not only will this project provide a decrease in emissions at less cost, it could also make the process unit more efficient, possibly leading to lower production costs. Should project XL be approved, NPDES permit modifications and closure of existing impoundments will not be required.

3. Stakeholder Support

   Based on past experience we believe that the local communities and local agencies would be in full support of the project.

4. Innovation/Multimedia Pollution Prevention

   This project would prevent some emissions from being generated in the process unit as well as make the unit more efficient. Controls (if any) on the wastewater system only treat emissions once they are generated. There are emissions from the existing process unit to both the air and water that would be either eliminated or controlled.

5. Transferability

   Relief from the Subpart CC requirements and subsequent controls on other processes could conceivably be accomplished at both OSi Specialties Inc. Sistersville location and other industry locations.

6. Feasibility

   The proposed project has been proven to be technically possible. OSi Specialties Inc. would have the financial capability to pursue the proposed project if the expenditure due to Subpart CC is not required.

7. Monitoring, Reporting and Evaluation

Performance of the project in terms of emission reductions should be relatively easy to monitor. More detail on monitoring, objectives and timing will be developed (in conjunction with the USEPA) should the project be implemented under Project XL.

8. Shifting of Risk Burden

The project will protect worker safety. Existing emissions from the wastewater system, hazardous waste tanks and process units are not considered to have an adverse impact on employee health as substantiated by industrial hygiene testing. Health and safety reviews of any new process improvement equipment and/or control equipment would insure a safe working environment.

Summary

OSi Specialties, Inc. fully supports the initiative put forward by the USEPA in the development and implementation of Project XL. The project proposed for the Sistersville plant will result in a much greater reduction of emissions to the atmosphere than the planned RCRA compliance alternatives and at a substantially lower cost. Organic emissions can be reduced from one production unit by over 371,000 lb/yr. By comparison, installation of wastewater tanks in order to avoid the regulatory burdens placed on surface impoundments by 40 CFR Subpart CC and modifications of tanks will result in little reduction in emissions (less than 10,000 lb/yr).

The intent of the Subpart CC regulations is to reduce emissions to the environment. However, the investment required to comply is prohibitive to implementation of a true emission reduction project for the process unit.

OSi is a batch processor of silicon-based specialty chemical products that are used as intermediates in other product manufacturing. Approximately 50 batch and semi-batch processing units are located at the facility. The company uses various RCRA listed and non-listed solvents to clean production units between batches. The spent solvents are stored in 14 tanks before they are incinerated in an on-site incinerator or transferred off-site. (Some of the tanks are permitted under OSi's RCRA Part B permit for storage greater than 90 days, while other are used less than 90 days. All tanks are at least pressure-operated with fixed roofs.) OSi has an on-site hazardous waste landfill where ash and hazardous waste sludge from the incinerator are disposed; other miscellaneous hazardous wastes have also been disposed of in the landfill over the years. There are also two surface impoundments which receive plant waste waters which include leachate from the landfill and quench and scrubber waters from the incinerator; as a result the surface impoundments and the on-site wastewater treatment system for the facility are considered a hazardous waste treatment system. The surface impoundments were upgraded in 1988 to meet minimum technology requirements; they are double-lined, and monitored such that any leakage detected between the liners is extracted by sumps and returned to the impoundment. The system currently treats about 5.5 MGD of wastewater and discharges via an NPDES permit to the Ohio River.

Under new RCRA Subpart CC, VOC emissions from hazardous waste tanks, containers, and surface impoundments need to be controlled to 95% efficiency by December 8, 1997. (A recent clarification of Subpart CC published in a February 1996 FR notice indicates that 13 of the 14 hazardous waste storage tanks would not need further modification to comply; therefore discussion of these 13 tanks may no longer be relevant to the Project XL proposal and only the contribution of the one tank to air emissions is included in the attached table.) Rather than comply with CC, OSi would replace the two surface impoundments with two above-ground open-top tanks, and thus be able to claim the wastewater treatment unit (WWTU) exemption in 40 CFR 264.1(g) for those open tanks. As part of their XL project, OSi SEEKS AN EXEMPTION FROM HAVING TO COMPLY WITH SUBPART CC (so they wouldn't have to replace the surface impoundments with tanks) AND AN EXEMPTION FROM HAVING TO COMPLY WITH SUBPART YYY (or any other such future regulation such as the Miscellaneous Organic NESHAP (MON) MACT that might require them to have emission controls on the surface impoundments or WWTU). The exemption from YYY means that no additional controls would be put on the wastewater treatment system (of which the surface impoundments are the most significant source of air emissions, which are about 75,000 lb/y). OSi estimates the cost of complying with CC (for replacing the surface impoundments with above-ground tanks) to be $2 million, and the cost of complying with YYY (putting emission controls on the WWTU) to be an additional $2 million.

