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ABSTRACT

This document provides a historical perspective on the Foothill-De Anza Community College District Hazardous Materials Program. Prior to the 1990's, the State College and Community College system were basically exempted from nearly all local regulatory compliance efforts. State enforcement of environmental regulations at the community college level was minimal, and largely voluntary, on an oversight basis. In 1990, the conditions found locally were representative of the Community College System as a whole. The first Five Year Environmental Plan was drafted in 1990. This plan laid out a vision of the future which could potentially turn the rising tide of environmental concern and chemophobia into a vital and aware adjunct of the dual campus district. The plan laid out the environmental needs of the district, providing a blueprint of what modifications would be necessary to bring its operations up to code and conforming with regulatory requirements, along with projected costs to implement the program, and an aggressive schedule of accomplishments. The climate of environmental change has continued to foster more regulation. The report outlines a list of items to be accomplished in the future. (VWC)

Foothill-De Anza Community College District
Hazardous Materials Program
Review and Future Direction
January, 1996

FOOTHILL-DE ANZA COMMUNITY COLLEGE DISTRICT
HAZARDOUS MATERIALS PROGRAM
REVIEW AND FUTURE DIRECTION
JANUARY, 1996

Historical Perspective:

Prior to the 1990's time frame, the State College and Community College system were basically exempted from nearly all local regulatory compliance efforts. State enforcement of environmental regulations at the community college level was minimal, and largely voluntary, on an oversight basis. In 1990, the conditions found locally were representative of the Community College System as a whole.

The use and handling of chemicals at such campuses were typically under the control of a laboratory technician, who may not have had any training in environmental regulatory affairs. Chemicals were often stored alphabetically, resulting in numerous instances of incompatible materials stored next to each other, with the potential of disastrous consequences. Storage locations were often overcrowded and often included many well intentioned industrial laboratory donations, and under no clearly defined, responsible persons control.

It was also not uncommon for school systems to have many single-wall underground fuel systems and other in-ground sumps in place. Fuel installations were constructed to obtain lower interruptible power rates from the local utility. As funds were available, it was typical for a community college to install additional in-ground fuel facilities to address their larger campuses, and greater energy needs. The Foothill/De Anza Community College District, at one time, had as many as 22 underground petroleum product tanks, between the two campuses, ranging in capacity from 500 to 8,000 gallons of fuels per tank.

During the 1980's, local and State regulations were rewritten to require secondary containment and monitoring of all such systems, with eventual upgrades required to provide for protection of the public health. By this time, each of the underground fuel storage facilities had been registered with the State, under the requirements of the Cortese Bill, and vadose zone monitoring wells were installed (1985), to verify their integrity. This process, and the increasingly strict process instituted to track the removal of such buried facilities, modified the financial incentives of interruptible rates sufficiently to present longer term liabilities. Typically, during this latter period, a few community colleges were initiating the removal of a few of their in-ground tank facilities, most often to address changes in land use, or individual problems caused by such in-ground storage.

Various other environmental rules and regulations were passed at Federal, State and local levels. Most of these, in California, were enforced through permit controls, by regional and local agencies. In many cases, community colleges had not been required to file to obtain these permits to address air or water (sewer) - borne emissions; however, most had obtained Generator Identification Numbers in the decade since the Federal establishment of the Resource Conservation and Recovery Act (RCRA) of 1980. Local agencies adopted the Model Ordinance hazardous materials storage requirements into Municipal Codes during the 1980's, and began requiring local users of chemicals to file annual reports of their inventories, as Hazardous Materials Business Plans (HMBP).

Older Community College District Campuses frequently held the problems of past design decisions, based upon the technology of the period in which they were constructed. The presence of asbestos containing

building materials (ACBMs) and poly chlorinated biphenyl (PCB) laden electrical equipment throughout the facilities was not uncommon. Environmental practices of the 1950's and 1960's were no longer in fashion in the 1990's, and, quite commonly, they were now in violation of regulation, rule, or code.

When a large number of the community college facilities were constructed, from the 1950's through the early 1970's, in-ground sumps were viable treatment for wastewater systems discharging to a sanitary sewer. Dolomite (limestone) rock beds were used to control potential pH excursions of concern to the acid side; oil-water separators collected the effluent from wet floor operations in automotive and machine technologies. These were considered state of the art; environmental concern had not focused upon fuels, hydrocarbon or halogenated solvents, let alone accidental (or incidental) release of these substances into the soils and ground waters of the State.

