

File 8.16

ABERDEEN PLANT

ENVIRONMENTAL AWARENESS TRAINING

JUNE 13, 1991

I. Introduction

Resources

People

The Legal Department is comprised of 12 employees. Three employees are involved in environmental issues (one lawyer and two support personnel). A new lawyer, was recently hired. They are responsible for EPA, OSHA, FDA, DOT, Bureau of Alcohol, Firearms & Tobacco regulations as well as safety, medical and industrial hygiene issues. They are also involved with tort litigation and product liability.

The Biomedical and Environmental Affairs Department is comprised of 6 employees (4 professionals and 2 support personnel). Tom Grumbles is the manager of this department. Tom also oversees the industrial hygiene program. Joe Ledvina is responsible for EPA, FDA analysis. Frank Jeanson is responsible for environmental/DOT audits, training and selected programs e.g., SARA. One position remains open. That person is involved in product safety and labeling issues, Material Safety Data Sheets, and DOT compliance.

The Research and Development in Austin has a Biological Technology section headed by Dr. John Roheim. This section addresses toxicity issues and product safety.

The Process Engineering Department in Houston has an engineering section for environmental projects.

References

AP 42 - designed by the EPA to provide emission factors for air contaminants.

SW 846 - Solid waste sampling and analysis methods.

Code of Federal Regulations - a yearly (July 1) compilation of all U.S. regulations. EPA is the 40th volume or CFR 40, OSHA is 29 CFR, FDA is 21 CFR and DOT is 49 CFR.

Federal Registers - a daily compilation of all regulations passed by federal government agencies.

Newsletters, White Books - these are published by trade associations, publishing companies, legal firms, or consulting firms to provide insight on regulations, laws, and interpretations.

Terminology - Laws

CAA	Clean Air Act
CWA	Clean Water Act
CERCLA	Comprehensive Emergency Response Compensation Liability Act Of 1980 (Superfund)
HSWA	Hazardous and Solid Waste Amendment Act of 1984
NESHAP	National Emissions Standard for Hazardous Air Pollutants
NSPS	New Source Performance Standards
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act of 1976
TSCA	Toxic Substances Control Act of 1976
SARA	Superfund Amendment and Reauthorization Act of 1986

Agencies

- EPA- Environmental Protection Agency. Was established in 1970. Responsible for solid and hazardous waste (RCRA, HSWA) Clean Air Act, Clean Water Act, TSCA, FIFRA, CERCLA and SARA
- NRC- National Response Center. The center responsible for taking CERCLA calls. It is manned 24 hours a day by the U. S. Coast Guard.
- FDA- Food and Drug Administration

II. Solid and Hazardous Waste (RCRA/HSWA)

Introduction - Hazardous Waste Definition (261.20)

Generator's responsibility to determine if waste is hazardous.

A. Listed Wastes (261.30)

1) Bases for listing:

- a. ignitable
- b. corrosive

- c. reactive
- d. TC toxic
- e. acutely hazardous
- f. toxic

2) Types of listed hazardous wastes:

- a. hazardous waste from non-specific (261.31) sources (e.g., F024, distillation residues, heavy ends and reactor clean-out wastes from the production of chlorinated aliphatic hydrocarbons, having carbon content from one to five, utilizing free radical catalyzed processes)
- b. hazardous waste from specific (261.32) sources (e.g., K020, heavy ends from the distillation of vinyl chloride in vinyl chloride monomer production)
- c. discarded commercial chemical (261.33) products, off-spec species, container residues, and spill residues thereof (e.g., plasticizers, ethylene dichloride)

Characteristic Wastes

(261.20)

- Solid waste that exhibits any of the following characteristics:

1) Ignitability (e.g., spent solvent)

- a. Liquid that has a flash point less than 60° C (140° F).
- b. Non-liquid that when ignited burns so vigorously and persistently that it creates a hazard.

2) Corrosivity (e.g., muriatic acid) (261.22)

- a. pH less than or equal to 2 or greater than or equal to 12.5.
- b. Liquid that corrodes steel at a rate greater than 6.35 mm per year at 55° C (130° F).

3) Reactivity (e.g., alumina alkyl) (261.23)

- Any of the following:

- a. Normally unstable and readily undergoes violent change without detonating.
- b. Reacts violently with water.
- c. Forms potentially explosive mixtures with water.
- d. When mixed with water generates toxic gases, vapors or fumes in a quantity sufficient to present a danger to human health of the environment.
- e. Cyanide or sulfide bearing waste which, when exposed to pH conditions between 2 and 12.5, can generate toxic gases, vapors or fumes in a quantity sufficient to represent a danger to human health of the environment.
- f. It is capable of detonation or explosive reaction if subjected to a strong and initiating source or if heated under confinement.
- g. Is readily capable of detonation or explosive decomposition or a reaction at standard temperature and pressure.
- h. It is a forbidden explosive as defined in DOT regulations.

4) TC toxicity (e.g., lead floor sweepings (261.24) containing lead)

- a. Exhibits a characteristic of TC toxicity when tested in accordance with methods described in regulations.

