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for 8-hours and ~~5.0~~ ppm for 15 minutes. It should be noted that the RMI meeting summary document provided with your request repeatedly referred to an outdated PEL of 50 ppm. Although the recent federal appeals court ruling may impact the regulatory status of these limits, Vista has been working towards compliance since 1989. Prior to 1989 Vista had established an internal exposure limit of 10 ppm for EDC.

Employee exposures are monitored routinely by taking approximately 40 personal samples a month and a system 20 fixed point monitors. When areas of potential exposure are identified engineering controls are utilized where feasible. In the past three years, the VCM plant has taken numerous steps to reduce employee exposures. Following are examples of controls that have put in place.

1. Tandem seals have been installed on pumps handling 1,2-dichloroethane to reduce exposure as a result of a pump seal failure or fugitive emissions.
2. Hose connections have been added to pumps to allow draining residual material directly to a closed process sewer system for treatment. This is done when preparing pumps for maintenance.
3. Closed loop sampling systems are being installed to reduce exposures during routine product sampling. This results in virtually no emissions of the product during sampling. This activity is a potential source of high short-term exposures.

4. The plant is continually revising clearing procedures for equipment and piping so that 1,2-dichloroethane levels can be minimized before opening equipment for maintenance. This effort results in engineering controls as described in number 2 above and administrative or procedural steps taken to reduce exposure potential.

In addition the above actions, employee training is ~~done~~ ^{performed} to raise awareness of the hazards and handling procedures required for 1,2-dichloroethane. Respiratory protection is also utilized to protect workers during operations that cannot be controlled otherwise, or where the potential for control device failures is significant.

Environmental Emissions and Emission Reductions

Vista has an active program of emission reduction projects that has resulted in significant reduction in air emissions, releases to surface waters, and in controlling potential releases to the groundwater. Below is a description of some of these activities already completed as well as those planned.

Air and Water

Vista is concerned that your RMI determination was based on 1987 TRI data. Vista's 313 reported emissions for EDC have been reduced by approximately 84% since the 1987 emissions were reported and we believe this trend to be true of the other major EDC producers as

well. To evaluate current risk levels based on the 1987 emission levels would be misleading and incorrect. Below are the EDC emissions as reported by Vista since 1987.

LBS/EDC	AIR	WATER	LAND	OFFSITES	TOTAL
1987	378,510	12,968	0	682	392,160
1988	140,714	1,217	0	486	142,417
1989	258,606	585	0	143	259,334
1990	66,761	313	0	0	67,387
1991	33,000	140	0	133	33,273

Emission reductions were accomplished by a combination of improved emission estimating techniques and emission controls. Examples of air emission controls are below.

1. All tanks that store EDC, including product, intermediate product, wastewater containing EDC, and waste containing EDC have leak detection and are vented to a control device.
2. Wastewater and other process water streams containing EDC are steam stripped to recover EDC and return it to the process. Operating improvements in the steam stripper have resulted in reducing the stripper bottoms EDC concentration from average levels of 2-3 ppm to 0.5-1.5 ppm.

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3. Additional reductions to emissions to air and discharges to surface water will be realized when Vista completes a multi-million dollar capital project to construct an above ground tank based wastewater system. A new steam stripping system will be installed to treat EDC contaminated water to lower levels.

The new steam stripper system will result in more efficient and consistent removal of EDC from the plant's wastewater. The new stripper will treat a design flow of 280 gpm of wastewater to a maximum level of approximately 260 ppb, but it is anticipated, based on it's design, that the water will be stripped to typical levels of 20-40 ppb.

Air Modeling

In preparation for obtaining air permits for the construction of the above ground wastewater system, air modeling was done for EDC to evaluate maximum EDC concentrations anticipated after completion of the project. The results of the modeling were compared to acceptable risk levels established by the Louisiana DEQ and the USEPA.

A copy of the modeling study, as submitted to the state, is attached. It should be noted that the modeling study was based on maximum anticipated emissions. The actual emissions, and subsequent air levels will be much less. With the maximum emission estimates that were modeled, all discrete receptor points around the plant

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have a modeled concentration corresponding to a risk of less than 1 in 10,000.

(Add paragraph on reduction in wastewater releases)

Groundwater

The RMI determination document also speaks to concern for groundwater as an exposure pathway. Vista has had an ongoing groundwater investigation and remediation program at this site since 1981. At this time, we are preparing to implement a permanent remediation program at the site based on rate and extent, risk assessment, and feasibility studies that have been completed.

A health based risk assessment was conducted by a third party consultant at the site in order to establish site clean up criteria. The risk assessment involved a review of the site hydrogeology, groundwater flow directions and rates, toxicological affects of the chemicals found in the groundwater, and potential exposure pathways. The following are conclusions of the risk assessment:

- There is no known exposure to the public of the constituents found in the groundwater below the LCCC. Future exposure is not likely since the site will be used as a petrochemical manufacturing facility for the indefinite future. Future use of the site for industrial proposes will not change the potential for exposures.

