

Integrated Pest Management Plan

Volume I



Salt Lake City School District
Facility Services Department

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Integrated Pest Management Plan

1.0 INTRODUCTION

1.1 Background and History

The Salt Lake City School District was introduced to Integrated Pest Management (IPM) in the fall of 2004 when Mr. Gregg Smith P.E., Director of Facility Services, met Dr. Marc Lame from Illinois University at a Children's Health Conference in Salt Lake City. Mr. Smith believed the District had already adopted some form of IPM based on statements from the former Custodial Supervisor. However, Dr. Lame provided a more comprehensive perspective of IPM and convinced Mr. Smith to change the District's course to a completely new paradigm.

With assistance from Dr. Marc Lame and funding from the EPA Region 8 Performance Partnership grants program handled through the Utah Department of Agriculture and Food, the Facility Services Department initiated an IPM pilot program in the spring of 2005. The pilot involved 3 of 36 schools and achieved a 90% reduction in pesticide applications and over a 50% decrease in pest complaints. Fewer pests were reported in two of the three schools and no increase was noted in the third school. The pilot program included training Custodial and Maintenance personnel; continuous inspection of District facilities and working with the District's contracted pest management professionals to implement procedures that eliminated the use of pesticides both inside and outside buildings. By October 2006, the District had expanded the pilot program to include all District schools and facilities and received EPA's Award of Recognition.

In May 2007, the Salt Lake City School District founded the Utah IPM Coalition to provide a quarterly forum for other Utah school districts to learn the principles of IPM; share ideas; discuss problems and solutions; and to promote and practice IPM to benefit the health and safety of Utah schoolchildren. The Utah Department of Agriculture and Food and Utah State University Extension Division have also been partners with the Utah IPM Coalition and have provided much of the educational materials. The District has also promoted IPM at numerous Utah Facility Operations and Maintenance Association annual meetings. UFOMA is attended by facility directors, maintenance and custodial supervisors, etc. from around the state.

The Salt Lake City School District was awarded IPM STAR certification from the IPM Institute of North American in May of 2008 (See Appendix J). Shortly thereafter, the District canceled the annual contract with its pest management contractor because of the success with its IPM Program. Overall, the District is spending considerably less on pest management through IPM practices than was previously spent under the traditional approach of contracting with a pest management professional. Moreover, pests have been controlled as well or better with IPM while simultaneously minimizing the exposure to chemicals. And, to ensure a higher level of professionalism, all Facility Services IPM

Program Coordinators and key personnel from the Grounds Department are now licensed by the State as pesticide applicators even though licensing is not required for school district employees in the State of Utah. Since mid-2007, there have been only ten insecticide applications throughout the entire Salt Lake City School District. These have been limited to inside buildings in targeted locations or outside to eliminate stinging pests. Exterior herbicide applications have been used to control noxious weeds on the school grounds.

Recently, the Facility Services Department developed and launched **iPestManager**, a web-based pest-reporting tool, to replace paper-based logs. **iPestManager** can be used by any District employee (including students) to identify pests, learn about their biology and behavior and means of mitigating their presence in schools. When used in this manner the **iPestManager** serves as a tool to educate the user about pests and IPM. Pest sightings are sent to the IPM Program Coordinators via email so that immediate IPM action steps can be taken. A history of action steps for each sighting is maintained from initial report through final resolution. Pesticide applications, if needed, are also tracked. Reports are generated which provide key metrics in gauging the success of the IPM Program.

The Salt Lake City School District has been successful with IPM because of some very capable and dedicated supervisors who have embraced the practice and motivated their staff members so that everyone shares the common vision – a safe and healthy school environment is our number one priority. “IPM has added value and personal satisfaction to our jobs because we see that the results our actions contribute to maintaining a safe environment”, states Ricardo Zubiato, the Custodial Supervisor. Other factors have also contributed to the program’s success; however, commitment is by far the most important explanation. The Director, Gregg Smith, P.E., insists on results and is adamant that IPM is the paradigm that all Facility Services employees should embrace. Principals, teachers, secretaries, kitchen personnel and other staff throughout the District have all benefited from the out-reach efforts of the Custodial Department to educate and promote the practices of IPM. The District’s Superintendent and Board also recognize what the Department has achieved and the fact that it was a bottom-up effort rather than the result of a top-down directive. Appendix L includes additional information about the numerous awards the Salt Lake City School District has received for its IPM Program.