During the 1960's, Federal government programs sought to expand interest in science programs, including the peacetime uses of radioactive materials. The residues from these efforts frequently remained into the 1990's at community colleges, with their high potential for staff and student exposure to these substances, often without benefit of a Radiation Safety Control Program. Discovery of moderately high activity gamma sources on stockroom shelves was fairly common, with many samples donated from industry and/or well-meaning private parties who wished merely to support the nuclear physics programs, but may not have understood the long term consequences, nor the programming limits of the 2-year Community College System.

Quite often, operations which handled chemicals, and thus generated hazardous wastes, failed to perform satisfactorily in complying with the requirements of law. The disposal of potentially hazardous wastes from chemical and/or biological instruction, let alone that from art, automotive technology, or even District Operations, was somewhat uncertain, and unpredictable. Despite the presence of clear mandates in the law, labeling requirements were often misunderstood, and misapplied.

The environmental rules and requirements were not well understood by the persons having to implement the statutes, and waste chemicals were often stored too long on the site. Incompatible (potentially reactive) waste materials were often stored together. Secondary containment separations were seldom provided to aid in control over any spills or environmental incidents.

The limited awareness of these responsibilities and liabilities was typical across all levels of staff and management in the Community College System in 1990, as the State had not been conducting many inspections or outreach programs, and the local/regional agencies had basically exempted them from inspection and enforcement activities. This communications challenge was further compounded with the necessary separation of facilities operational control from interference with instructional decisions. While the regulatory knowledge resided with District Operations, typically, the ultimate responsibility for the decisions affecting the disposition of chemicals and their wastes rested with the USER, namely, instructional programs and the faculty and staff practicing instruction.

Environmental Program Development : 1990 Through 1995:

As stated above, the Community Colleges were basically exempted from local or State regulatory compliance focus through most of the 1980's. During this period, the local administering agencies were establishing their programs to address their industrial permittees. These programs, when honed, would eventually be turned to focus upon the previously exempt quadrant, Community Colleges, along with other institutions.

During the latter part of the 1980's, site inspections from the Santa Clara County Environmental Health Unit had begun to occur, to provide confirmation of practice and guidance with a focus on hazardous waste chemicals. The County was operating under their memorandum of understanding from California Department of Toxic Substances Control. Their attention quickly expanded from hazardous waste operations to include bulk storage locations, with a special focus on underground tanks.

The first of the underground petroleum product tanks were removed by the District in 1987, at both campuses. These facilities were removed with appropriate notice to local administering agencies. In 1990, the newly appointed lead agency, the Santa Clara Valley Water District (SCVWD), began asking questions about these early closures, seeking additional information beyond that requested and declared in the year of the closure, and threatening legal action and monetary penalties for non-compliance and/or failure to address these requests in a timely fashion.

Quite possibly this adverse contact with the regulating agencies, changing the requirements placed upon permit holders without other notice, was the proverbial straw upon the camel's back. The environmental reality of increasing complex and confusing rules, regulations, mandates and laws from Federal, State, Regional and local Governmental authorities was becoming fact, with often non-uniform enforcement or interpretation of these dictates. For the District Haz-Mat office to accomplish all of the tasks before it, with no direct authority or funding, would require a vision, a plan, energy and strong leadership.

In 1990, the first Five Year Environmental Plan was drafted in the District Operations Haz-Mat Office. This plan laid out a vision of the future which could potentially turn the rising tide of environmental concern and chemo-phobia into a vital and aware adjunct of the dual campus district. The plan laid out the environmental needs of the district, providing a blueprint of what modifications would be necessary to bring its operations up to code and conforming with regulatory requirements, along with projected costs to implement the program, and an aggressive schedule of accomplishments.

In the years since that plan was developed, many of the ideas developed therein have been accomplished. As of 1995, ALL of the single wall underground petroleum product tanks have been successfully removed, well before the regulatory mandate of 1998, with no indications of any substantial releases or environmental impairments. A double-wall fiberglass tank is in place to provide for delivery of gasoline to the District fleet of vehicles; the system is equipped with a fully automated, state of the art monitoring capability, to protect the District from environmental incident to the maximum extent practicable.