A. Satellite Storage (262.34(c)(1))

- 1. Generator may accumulate up to 55 gallons of hazardous waste at or near any point of generation where wastes initially accumulate, without a permit or interim status, and without complying with 90 day storage rules:

- a) Waste is kept in a container that is compatible with the waste.
 - b) Container is in good condition.
 - c) Container is kept closed except when adding or removing waste.
 - d) Containers are marked with words identifying the waste as hazardous.
2. If amount of waste stored in satellite accumulation exceeds 55 gallons, within 3 days generator must comply with 90 day rules, including labeling containers with date excess waste began to be accumulated.

B. 90 Day Storage (262.34(a))

1. A generator may store hazardous waste up to 90 days without permit if generator complies with certain rules:
- a) Proper containers.
 - b) Date accumulation of the waste began is clearly marked on containers.
 - c) Containers are clearly marked "hazardous waste".
 - d) Personnel training.
 - e) Preparedness and prevention (e.g., aisle space, communication, etc...).
 - f) Contingency plan.
2. A RCRA permit is required for wastes stored longer than 90 days.

C. Manifests and Annual reports (262.20)

- 1. RCRA provides "cradle to grave" regulation of hazardous waste.
- 2. A manifest must be used whenever hazardous waste is offered for transportation off-site.
- 3. The generator must designate on manifest one facility permitted to handle waste described in manifest (may designate alternate facility).

4. If the transporter cannot deliver waste to designated facility, generator must either designate another facility or instruct transporter to return waste.
5. Need to have copies for generator, each transporter and designated facility, and a copy to be returned to generator.
6. Generator must:
 - a) Sign manifest certification by hand.
 - b) Obtain handwritten signature of initial transporter and date of acceptance of manifest.
 - c) Retain one copy.
 - d) Give transporter remaining copies.

Annual/Biennial Reports

(262.41)

Generator who ships hazardous waste off-site must submit a biennial report to EPA by March 1 of each even numbered year. Report must be on EPA form, and must include:

- a) Generator's EPA identification number, name and address.
- b) Calendar year covered by report.
- c) EPA identification number, name and address of each off-site TSD facility to which generator shipped waste in past year.
- d) Name and EPA identification number of each transporter used during the reporting year for transport to TSDs.
- e) Description, EPA hazardous waste number, DOT hazard class, and quantity of each hazardous waste shipped off-site to TSDs.
- f) Description of past year's waste-reduction efforts.
- g) Description of changes in waste volume and toxicity actually achieved during past year.
- h) Certification signed by generator.

- i) Generators who treat, store, dispose of hazardous waste on-site must submit biennial report for those wastes.

D. Wastewater Treatment Unit Exemption (264.1(g)(6))

- Wastewater treatment units are exempt from RCRA standards.
- Defined:
 - a. Part of a wastewater unit facility subject to regulation under Clean Water Act.
 - b. The unit receives and treats or stores an influent wastewater which is a hazardous waste or generates and accumulates a wastewater treatment sludge which is a hazardous waste or treats or stores a wastewater treatment sludge which is a hazardous waste.
 - c. Meets the definition of tank.

Elementary Neutralization Exemption (264.1(g)(6))

Exempt from RCRA

Defined:

- a. Used for neutralizing waste which are hazardous waste only because they exhibit the corrosivity characteristic.
- b. The unit meets the definition of tank, container, transport vehicle, or vessel.

E. Toxicity Characteristic

EPA has a new characteristic that replaces the EP toxicity test called the Toxicity Characteristic. Wastes are determined to be TC characteristic by applying a test to the waste called a toxicity characteristic leaching procedure (TCLP). The TCLP is very similar to the EP toxicity test. The TCLP requires that a zero head space extraction be done on the waste which minimizes loss of volatile organic compounds. The characteristic will look for an additional 26 additional compounds, most of them volatile organic compounds. Included on the TC list are vinyl chloride, ethylene dichloride and benzene. As a result, many wastes which were not hazardous previously will now be hazardous.

TCLP and Solid Wastes

The toxicity characteristic will have a significant impact on Vista's business. In instances where waste that are physically solids, (PVC culls and excavation dirt and catalyst) more of those waste will become hazardous because of the toxicity characteristic. To determine toxicity or determine whether the waste is hazardous, samples of those materials will have to be subjected to the TCLP. If the extract contains more than the threshold amount of material as specified in the regulation, the waste itself is hazardous. One of the more troubling wastes likely to become hazardous is excavation dirt. In areas where there is contamination, the soil if it is hazardous, cannot be placed back into hole but must be disposed of as a hazardous waste.

TCLP And Surface Impoundments

The greatest impact of the toxicity characteristic in TCLP is that waste water containing more than the regulatory levels of specific compounds such as vinyl chloride, EDC and benzene will be hazardous waste. For liquids such as waste water, the liquid is analyzed without extracting using the TCLP. The implication of this is that the impoundments treating these hazardous waste will need to be either retrofitted to meet specific technology standards specified in RCRA or facilities will have to be installed to remove the constituents before they enter the surface impoundments.