1.2 Plan Overview

Pests are populations of living organisms (animals, plants, or microorganisms) that interfere with the use of schools and other facilities for human purposes. While most pests pose little or no hazards to humans, there are some, which carry and transmit diseases, damage structures and grounds and create other health risks. Integrated Pest Management (IPM) is an approach that establishes a sustainable approach to managing pests by combining biological, cultural, physical and chemical tools in a way that minimizes economic, health and environmental risks.

The Facility Services Department of the Salt Lake City School District began a comprehensive IPM Program in 2005 that includes training for Custodial and Maintenance personnel; continuous inspection of District facilities, and implementing procedures to

eliminate the use of pesticides both inside and outside buildings. In order to formalize and sustain this effort, a policy and related procedures have been proposed and an Integrated Pest Management Plan has been created by the Facility Services Department. As of the cover date of this Plan, the Salt Lake City School District is in the process of reviewing and revising the proposed policy titled, “Environmental Awareness, Responsibility and Sustainability” and related Administrative Procedures. Adoption of this policy and the procedures assures the implementation and application of Integrated Pest Management practices throughout the District as directed and administered by the Facility Services Department. This IPM Plan is incorporated by reference into the Administrative Procedures associated with the policy. A copy of the draft Policy and Administrative Procedures are included in Appendix A.

The IPM Plan described herein outlines the actions, practices and procedures to be followed by the staff of the Department to protect the health and safety of students, other staff and the public from pests and pesticide hazards. The objectives of the Salt Lake City School District’s IPM Program as outlined by this Plan are:

- Control or eliminate pests that could endanger the health and safety of students, staff and the public.
- Prevent loss or damage to structures or property caused by pests.
- Protect the environmental quality inside and outside buildings.
- Ensure the sustainability of the District’s IPM Program.

The IPM Plan also incorporates voluntarily compliance with the regulations promulgated by the Utah Department of Agriculture and Food, Plant Industry Division Pesticide Program for pesticide use and licensing of pesticide applicators.

2.0 ORGANIZATION

2.1 Organization

The Facility Services Department IPM Committee functions as a sub-committee of the Salt Lake City School District's Environmental Committee as shown below.



The overall purpose of the District's Environmental Committee is to increase awareness of environmental issues; encourage responsible, efficient and sustainable use of resources; improve the quality and health of the indoor and outdoor environments; create a cooperative understanding of the environment through collaboration and communication with students, teachers, staff and the public; and facilitate regulatory compliance where required.

The Environmental Committee has oversight responsibility for a variety of environmental programs and initiatives. Sub-committees will be organized, as needed, to address those environmental programs that have daily operational activity that warrants individual committee oversight. Integrated Pest Management falls into this category. The responsibilities of the IPM Committee are: to periodically review and update the District's IPM Plan; review and revise related Administrative Procedures; review conformance to the IPM Plan; compile and review IPM status reports; and provide information and feedback to the District's Environmental Committee. Minutes of the IPM Committee meetings are found in Appendix B.

As of July 2010 the IPM Committee members included:

Committee Chair	Gregg Smith
Custodial Supervisor / IPM Program Coordinator.....	Ricardo Zubiata
Assistant Custodial Supervisor / IPM Program Coordinator	Robin Anderson
Assistant Custodial Supervisor / IPM Program Coordinator	Mervin Brewer
Grounds Supervisor / IPM Program Coordinator	Mark Ruff
Child Nutrition / Food Services Supervisor.....	Venice Jensen

Others as invited:

School Principal(s).....	Varies
School Nurse(s).....	Varies
School Support Representative	Varies
Recycling Committee Chair.....	Greg Libecchi
Utah State Dept. of Agriculture	Clark Burgess
Utah State University Extension.....	Ryan Davis

The above list will be updated and revised as necessary.