Each of the tank closures was conducted under permit and supervision of the local administering agency. The lead agency (SCVWD) is currently reviewing all of the documents generated by this lengthy process. Closure acceptance is anticipated during 1996. These closures, and partial re-installations, were all funded through special State funds (approaching $350,000) to address environmental programs; the Community College District did not have to apply general fund dollars.

By 1989, hazardous waste site inspections conducted by Santa Clara County Environmental Health Department field agents revealed operational problems in the handling of chemicals (and their experimental residues), with a particular focus on the practices in place for labeling and storage of these materials. The 1990 Plan sought to address these concerns through establishing environmental working committees on each college campus, comprised of the staff working most closely with these materials, along with District Haz-Mat assistance from staff and expert environmental consultants. A number of training programs were developed to provide additional information to Divisional Staff, and enable them to satisfy the specific code and legal requirements the County inspectors were citing.

During the past five years, these efforts have resulted in a broad variety of positive results. County inspections are conducted more efficiently through use of written procedures. Each Division has identified and trained key knowledgeable staff to accompany inspectors and provide answers to specific questions as they arise. Application of this process, along with improved labels, and labeling procedures, have resulted in fewer citations.

District staff has been conducting routine inspections of all chemical storage and handling areas on at least a quarterly basis for the past two years, with the assistance of the Divisions. The discoveries made allow for training in the correct procedures, and provide a documentation of progress.

The information gained through these in-house Hazardous Material inspections at both campuses has proven instrumental in empowering the College Deans and Presidents with the knowledge, and comfort in that knowledge, that they, along with their staff, can shoulder the environmental responsibilities placed upon them by the use of chemical substances in the normal practice of instruction. Without the reasonable good will and nature of these teaching professionals, the translation of the vision, or dream, into reality would not have been possible. It was with the help and support of the faculty and laboratory technicians that the overall hazardous chemical inventory for all divisional operations on both campuses was gathered, and the information was accumulated to present the Hazardous Materials Management (Business) Plan (HMBPs) information to the administering agencies, as required under local and State mandates.

Divisional staff have aided the District Haz-Mat office in maintaining the Hazardous Material Information Statement (HMIS) data set annually. An observed side benefit of these data seems to be that with increased scrutiny on the overall volume of hazardous chemicals in storage onsite, the quantity stored has been decreasing, year by year, despite expansion in instructional programs. The net positive result has been a lowering of the potential hazard, on each campus, posed by the storage of these substances, and a noticeable drop in the volume (and cost) of hazardous waste generated. Some Divisions at both colleges have been able to reduce their hazard ratings by controlling their chemical inventory volume. The residuals in storage at both colleges Physics, Geology, Theater, Campus Center Student Sign Shops and at Foothills Ornamental Horticulture programs are sufficiently low that the 1996 Hazardous Materials Business Plan will no longer include them. Biological Sciences has changed preservatives for the specimens examined by their students, switching from the toxic Formalin to Karosafe and Wardsafe, both less toxic preservatives.

On occasion, review of the HMIS has resulted in the complete elimination of a hazardous material storage. District Operations Grounds pesticide and herbicide shed, was closed completely during 1995, with the contents manifested as hazardous waste. Storage of these hazardous materials was static; application of these chemicals has now been outsourced to a State registered contractor, which no longer requires on-site storage. It has also eliminated the risk, expense and record-keeping requirements caused by having a District employee licensed as a spray applicator.

During the last five years, since the 1990 Plan was drafted, environmental permits have been established for all pertinent programs, bringing the District into compliance with the requirements of law. The Haz-Mat Office has filed for, obtained and maintains permits addressing the following areas of regulatory concern:

1. District Paint Shop/Automotive Operations waste water treatment system and Foothill College sewer discharge to the Palo Alto Regional Water Quality Control Plant (RWQCP) under permit;
2. District Paint Shop Air Emissions (BAAQMD) permits, addressing spraying of paints both outside in the yard and in the exhausted enclosed spray booth;
3. Automotive Technology Division waste water treatment and Verification of De Anza College sewer

discharge under General Permit to the San Jose/Santa Clara Water Pollution Control Plant;