G. Land Disposal Bans

In the 1984 amendments to RCRA, Congress mandated that EPA evaluate whether hazardous wastes can continue being land disposed. Land disposal includes treatment in surface impoundments, land farming and land filling. Congress told EPA that if they fail to ban wastes by dates specified in the law, land disposal of these wastes will automatically be banned. Congress told EPA that they needed to split up the list of all waste into five groups and then by certain deadlines take action on each of those five groups. The final deadline for the fifth group was March 1990. These groups included all current hazardous wastes which include characteristic wastes, list of wastes, commercial chemical products and acutely hazardous wastes. The five groups have been referred to as the solvent and dioxins list, the California list, the first third, the second third, and third third.

Land Disposal Bans-Solvents And Dioxins

EPA was required to consider for land disposal ban a list of solvents and dioxins by November, 1987. The EPA met that deadline and as a result certain chlorinated and oxygenated solvents and wastes containing dioxins can no longer go to land disposal facilities unless they are pretreated. For this group of waste, pretreatment is typically considered incineration. In addition to incineration, the residues from the incineration such as scrubber water and ash must meet treatment standards specified in the land disposal ban. One of the waste that would impact Vista in the solvents group is spent MEK from painting operations. This material can no longer be sent to land disposal facility for burial nor can it any longer be dumped into the waste water treatment system. An additional impact of the land disposal ban is that lab pack materials containing any of the banned substances cannot be sent out for land disposal. The materials must be incinerated.

Land Disposal Bans-California List

This group of wastes was picked from a regulation in the state of California where similar wastes were banned from land disposal. The California list includes halogenated organic compounds (HOC) as well as certain high and low PH materials and liquids containing metals that are on the EP toxicity list. Liquid hazardous wastes with a concentration of 1000 ppm HOC or greater are banned from land disposal. The California land ban became effective in July of 1988.

Land Disposal Bans-First Third

EPA split up all of the remaining wastes into groups of three and referred to the first group as the First Third Group. Heavy Ends (K019/K020) are a part of this group, Heavy Ends, are formed from the distillation of EDC and VCM. This material is produced at the VCM Plant. First third wastes were banned from land disposal as of November, 1988.

Land Disposal Ban-Second Third

The second third land disposal ban became effective in June, 1989. Included in that list is F024 wastes which is a waste generated during decoking of EDC cracking furnaces and heat exchanger cleanout at the VCM plant. The second third waste requires that this material be incinerated.

Land Disposal Ban-Third Third

EPA finalized this land disposal ban in June, 1990. Included in the third third are all characteristic wastes. Wastes such as those that are corrosive or ignitable are affected. Included in the land disposal ban will be treatment levels to

which these wastes must be treated before they can be considered for land disposal.

1. Shop Wastes: Paints and Solvents

All waste paint generated by paint contractors must be properly disposed of. Especially if some of the ingredients are listed wastes. (MEK) The plant must sign as a generator since waste generation is site specific. Also, if the paints or waste solvents are "F" wastes, then they cannot be mixed with other solid wastes.

J. Personnel Training/Contingency Plan (265.16)

- 90 day storers (and TSD's) must comply with personnel training and contingency plan rules (262.34).

- 1) Facility personnel must complete a program of classroom or on-the-job training that teaches them to perform their jobs so as to ensure plant's compliance with hazardous waste regulations.
- 2) Training must be done by person who's trained in hazardous waste management procedures, and must teach employees hazardous waste management procedures relevant to their jobs.
- 3) Training must cover emergency procedures, equipment, and systems including:
 - a. Procedure for using, repairing and replacing emergency equipment.
 - b. Automatic waste feed cut-off systems (if any).
 - c. Communications/alarm system.
 - d. Response to fire/explosion.
 - e. Response to groundwater contamination incidents.
 - f. Operations shutdown.

- 4) Training must be completed within 6 months of hire or reassignment. Employees must not work in unsupervised positions until trained.
- 5) Plant personnel must take part in annual training review.
- 6) Plant must keep following documents at plant:
 - a. Job title, job description, and employee name for each job related to hazardous waste.
 - b. Description of training given for each position.
 - c. Records documenting training given or job experience.
 - d. Training records must be kept for current personnel for life of the plant, for former employees records must be kept for 3 years after they leave plant

Contingency Plan

(265.50-.55)

- A. Plant must have contingency plan designed to minimize hazards to human health and the environment from fires, explosions, releases of hazardous waste or hazardous waste constituents into environment. Plan must be implemented when any of these things happen and human health or the environment is threatened.
- B. Plan must include:
 - 1) Description of actions to be taken in response to fire, explosion or unplanned release of hazardous waste or hazardous waste constituents into the environment.
 - 2) Description of arrangements with local police department, fire department, hospitals, state and local emergency response teams to coordinate emergency services.

- 3) Names, addresses and phone numbers of all persons qualified to act as emergency coordinator.
- 4) List of all emergency equipment at plant, their locations and capabilities .
- 5) Evacuation plan for all plant personnel.