2.2 Policies and Procedures

Policies and Procedures for the Salt Lake City School District are approved by the Board of Education. The policy under which Integrated Pest Management is addressed is incorporated into a broader policy titled: Environmental Awareness and Responsibility. This DRAFT policy is under review and has not been approved as of July 2010. A copy of the proposed policy and related Administrative Procedures are found in Appendix A.

3.0 iPestManager

In 2009, the Salt Lake City School District finished development of **iPestManager**, a web-based pest management tool based on the Oracle Express database application. The tool was fully implemented and made accessible from the District's web site in mid February of 2010. The fundamental design objectives for **iPestManager**, a.k.a., "iPest", were to eliminate paper-based pest logs, facilitate pest management activities and capture meaningful data to evaluate the effectiveness of the District's IPM Program. However, after just a few months of use, iPest has proven to be effective beyond all expectations. Since **iPestManager** incorporates so many features and functions necessary for facilitating effective pest management, it is now the cornerstone of the District's IPM program. The 2010 edition of the District's Integrated Pest Management Plan has been completely rewritten to incorporate the use of **iPestManager**.

iPestManager is a work in progress. New features have already been suggested and are planned for development in the near future. A complete User's Manual will be developed once the new features have been implemented and tested. The User's Manual will be available directly on-line from within the application along with a copy in Appendix K. The paragraphs that follow describe some of the features and functionality of **iPestManager** version 1.0.

3.1 General Overview and Access

iPestManager was designed with both public and private sides. The public side or "front end" of the tool aids in pest identification and presents information about pest biology, habitat, behavior and reproduction and how to reduce the presence of pests in our schools by following recommended IPM procedures. The front end of iPest also functions as a community resource that is accessible to anyone with an Internet connection and an interest in Integrated Pest Management including students, parents, school patrons and the public. **iPestManager** can be accessed as follows:

- 1) Go to the Salt Lake City School District home page at www.slc.k12.ut.us
- 2) Click on the *Departments* tab
- 3) Select *Facility Services* from the list of Departments
- 4) On the left-hand side of the Facility Services page, click on *iPestManager*

or directly at:

<https://aal.slcschools.org/pls/apex/f?p=118:1:1667173606825195>

The front end of **iPestManager** is primarily intended to help District employees identify pests in their buildings but it is also the portal from which they "login" to the private side or "back end" to report pests. Only those employees who have authorized privileges to access the District's computer networks with a valid User Name and Password can login to the iPest "back end". An employee will be prompted for their User Name and Password

when they try to report a pest or they can click **Login** on the iPest home page to go directly to the back end login screen. This prevents unauthorized persons from submitting false pest sightings or otherwise abusing the system.

The back end of **iPestManager** is used by the Facility Services “Administrators” to manage the various features of the application. Most of the **iPestManager** Administrators are also IPM Program Coordinators. Administrators can add, edit or delete information found in the various lists in the application including the pest catalog, pest categories, action steps, sighting status, building lists, etc. Administrators also control the access rights to the back end features of iPest by setting access level privileges for all District employees. Administrators have higher-level privileges, which allows them to report pests, manage the responses to pest sightings, create and print detailed reports and/or graphs, report pesticide usage, etc. Custodians, maintenance personnel, secretaries, teachers and other staff, are all assigned lower level privileges which only allows access the back end to report pests.

3.2 Pest Reporting

Pest reporting, as defined by the District’s IPM Program, involves identifying pests and entering information about the sighting into **iPestManager** – similar to the information entered on a paper pest log. A user, e.g., custodian, teacher, kitchen staff, etc., can utilize iPest to report pests and their location within a building or on school grounds. Pest sightings are then sent to the appropriate IPM Program Coordinator by email within minutes after they are entered. A Coordinator may respond immediately or wait to manage all the sightings received each day during one **iPestManager** session.