4. Chemical Storage and Use Permits - both Foothill and De Anza Colleges, with Santa Clara County Environmental Health Department and Central Fire District;
5. County registration of remaining underground petroleum product storage tank;
6. State registration of X-Ray devices in Biological Sciences;
7. Tracking Photographic Fixer solutions, and manifesting as hazardous waste, to control silver discharges;
8. Tiered Permitting (PBR), to address onsite treatment of hazardous waste;
9. EPA Waste Generator Identification
10.
11. Each of these regulated areas also requires the preparation of reports, on a quarterly, semiannual, annual, or biennial basis. The District must provide training for its employees whose work involves potential contact with hazardous materials. Records must be maintained, often for many years, of the documentation requested or required to support these permits, to include copies of individual training records, training programs, materials, Material Safety Data Sheets (MSDSs), operating procedures, Hazardous Waste Manifests and Board of Equalization Taxes, Post-Closure Reports for tank closures, analytical reports, paint and solvent use records, Hazardous Materials Inventories, and many more.

Since the 1990 Plan was drafted, more than 290 tons of asbestos containing building materials were removed from the structures on both college campuses. The cost of removing the hazardous ACBM, including disposal, and the replacement cost, to restore the facility to operation following abatement, was all covered through timely application and receipt of special State funds. In similar fashion, major electrical transformers, which had previously been cooled with poly-chlorinated biphenyl oils (PCBs), and many tons of PCB contaminated electrical light ballast capacitors, were safely removed, and replaced, again, with special State funding.

Exhausted chemical fume hoods, which support chemistry laboratory instruction at both colleges, were replaced to satisfy the Cal-OSHA exposure mandate of 100 FPM linear face velocity, with special State funds. Automotive Technology, at De Anza College, was equipped with a covered vehicle wash-pad, complete with waste water collection and treatment (State funds). Upgrades of the District vehicle wash pad and the Paint Shop treatment systems are in design, in 1995, with State funds reserved to install equipment in 1996.

Sterilization equipment (for chlorination) supporting the swimming pools at both colleges was modernized to enable treatment with liquid-over-solid electrolytic chlorine generators, which supply chlorine on an as needed basis, rather than continue the use of 1 ton and larger cylinders of compressed chlorine gas, risking a toxic release. The Foothill College pool drain was modified to direct flow to the sanitary sewer, rather than the storm drain, now prohibited under law. These projects were accomplished using special State dollars.

The Future : 1996 and Beyond:

The vision reflected in the original Five Year Environmental Plan has been substantially accomplished as indicated by the above listing of completed tasks. The climate of environmental change has continued to foster more regulation, continuing to add to an already full plate. The Department will face new and more complex challenges in the years to come, not the least of which will be maintaining the accessibility of funding to accomplish the mandates of current governmental environmental programs.

Quite a bit of our success in implementing the 1990 Plan keyed upon our establishing partnerships between the Department and leaders in operating Divisions at each of the College Campuses. This linkage was

beneficial in the years between 1990 and 1995, introducing the concept of a Hazardous Materials Management Committee of peers, and joining our collective forces to address the concerns raised by the regulating agencies inspecting our facilities, and rating them as to our ability to comply with the requirements of the laws, codes and regulations. As stated above, we successfully established training sessions in Hazardous Materials to inform District employees about the potential dangers they face in handling hazardous chemicals in their workplace, and of the personal protective equipment and procedures available to them.

The vision we hold for the future embraces computer technology, not as a whole and complete answer, but as one more arrow in our quiver to aid in communicating with our fellow District employees. The Department has established a Haz-MAT Home Page on the World Wide Web, which all employees (and also students) can access through the Internet. This vehicle will also provide, in years to come, with improved access to our database about the types of chemicals stored at both Colleges (Hazardous Materials Inventory Statements - HMIS), the hazards presented by these materials, as detailed in the Manufacturers Material Safety Data Sheets (MSDSs) and outline the measures that the District has taken to control potential accidental releases which might harm the environment.

Additionally, the Hazardous Materials Management Office is preparing the District's Asbestos Survey Data for use on the local net server. This will allow District Staff, faculty and any other interested person access to asbestos information, such as location and type of ACBM present. This will be particularly useful to Plant Services and College staff in developing and planning renovation and remodeling projects.

Training information will someday be available, on-line, through this media, presented as an interactive forum capable of letting students set their own pace, obtaining the specific information they desire. The computer will empower them, and free administrative time from developing the records of each training experience.