C. Copies of plan:

- 1) Must be kept at plant.
- 2) Must be submitted to all local police and fire departments, hospitals and state and local emergency response teams.

D. Amendment to plan must be done when:

- 1) Regulations change.
- 2) Plan fails in emergency.
- 3) Facility changes in any way that increases potential for fire, explosions or releases of hazardous waste.
- 4) Emergency coordinator changes.
- 5) Emergency equipment changes.

K. Recycle Rules, Solid Waste Definition (261.2)

- Hazardous waste is subset of solid waste. Thus, if material is not a solid waste, then it is not a hazardous waste.

- 1) Any discarded material except:
 - a. Domestic sewage and other waste that passes through a sewer system to a POTW.
 - b. Industrial wastewater point source discharges subject to regulation under section 402 of the CWA.
 - c. Spent sulfuric acid used to produce virgin sulfuric acid, unless accumulated speculatively.

- d. Secondary materials that are reclaimed and returned to the original process in which they were generated, where they are reused in the production process, if:
 - 1- only tank storage is involved, and entire process is closed
 - 2- reclamation does not involve controlled flame combustion
 - 3- secondary materials are not accumulated for over 12 months without being reclaimed
 - 4- reclaimed material is not used to produce fuel or to produce products used in a manner constituting disposal
- 2) Discarded material definition - any solid, liquid or contained gaseous material that is: 1) abandoned by being disposed of, burned or incinerated, or 2) accumulated, stored or treated (but not recycled) before or in lieu of being abandoned by being disposed of, burned or incinerated, OR 3) is recycled:
 - a. By being used in a manner constituting disposal
 - b. By being burned for energy recovery
 - c. By being reclaimed
 - d. By being accumulated speculatively
- 3) Materials are not solid waste when they are recycled by being:
 - a. Used or reused as ingredients in an industrial process to make a product, provided the materials are not being reclaimed.
 - b. Used or reused as effective substitutes for commercial products.

c. Returned to the original process from which they were generated without first being reclaimed.

- material must be returned as a substitute for raw material feedstock, and process must use these raw materials as principal feedstocks

d. The following are solid waste regardless of recycling process:

- 1- material used in a manner constituting disposal or used to produce products that are applied to the land
- 2- material burned for energy recovery, used to produce fuel, or contained in fuel
- 3- material accumulated speculatively

4) To be eligible for recycle exemption, one must demonstrate that there is a known market or disposition for the material. Documentation, e.g., sales contracts is necessary to make demonstration.

III. Superfund/SARA

(302.1-.7)

CERCLA Release Notification

- 1) Release of RQ of hazardous substances must be reported immediately to National Response Center.
- 2) Hazardous substances and RQs (reportable quantities) are listed in 302.4.
- 3) Federally permitted releases are exempt.
- 4) Releases of mixtures and solutions are subject to these notification requirements only when the component hazardous substances of the mixture or solution is released in excess of an RQ amount.
- 5) No need to notify for release of RQ amount of solid particles of antimony, arsenic, beryllium, cadmium, chromium, copper, lead, nickel, selenium, silver,

thallium or zinc if mean diameter of particles released is larger than 100 micrometers.

Release Notification

- 1) Notice requirements.
 - a. Release of RQ quantity must be reported immediately to community emergency coordinator for local emergency planning committee of any area likely to be affected by the release, and the State emergency response commission of any State likely to be affected by the release.
- 2) Extremely hazardous substances and RQs are listed in 355.
- 3) Exemptions:
 - a. Releases resulting in exposure to persons solely within boundaries of facility.
 - b. Federally permitted releases.
 - c. Continuous releases.
 - 1- Stable in quantity and rate.
 - 2- Notification already given to EPA.
 - 3- Must report statistically significant increases.
- 4) Notice must include:
 - a. Chemical name or identity of any substance involved in the release.
 - b. Indication of whether substance is an extremely hazardous substance.
 - c. Estimate of quantity released.
 - d. Time and duration of release.
 - e. Media in which release occurred.
 - f. Health risks associated with the emergency and advice regarding medical attention.
 - g. Proper precautions to take.

- h. Name and phone number of people to contact for further information.
- 5) Written follow-up emergency notice must be filed as soon as practicable after release, and must include:
 - a. Information described above.
 - b. Actions taken to respond to and contain release.
- 6) Transportation-related releases - plant may meet notice requirements by providing above described information to 911 operator.

SARA 311-312

Under Superfund Amendment and Reauthorization Act Sections 311 and 312 (SARA 311-312), Vista is obligated to inform local and emergency response groups of the amounts of chemicals we have stored on site and provide material safety data sheets for those hazardous materials. The chemical industry has worked closely with the local emergency planning commissions to assure that in the event of a hazardous substance release they are adequately informed of the risks, the dangers and that there is a plan in place to make sure the general public does not become exposed to these materials. We are obligated every year to renotify local emergency planning commissions and the state of the amounts of hazardous materials we have on site.