Reporting pests is the key to successful pest management and the Custodial staff and Grounds personnel are the foundation of the District’s IPM Program. These personnel are in and around the District’s facilities on a daily basis and have the greatest opportunity to observe and report pests and/or take actions to control them. Without reporting, it is impossible to react to persistent or developing pest problems. Simply stated, “you can’t manage pests when you don’t know about them and reading about them on a pest log that is three weeks old is not helpful.” Pest logs are no longer used in the District as their function has been completely replaced by **iPestManager**. All employees are encouraged to be proactive and understand the importance of their role in reporting pests using **iPestManager**. One of the key benefits of **iPestManager** is that pest sightings are “real time” rather than weeks or months old as is the case with pest logs.

Pests are reported with **iPestManager** by first selecting a general pest category and then reporting the specific pest where identification was possible. General categories include ants, cockroaches, spiders, rodents, etc. Whereas, a specific pest would be a carpenter ant, pavement ant, Oriental cockroach, German cockroach, unknown, etc. This feature helps the IPM Program Coordinators to quickly evaluate our pest management efforts by category at individual sites or the District overall. If detailed reports are needed by specific pest, that information is also available too.

3.3 Pest Monitoring

Pest monitoring, as defined by the District's IPM Program, is differentiated from pest reporting in that monitoring involves observing and reporting pest activity using monitors or monitoring traps, a.k.a., "sticky traps". Sticky traps are neither a substitute for pesticides nor an alternative for reducing pest populations but rather a diagnostic tool to aid the Custodians in identifying a pest's reproductive stage, the likely direction pests are coming from, the number of pests, etc. Sticky traps also facilitate reporting pests that have not been observed directly.

Pest Monitoring Procedures

Head Custodians (also known as the **IPM Site Coordinators**) place sticky or monitoring traps in Pest Vulnerable Areas (PVAs) on a routine basis in areas where pest sightings are most common including but not limited to food storage areas, preparation and serving areas, custodial closets, laundry facilities, staff break rooms, mechanical rooms, trash and recycling storage and handling areas, entryways and loading docks or on an as-needed basis for diagnostic purposes. Head Custodians will be extensively trained (See Training and Education) in monitoring procedures and will routinely inspect all monitoring traps and record the findings during their regular building and site inspections.

Building and Site Inspections

The Custodial Department Supervisors conduct monthly inspections of all District schools and facilities throughout the entire year. The purpose of these inspections is to ensure that the Head Custodian at each site is meeting the minimum acceptable standards for cleanliness, operational procedures, hazard mitigation, storage guidelines, recordkeeping and IPM practices. The Custodial Supervisors, who are known as the **IPM Program Coordinators** when they perform IPM related functions, meet with the Head Custodian during these inspections and discuss any pest related issues, pest sightings, monitoring trap findings, PVAs and pest problems that the school might be experiencing.

Planning is underway for the next version of **iPestManager** that would include the ability to track information related to monitoring traps, e.g., trap location, date placed, what pests are being trapped, pest numbers, life cycle, direction of travel, etc. This feature of **iPest** would also provide the user with recommendations and tips so that monitoring becomes a learning and diagnostic activity rather than a reporting exercise.

3.4 Action Steps

iPestManager includes a feature that gives the IPM Program Coordinators the ability to enter, track and maintain a historical record of all activities, known as Action Steps, related to every pest sighting. Action Steps are provided to facilitate the management of pest incidents or sightings. Action Steps are also individually dated which permits the IPM Program Coordinator to review a chronological history of each sighting and ascertain what efforts were needed to bring closure or resolution to the problem. One or more Action

Steps can be assigned by the IPM Program Coordinator during the process of managing a pest incident or sighting. Examples of Action Steps include: remove harborage; exclusion; eliminated by occupant; no action; remove food sources; housekeeping; cleaning/sanitation; set monitors/traps; close/no further activity; submit Work Order; etc.

3.5 Acceptable Thresholds

A pest threshold is an arbitrary and subjective limit under which certain pests are acceptable in limited numbers in some areas of District facilities. Thresholds vary based on the danger posed by the particular pest, from site to site and area to area. Acceptable pest thresholds will be determined by The IPM Committee, IPM Program Coordinator(s) and school Principal or Facility Administrator.

Currently, **iPestManager** does not have a means to set thresholds. Planning is underway for the next version of **iPestManager** that would include setting and tracking pest thresholds on an incident-by-incident basis depending on the pest and/or the sensitivity of the location.