Ultimately, this access to information will help the HAZ-MAT Management Committees to focus, as successful industry has, on developing just in time delivery of hazardous materials to the campus, enabling further reductions in the massive inventory still held in reserve, and offering the opportunity to minimize further the potential worst case environmental release scenario. The Colleges are required, under regulation, to accomplish a Source Reduction and Waste Minimization Plan, and to Report out its progress. Since the use of chemicals is controlled by decisions made by the Divisions, the only possible way to carry out this mandate is through such a long range communication.

The next step in this effort will happen when the District HAZ-MAT Management Office begins discussions with their Divisional instruction partners, clarifying the linkage between decisions to use a chemical substance in instruction, and that substances resultant fate as a hazardous waste, requiring removal from the campus to some other destiny. The Hazardous Materials Department cannot, and must not, interfere with the instructional decisions reflected by Division curricula. We are, however, pleased to participate in that dialogue, and give our understanding of the requirements of law, code, and regulation to the process.

The HAZ-MAT Office has, through the years, established alliances with peers operating at other Community College Districts, local colleges and universities, such as Stanford University, other State College institutions, and with area business and business associations (Peninsula Industrial and Business Association - PIBA). These alliances have helped us to identify and establish our programs in the past, and expand our vision of future environmental and hazardous materials program needs.

The established environmental permit programs will continue in place as long as hazardous materials remain

in use on the College campuses. They each require some level of maintenance in the way of analytical sampling, and periodic reporting, on a quarterly, semiannual, annual or biennial basis. Chemical consumption records must be maintained, kept available for inspection by the permitting agency, often for a minimum of 3 years, with the aggregate information reported annually, as a permit condition.

Of the tasks outlined in the 1990 Plan, the following items remain to be accomplished in the future:

1. Some asbestos containing building materials remain; however, urgent exposures have been eliminated.
2. In-ground sumps remain at De Anza Photography, Chemistry and Automotive Technology.
3. An in-ground dilution sump may exist to serve Foothill Chemistry.
4. De Anza Range facility has to be decontaminated to control lead particulate.
5. Complete the District vehicle wash pad.
6. Install the District and De Anza Paint Shop waste water treatment system.
7. Continue PBR training; refine permit to address ongoing treatments.
8. Continue support for PCB ballast removal.
9. Monitor condition of all vehicle hydraulic lifts for potential leakage.
10. . Monitor condition of hazardous chemical areas through inspections.
11. Monitor permit conditions for sewer discharge at both campuses.
12. Monitor Paint Shop Air permit conditions and reporting requirements.
13. Monitor District fuel tank for potential leakage.
14. Follow UST closure reports with Santa Clara Valley Water District.
15. Support Photo Fixer capture operations.
16. Follow Indoor Air Quality issues to safeguard environmental problems.
17. Continue support of HAZ-MAT Management Committee.
18. Continue tracking environmental regulatory changes for potential to impact College operations.

Executive Environmental Summary:

Many of the environmental issues the District Hazardous Materials Management Office had to confront during the past five years were in response to regulatory mandates developed and imposed during the previous decade. The facilities which were impacted, underground petroleum product tanks, asbestos and PCBs, reflected common building practice, when they were originally constructed, during the 1960's and 1970's. While removal of many of these issues, excepting friable asbestos, were not absolutely mandated today, it was felt that the future would adopt harsher requirements, and present a greater potential for environmental harm.

We have seen this vision become reality in the following areas: increased concern over USTs, with an upgrade mandate year of 1998 approved by the legislature, along with more stringent inspection procedures; increased bans (and costs) on the disposal of hazardous wastes, California's low level radioactive materials will no longer be accepted anywhere in the USA; PCB standards and limits for treatment are more expensive, and mandated; discharge of any fluid other than uncontaminated rainwater to the storm drainage system is prohibited by law.

In the years ahead, we see a growing concern over indoor air quality (IAQ) issues. We believe that regulatory focus will shift more and more to air problems. Consequently, we will see a continuing increase in the number of IAQ complaints, dwarfing the few we have so far received.

With the vision and enactment of our 1990 Environmental Plan, we have successfully placed the Foothill-De Anza Community College District hazardous materials involved operations on the environmental leading

edge, largely ahead of our peers in adjacent institutions. This placement has been accomplished through timely actions to secure special State funding, as they became available, and also through strict adherence to the rigorous accounting practices required, in tracking the disbursement of funds. Our Office was successful, in part, because we were among the first to apply for funding, and most diligent in reporting our progress.

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