SARA 313

SARA 313 mandates that by July 1 of every year we submit a record of the amount of releases to the environment of hazardous materials from our manufacturing operations. The first years data was submitted as required by July 1, 1988. This data detailed the amount of emissions we had during calendar year 1987. As of July 1, 1989, we submitted the data on emissions and discharges that occurred during 1988. In the two years, that the data has been submitted, Vista has shown a considerable reduction in emissions particularly to the air of these hazardous materials. One of the biggest reductions occurred because of reduced estimates of fugitive emissions and using better emissions factors. These new emissions factors were developed by many plants by doing very detailed component bagging of leaking valves, pumps and open ended lines.

IV. Toxic Substances Control Act

Section 8(c)

Section 8(c) of the Toxic Substances Control Act requires that records and reports of allegations from any source that chemical substances have caused significant adverse reactions to health or the environment must be maintained by manufacturers and processors of such chemical substances and must be made available for inspection by EPA for thirty years. Some significant definitions in this requirement include the terms "allegation" and "significant adverse reactions".

The term "allegation" is defined under Section 8(c) as any statement or other report, oral or written, made without formal proof or regard for evidence, that a chemical substance or mixture has caused a significant adverse reaction to health or the environment. This definition and the Section 8(c) requirement differs substantially from the Section 8(e) requirement in that no proof of the reasonableness or accuracy of the allegation is required to be made. The mere allegation without any proof of a significant adverse reaction to health or the environment is sufficient to trigger the Section 8(c) reporting and recordkeeping requirement even if you believe the allegation to be untrue. The terms "significant adverse reactions" is defined under Section 8(c) as reactions that may indicate a substantial impairment of normal activities, or long-lasting or irreversible damage to health or the environment. The provision relating to substantial impairment of normal activities has been construed by EPA to include such effects as eye irritation, upper respiratory tract irritation, dizziness, nausea, and allergic reactions. Thus, a telephone call from a customer's employee stating that our product has resulted in a skin rash would constitute a Section 8(c) allegation triggering the recordkeeping and reporting requirements.

As in the case of Section 8(e), the Environmental Group has procedures and forms for the processing of Section 8(c) allegations. If you have any reason to believe that you have knowledge of a Section 8(c) allegation contact Tom Grumbles.

Section 8(e)

Section 8(e) of the Toxic Substances Control Act creates a substantial risk reporting program. Briefly, this Section requires any person who manufactures, processes, or distributes in commerce a chemical substance or a mixture who obtains information that reasonably supports the conclusion that such substance or mixture presents a substantial risk of injury to health or the environment shall immediately inform the EPA of such information unless such person has actual

knowledge that the EPA has been adequately informed of such information. Several provisions of this section require interpretation. Specifically, the term "immediately" has been interpreted by EPA to mean information is received by EPA not later than the 15th working day after the date the person obtained such information. Also, Section 8(e) only requires reporting of significant adverse effects to the environment or human health when EPA does not already have such information. Thus, information concerning significant adverse effects to the environment or human health are not required to be recorded or reported if directly attributable to spills or other releases that have been reported to EPA or if the significant adverse effects are "known" human health effects such as burns resulting from contacting an acid.

One recent example of an 8(e) was the discovery by Vista of off-site migration of an ethylene dichloride plume in the groundwater in Lake Charles. Since EPA never been informed that such an extent of groundwater contamination existed, and since such groundwater contamination was a significant adverse risk to the quality of the groundwater (the environment) the information was required to be reported within 15 days.

The Environmental Group at Vista has specific forms and procedures for reporting Section 8(e) information. If you have any reason to believe that you have such information contact Tom Grumbles or Bill McClain for additional assistance.

VI. Air

A. Clean Air Act Update

The Clean Air Act was originally passed in 1970 and was amended in 1977 and 1990.

B. Prevention of Significant Deterioration (PSD)

The PSD program is intended to cover emissions of pollutants in areas that are in attainment for those pollutants. This program is designed to prevent deterioration of air quality. Increase in emission levels are allowed by step increments to avoid deterioration. For example, the project such as the Lake Charles LAB Plant original construction went through PSD review for nitrogen oxides. The Lake Charles area was attainment for nitrogen oxides in the intent of the PSD program is to assure that project did not endanger the attainment status of the Lake Charles area for nitrogen oxides. Since most of Vista locations are attainment for all pollutants except ozone, new projects that are done in those areas are always potentially subject to PSD permitting. The

problem with a PSD permit is that it requires a lot of work and it often takes a considerable amount of time for EPA or the state to finally issue the permit.

Background

- 1) States are divided into air quality regions.
- 2) Regions are designated "attainment" or "non-attainment", depending on whether they meet National Ambient Air Quality Standard for specified "criteria pollutants".
- 3) States have SIPs.
- 4) Each SIP has PSD program to prevent significant deterioration of air quality in attainment regions.
- 5) PSD program sets maximum allowable increases in ambient air concentration levels of criteria pollutants - "increments".