Instead, OSi seeks to upgrade one of its semi-batch operations, the capped polyether production unit to increase production and make the process more efficient. It is called a "capped polyether" unit because the process uses polyether as a raw material to produce capped polyether rather than polyether as defined by the polyether MACT. The unit currently produces 3,665 tpy of capped polyether; OSi seeks the upgrade the unit to produce at least 7,500 tpy of capped polyether. The new unit would be designed not to trigger PSD. Due to OSi's need to meet market demands, construction of the polyether capping unit will begin prior to the date by which 112(G) will be finalized in WV and perhaps even before it is final at the federal level (by August 1996).

Air emissions from the existing capped polyether production unit are methyl chloride (110 tpy), dimethyl ether (25.5 tpy), and methanol (31 tpy). These emissions are currently not regulated, and will not be at least until mid-2002 or later, at which time the Miscellaneous Organic NESHAP (MON MACT) might apply. The unit also generates methanol (400 tpy) which is discharged to the wastewater treatment unit, resulting in 650 tpy hazardous waste sludge. Upgrading the unit would result in air emissions of up to 120 tpy methyl chloride, up to 38 tpy dimethyl ether, and up to 48 tpy methanol. The total emissions, however, would be less than the quantities that would trigger permitting under WV Regulation 13, which requires "grandfathered" production units to be permitted if modifications increase air emissions more than 2 lbs/hr or 5 tpy. The quantity of methanol discharged to the WWTU from the upgraded unit would be 1,287 tpy, which would result in 2,125 tpy hazardous waste sludge.

As part of the XL project, OSi wishes to control air emissions from the new unit by 98% using a combustion device, and recover the methanol generated by the process using a condensing device. OSi expects the combustion and condensing devices to cost a total of about $1 million. Thus, by the end of June 1997 (when the new unit would be operational), methyl chloride emissions would be 2.2 tpy (rather than 120), methanol emissions would be 2 tpy (rather than 48), and dimethyl ether emissions would be 0.75 tpy (rather than 38). Condensing methanol would result in less than 100 tpy methanol discharge to the WWTU (rather than 1,287 tpy), and generation of less than 165 tpy hazardous waste sludge resulting from the methanol (rather than 2,125 tpy).

Because they wish to recover methanol from the new unit (rather than discharge it completely to the WWTU), CAA Subpart YYY would be triggered, requiring them to cover the entire WWTU, which includes all of the process sewer system including the surface impoundments, wastewater tanks, sumps, manholes, and trenches, and vent it to some type of air emission control device. Although the new unit contributes minimally to increased air emissions from the sewers and impoundments, YYY would still require the additions of emissions controls. They estimate the cost of these activities as about $2 million for an environmental benefit of about 38 tpy air emissions from VOCs (7.5 tpy methyl chloride, 6 tpy methanol, 22.5 tpy toluene, and 1.5 tpy ethyl chloride), the majority being generated from other existing production units. OSi requests a facility-wide exemption for WWTU emission controls under CAA Subpart YYY or any other such future air emission control regulation that would require them to increase controls on the surface impoundments or WWTU.

The table below shows total air emissions from the WWTU and polyether production unit, and wastewater discharges and hazardous waste sludge generation resulting from the capped polyether production unit. At such time that the MON MACT becomes effective (and the applicability of this MACT to their capped polyether production unit is demonstrated), it appears that total air emissions from the WWTU and capped polyether production unit would no longer will exceed compliance. However, should they receive "credit" for reducing air emissions between mid-1997 (the time the new unit is operational) and the time the MACT becomes effective (perhaps mid-2003), and for reducing wastewater discharges and hazardous waste sludge generation?

	Current	New Unit/No XL	New Unit/XL
Polyether Production (TPY)	3,665	>7,500	>7,550
VOC emissions from WWTU (lb/y)	75,000	75,000	75,000
VOC emissions from one tank	33	2	33
Air emissions from polyether unit:			
methyl chloride	220,000	<240,000	<4,400
methanol	62,000	<96,000	<4,000
dimethyl ether	51,000	<76,000	<1,500
Total air emissions from WWTU, tank and polyether production unit:	408,033	487,002	84,933
Total wastewater discharges of methanol	800,000	2,575,000	<200,000
Hazardous waste sludge generation from methanol treatment	1,300,000	4,250,000	<330,000