- Groundwater in the 50-Foot Sand should be remediated to

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prevent offsite movement of the chemical constituents either in the 50-Foot Sand or into deeper sand units.

- Remediation of groundwater in the 10-Foot and 25-Foot Sands will reduce the overall risk and the amount of time required to remediate the 50-Foot Sand.

The remediation system is anticipated to be in operation by the fall of this year.

In addition to the groundwater studies multiple projects and administrative steps have been taken to control the potential for releases that could result in groundwater contamination. These steps include:

1. Proactive inspection and replacement of tanks containing EDC containing products.
2. A containment pad was installed to insure that runoff from routine heat exchanger cleaning is collected and sent to the steam stripper for treatment.
3. The original in-ground brick lined concrete Incinerator Acid Neutralization Tanks (T-981, T-982) and the Wastewater Neutralization Tanks (T-500) were replaced with two below grade furan tanks inside a concrete containment vault. These tanks are equipped with integral caustic trim neutralization chambers

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as a replacement to the caustic trim neutralization tanks. Portions of the underground sewer piping leading to and from the new tanks were also replaced. This project was completed in 1987.

4. The on-ground Heavy Ends Storage Tank, T-405, was replaced with an above ground cone bottom tank installed on an impervious base. In addition, the Heavy Ends Loading Pump, P-452 was relocated near T-405 and provided with impervious containment curbing. This tank was put into service in November 1986 per requirements of a Compliance Order issued by the Louisiana DEQ on April 2, 1986.
5. The underground Closed Process Sewer (CPS) piping was replaced with a solid Kynar piping system installed in the existing plant process drainage trenches for secondary containment. Three clearing lines were also installed for use during distillation column washes. A Mobile Recovery Pot used for clearing off site equipment is being utilized.

The furan underground piping system which was replaced developed cracks and leaks under normal operating stresses such as thermal expansion, and had not been operational since the August, 1985 VCM plant turnaround. The VCM Plant instituted the use of the mobile recovery pot to collect sample drainings, line and pump clearings, during the construction period (1986) of the new CPS. Also, during this time, the use of portable frac tanks were

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instituted to collect the drainings from columns, tanks, etc., during cleaning. The new piping system became operational before the early 1987 plant turnaround.

6. A project was done to reroute the laboratory drainage collection tank pump out line to the Steam Stripper Feed Tank, T-110, instead of the previous routing to a sanitary sewer system. This project was completed in late 1986.
7. A cathodic protection system was installed in 1987 on twelve storage tanks to protect tank bottoms from soil-side corrosion. The four EDC tanks, Light Ends Tanks, three caustic tanks and the four incinerator acid tanks are included in this system. All eleven tanks (T-902 was not included as it is undergoing closure, is presently empty and presently has no use assigned for it) are monitored monthly.
8. Concrete containment curbing was installed for ten pumps in non-paved areas. Eight of these pumps are located in the tank farm area and two are in the T-500/T-2 area. This project was completed in late 1986.
9. The Process Runoff Settling Tank, T-2, was replaced with a furan tank installed inside the existing in-ground brick lined concrete T-2 which is used as a concrete containment vault. This vessel is equipped with pumps, piping, and instrumentation necessary to transfer the collected runoff to the steam stripper

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feed system. This project was completed in August 1988. Excessive clean stormwater is diverted to T-1 and T-500 which are used as stormwater basins.

10. Containment for the EDC Tars Still Area, the Vinyl Chloride Tars Still Area, the Incinerator By-product Liquid Feed Pumps (P-902 A&B) Area, and the tars Trailer Loading Area was provided by installing 6 in. x 6 in. curbs around each area. A chemical resistant coating was applied to the concrete and a resistant material was used to replace existing expansion joints in the concrete. This project was completed in April, 1987.

11. In 1986 Heavy Ends Storage Tank, T-452, was taken out of service. The new T-452 is supported on 18 inch pylons which rest on a steel plate covering the base of the tank. Outer walls extending from top to bottom provide secondary containment in the event of a spill. This project will be fully completed in 1989.

~~See attached~~

12. All new tanks built that will contain EDC containing materials, including stormwater will have double bottoms and leak detection.

13. The wastewater project will also result in eliminating inground sewer pipe containing EDC contaminated wastewater. This

increases leak detection and further reduces the potential for releases to groundwater.

The above information is provided to assist the agency in their risk management review process. Vista is concerned that the agency did not use the most current information, specifically TRI data and OSHA PEL information, in making it's RMI determination. Hopefully the information provided here will help the agency form a determination of current risk associated with the manufacture of 1,2 dichloroethane. Please contact the undersigned at 713-588-3445 if you have questions on the information provided.

Sincerely,

Thomas G. Grumbles, C.I.H.
Manager Environmental Affairs

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