Result - states issue PSD permits allowing plants to emit a specified amount of pollutant - a portion of regional increment.

Applicability

- Major stationary sources and major modifications to major sources.
 - 1) Major Stationary Sources - plants which emit or have the potential to emit 100 tons per year or more of any pollutant regulated under the Act.
 - a. Single pollutant will make plant a major source.
 - b. Fugitive emissions count.
 - c. Changes in non-majors will not make them majors unless change itself is greater than 100 tpy.
 - d. "Potential to emit" means the maximum capacity of a stationary source to emit a pollutant under its physical and operational design. Thus, physical and operational limitations, e.g., pollution control equipment and enforceable permit limitations (ex.: hours of operation) limit plants' "potential to emit" pollutants.

- 2) Major Modification - any physical change in or change in method of operation of a major stationary source that would result in a significant net emissions increase of any pollutant regulated under the Act.
- a. Does not include routine maintenance, repair or replacement or increased hours of operation or productivity rate (unless such increase is prohibited by enforceable permit).
 - b. "Net emissions increase" means the amount by which the sum of the following exceeds zero:
 - 1- increase in actual emissions from a particular physical change or change in method of operation and
 - 2- any other increases and decreases in actual emissions at the source that are "contemporaneous" with the change
 - "contemporaneous" means it occurred between date 5 years before construction on change began and date increase from change occurs, i.e., when unit begins operating
 - "actual emissions" means average rate of emissions (tpy) the unit actually emitted of a pollutant during prior two years and which is representative of normal source operations
- 3) PSD requirements
- a. Control technology review (BACT).
 - b. Source impact analysis.
 - c. Air quality monitoring.
 - d. Air quality analysis.
 - e. Source information.

The Capital Expenditure Test

Projects which are fairly minor may be able to avoid a PSD permit by using the capital expenditure test. This test is intended to filter out projects that are relatively minor and likely to have a small impact on the environment. The test involves using the tax basis for the unit expanded multiplied by a factor of .125. Projects that exceed that number are considered potentially subject to PSD, whereas, small projects whose costs is less than that number can avoid PSD permitting. The tax basis information is available from the Tax Department or we can work with you in the Environmental Department to come up with that number. It would appear to be a fairly simple calculation. Since there are typically a number of questions and complications any time you do this, it is best that each time this becomes an issue, you give the Environmental Department a call and we will discuss it on a case by case basis.

Best Available Control Technology (BACT)

Those projects which must go through PSD review are required to apply a control technology call Best Available Control Technology (BACT). BACT is a level of technology commonly used in industry for similar types of facilities. An example of BACT would be low NOX burners that were put in when we underwent PSD review for the construction of the LAB plant. Another example of BACT may be bag houses on sources of particulate emissions. Another example is continuous emission monitoring equipment on stacks similar to what we have at the LAB plant where we have to monitor excess oxygen and carbon monoxide continuously.

C. New Source Performance Standards (NSPS)

Section 111 of the CAA established the New Source Performance Standard (NSPS). Under this program, EPA set standards for certain types of plants that are being constructed or modified. NSPS typically applies to generic pollutants, such as volatile organic compounds or sulphur dioxides or nitrogen oxides or particulates as opposed to specific compounds such as vinyl chloride or benzene. Under the NSPS program, EPA issues documents which specifies for a certain type of industry what emission levels must be met. For example, there is a NSPS for sulphur dioxide emissions from new boilers in excess of 250 Mbtus per hour. EPA recently issued similar emission standards for boilers between 250 and 100 Mbtus per hour. They are working on another standard for boilers that are under 100 Mbtus per hour. Other emission standards currently in place are volatile organic compounds storage tanks. There is an NSPS for fugitive emissions from new plants. EPA has issued NSPSs for distillation columns and air

oxidation vents and proposed a standard for reactor processes where they are attempting to control emissions from new reactor vents.

NSPS-Modification

Existing plants can be subject to NSPS if a modification of that plant is being done and a NSPS has been written for the modified section. For example, adding a tank to the VCM plant may trigger NSPS for that tank since there is an NSPS for volatile or compound storage. For modifications to be subject to an NSPS it must have a net increase in emissions. In other words, those physical changes in a facility which either reduce or do not increase emissions are not considered modifications and as a result, not subject to NSPS.

NSPS Reconstructing

Existing facilities that are modified to such an extent that you are essentially reconstructing the facility can trigger NSPS even if there is no increase in emission. Reconstruction means the replacement of components of an existing facility to such an extent that the fixed capital cost of the new components exceeds 50% of the fixed capital cost that would be required to construct a comparable entirely new facility. In other words, if the project is large enough, regardless of whether there is an increase in emissions or not, you may have to install NSPS technology to build the project.

NSPS-Capital Expenditure Test

As in the PSD program, the NSPS program allows for a capital expenditure test. The NSPS would not apply to those projects which are so small that they are considered insignificant. The test uses the current tax basis of the facility times the factor .125 to determine whether NSPS may apply. Small projects which cost less than the product of the tax basis times .125 are not subject to NSPS. Those that exceed that number are subject to NSPS if there has been an NSPS written for that type of facility. A very important concern in this analysis is the definition of what the process facility is. In general, this is a case by case determination depending on the physical circumstances. For example, the process unit at Aberdeen may be all of the resin manufacturing area but not include the compounding area. The process unit at the ethylene plant may be the whole ethylene plant. Similarly the process unit at the VCM plant may be the whole VCM plant. As you can see, this effects the amount of tax base depending on what the process unit is.

D. State Construction Permits

In addition to the air pollution control programs administered by the federal EPA, all states have separate air pollution control programs. State air pollution control programs in many cases impose requirements beyond those imposed by the federal air pollution control program. One of the most important state air pollution control requirements is the construction permit requirement. Any person planning to initiate the construction or make modifications of an air pollution emitting facility must first obtain a state construction permit.

The terms "air pollution" or "air contaminants" are commonly very broadly defined to include particulate matter, dust, fumes, gas, mist, smoke, vapor, or any combination thereof produced by any process other than nature. Thus, products of combustion, distillation, volatilization, or the escape of particles such as PVC or alumina all are included within the terms "air pollution" or "air contaminants". The term "installation" is likewise commonly broadly defined to include any identifiable piece of processing equipment, manufacturing equipment, fuel burning equipment, or other equipment or construction capable of creating or causing air pollution or the emission of air contaminants. The term "modification" is most commonly defined as any change in a facility including a physical change, a change in the method of operation, or a change in the raw materials or feedstocks which increases the amount of any air pollutant emitted by such facility or which results in any emission of any air pollutant not previously emitted.

Any time a piece of equipment is being installed or modified, a building is being built, or any change in an existing operation is being considered, the issue of a state construction permit requirement is presented. In many cases due to the large scope of the installation or modification it will be obvious that a state construction permit is required. Examples of this situation include the ethylene expansion and modernization project and the ethylene cracking furnace installation in Lake Charles. In other cases, the installation or modification activity may appear minor but still require a state construction permit. Examples of this situation include installing a vent for emissions from exhaust hoods in a PVC compounding area or a change in the type of hydrocarbon materials stored in a dock-side storage tank.

E. National Emissions Standard For Hazardous Air Pollutants (NESHAPs)

Section 112 of the CAA establishes the National Emissions Standard for Hazardous Air Pollutants (NESHAPs). This program

is intended to identify specific pollutants that are considered hazardous air pollutants and then implement regulations for the control of those pollutants. In the past 15 years since the NESHAP program has been in effect, EPA has moved very slowly on regulating pollutants. To date, there are less than ten that are covered by the NESHAP program. However, three of them have a significant impact on Vista, they are asbestos, vinyl chloride and benzene NESHAPs.

The 1990 Clean Air Act amendments list 189 substances to be regulated as hazardous air pollutants, significantly accelerating this program.

NESHAPs-Asbestos

The asbestos NESHAPs (40 CFR Part 61) focuses primarily on demolition or renovation projects where asbestos is being removed. Each plant that has asbestos for either insulation or sound proofing that anticipates a significant demolition project during the year must file a prenotice with EPA and then follow specific removal procedures. If no major project is likely for the upcoming year, small projects are allowed without giving formal notice to the EPA. The exact thresholds of how much asbestos can be removed before notice must be given is specified in the regulation. When removing friable asbestos under the NESHAP program, it must be kept wet. Friable is defined as the ability to crumble under hand pressure. The removed asbestos must then be placed in specifically marked bags marked with an asbestos warning label and then disposed of in a special section of a landfill.

NESHAPs-Vinyl Chloride

The Vinyl Chloride NESHAP was one of the first NESHAP standards that EPA developed and has had a significant impact on Vista. The standard applies to vinyl chloride (VCM) plants and to PVC plants. It does not apply to PVC compounding facilities or other uses of vinyl chloride monomer. The standard is specified in Part 61 of Volume 40 of the Code of Federal Regulations. The VCM standard requires a routine emissions from vents be less than 10 ppm. As a result, all three of our plants (VCM, Aberdeen, Oklahoma) vent emissions through incinerators to assure that the 10 ppm standard is attained.

Relief valves

There is a prohibition against relief valve discharges or rupture disks emissions to the air except in emergencies. Although that sounds fairly reasonable, EPA's definition of an emergency is a lot different than the definition that the

average person might apply. As a result, almost all relief valve discharges eventually end up in a penalty from EPA or the state.

Fugitive Emissions/Monitoring Programs

The VCM standard also specifies a number of fugitive emission monitoring programs to assure that leaks of VCM do not occur in excessive amounts. This is a dual system based on fixed point monitors and periodic leak detection walk around programs.

Reactor Emissions

The VCM standard specifies that reactor slurry must be stripped to less than 400 ppm before dumping from the reactor. It also sets a standard for how much vinyl can be in the reactor before it is opened to the atmosphere. The slurry residuals and reactor opening loss levels must be measured after every batch and exceptions to the standard must be reported to EPA in a quarterly report. Other violations of the standard must be reported within ten days to the EPA by letter.

NESHAP Authorization To Construct

VCM sources must obtain an authorization to construct if there is going to be increased emissions of vinyl chloride due to an expansion or modification. A demonstration must be made that the expansion or change in the plant will not cause a violation of the vinyl chloride standard. Construction cannot start before the authorization has been received from the regulatory agency.

VII. Water Pollution

A. NPDES Water-Permits

Under the Clean Water Act (CWA), EPA has established a permitting program called the National Pollutant Discharge Elimination System (NPDES). NPDES permits are issued by the EPA region in which the discharger operates. In many states, the NPDES program is administered by the state environmental agency. In other states that do not administer the federal program, there is a duplicative state waste water discharge permit program. Facilities in those states often have two permits, one from the state and one from the EPA. Permits specify how much of specific pollutants can be discharged on a daily maximum basis and on a monthly average basis. Parameters such as biochemical oxygen demand (BOD), total suspended solids (TSS), pH oil and

grease and compounds specific to the process are limited in the permit.

Monthly Discharge Monitoring Reports (DMRS) must be submitted to the EPA or State by the facility detailing how well the facility complied with the limits.

NPDES permits are issued only for direct discharges to public waters. For example, LCCC discharges to a public water, Bayou Verdine. The Oklahoma City Plant discharges its waste water to the city sewer system and does not have an NPDES permit for process water but rather is subject to the city sewer system pretreatment standards. In the case of Oklahoma City, the NPDES permit is held by the city waste water treatment system.

B. OCPSF Effluent Guidelines

EPA has developed a number of guidelines that its permit writers use in developing allowable discharge permit levels. The effluent guidelines have been written for numerous industries such as the chemical industry, refining industry, electro-plating, mining, timber harvesting, fertilizer industry, etc. The guidelines are intended to be used by EPA permit writers in developing technology based waste water discharge permits. The chemical industry which is defined as the OCPSF industry (Organic Chemicals Plastics and Synthetics Fibers Industry). OCPSF effluent guidelines were finalized in December of 1987. Any new waste water permits that are written after that date, incorporate the effluent guideline numbers in them. Typically, these numbers are considerably more stringent than the existing permit allowables.

C. Biomonitoring

Both the Lake Charles Chemical Complex and Aberdeen currently have biomonitoring requirements in the permit. At one time, this biomonitoring was based on an acute test which is a short term exposure of organisms such as water fleas or certain kinds of fish. A determination is made on whether our water is toxic based on how many of those organisms survived after 96 hours. More recently EPA has developed a much more stringent criteria for biomonitoring that is based on chronic toxicity. In a chronic test organisms are exposed to effluent from our waste water treatment plant over a seven day period. Chronic toxicity is measured as weight gain or number of young produced. These end points are a lot more sensitive in detecting whether

there is an impact from the pollutants in waste water. Water quality based permits have a requirement that biomonitoring be performed. If toxicity is shown, the cause must be identified and eliminated. The term used by EPA to evaluate and eventually remove toxicants from waste waters is Toxic Reduction Evaluation Program (TRE). The requirement that a TRE be done is typically written in a permit in the event that chronic biotoxicity is detected.

D. Storm Water Permits

EPA and the states issue permits for storm water discharges. Typically total organic carbon, oil and grease and pH are pollutants limited in storm water permits. Each point source at a facility where storm water is discharged must have a permit.

E. Changes To Influent And Source Control

Many waste water treatment systems have difficulty routinely treating to the levels that are now being written in permits. As a result, efforts are being directed towards modifying processes or eliminating wastes before they are discharged into the waste water treatment system. Source control and waste minimization projects are being implemented around the company. Projects are being considered at Baltimore, Aberdeen and Lake Charles Chemical Complex to steam strip waste water streams and reduce the amounts of pollutants such as benzene and ethylene dichloride, vinyl chloride in waste water going to waste water treatment systems.

F. Spill Prevention Control And Counter Measure Plan (SPCC)

Section 311 of the Clean Water Act provides for the prevention of oil discharges into the waters of the United States.

40 CFR Part 112 establishes procedures, methods and equipment needed to prevent the discharge of oil from any non-transportation facility into the navigable waters of the United States or adjoining shorelines.

Facilities that have the capacity to discharge oil must prepare a spill prevention control and countermeasure plan (SPCC). This plan must be prepared in accordance with good engineering practices and must be reviewed by a registered professional engineer familiar with the site. This plan provides a guide for a facility to use in emergency response to spills. The specific requirements can be found under 40 CFR 112.7. All Vista

plant locations are subject to these regulations.

Under 40 CFR Part 110 an oil sheen upon the surface of the water will trigger an immediate phone notification to the National Response Center (NRC) in Washington, D. C. This center is manned 24-hours a day by the U. S. Coast Guard. Calls may also be directed to the nearest Coast Guard station.

In the states that have adopted these regulations on SPCC Plans, groundwater is included under the discharge provision and hazardous substances are included along with oil into the reporting requirements.