3.6 Pesticide Tracking

Any Action Step that involves a pesticide application, including insecticides, rodenticides, herbicides or fungicides, automatically requires the IPM Program Coordinator to enter all pesticide related information, e.g., the product name, EPA registration number, quantity used, date and time of application, location, application method, target pest, applicator name and license number, for each application. Herbicide and fungicide applications will also require the IPM Program Coordinator to enter the total area (ft²) treated.

The IPM Program Coordinators can generate reports of pesticide usage by product, by specific site and by District total using **iPest**.

Planning is underway for the next version of **iPestManager** that would allow the IPM Program Coordinators to print a Pesticide Notification document directly from the application whenever a pest incident results in the use of a pesticide.

3.7 Incident Resolution

Pest problems are tracked in **iPest** from the initial sighting until the pest has been eliminated or controlled or the contributing pest conducive conditions have been removed. Once there is no longer any need to track a pest sighting or incident, it is closed and assigned a conclusion statement or “resolution”. A resolution is a singular statement that summarizes what was involved to deal with all the activities associated with each pest sighting. Example Resolutions statements include: Facility Repairs / Landscaping, Exclusion, Eliminated/Eradicated, Education/Training, Acceptable Threshold, Pesticide Application, etc.

This feature of **iPestManager** allows the IPM Program Coordinators to summarize how pest problems are being resolved in the District and where more effort is required, e.g., exclusion, cleaning, sanitation, etc. and where more education and training are needed.

3.8 Reporting

iPestManager is very flexible and able to create a number of custom reports and charts with relative ease. Reports can be generated that provide key metrics for evaluating the success of the District's IPM Program, e.g., number of pest sightings per site, sightings by category of pests (ants, mice, cockroaches), chronological distribution of pests, sites with increasing/decreasing pest problems, frequency of mitigation efforts (housekeeping, exclusion, etc.), pesticide usage, IPM Program costs, etc. If a report cannot be created directly in **iPest**, the data can be exported in CSV (comma-separated variable) format into Microsoft Excel for more rigorous analysis.

4.0 TRAINING AND EDUCATION

Training and education are the cornerstones of an effective Integrated Pest Management program. Pest problems often develop or are exacerbated through people's own carelessness and/or lack of understanding of how humans interact with the environment and the ecosystems that surround us. Through education, people can learn about the many benefits of IPM and change how they perceive and interact with pests. Integrated Pest Management is really Informed People Management.

IPM education requires initial sessions in the basic concepts as well as refresher sessions to maintain proficiency. Both career personnel and new District employees require a continuum of training and educational programs that cover introduction to IPM to key concepts. Training is offered to employees at all levels of responsibility. Most Salt Lake City School District employees recognize the "IPM" acronym and understand it is the District's approach to pest management. Likewise, many District employees are aware of **iPestManager** and have an idea of where and how to access the tool even if they never use it to report pests. Other District employees, e.g., Principals, Teachers, Secretaries and School Nurses not only recognize why IPM is our preferred alternative for pest management but have a basic knowledge of IPM concepts particularly the importance of housekeeping and pest reporting.

The Custodians and Maintenance Personnel from Facility Services as well as Food Services are expected to have an even greater knowledge of IPM. These personnel, designated as IPM Site Coordinators, are trained in pest identification; pest biology, habitat and behavior; how to identify pest conducive conditions; pest reporting using **iPestManager**; monitoring techniques; record keeping; pesticide hazards; and mitigation strategies. **iPestManager** is the focal point of our training efforts for employees at all levels because it facilitates so many of the activities involved in pest management, e.g., pest identification and general information; pest and pesticide reporting; mitigation strategies; incident tracking and follow up; site metrics; program evaluation, etc. Training will be updated periodically as new methods and procedures are developed and released by the IPM Institute of North American, the EPA and others.

The Facility Services Department and its IPM Program Coordinators constantly "promote and market" IPM in order to maintain a level of awareness and interest among all personnel. A single pest infestation perceived as "out-of-control" can impact someone's attitude towards IPM overnight.

The following paragraphs describe the IPM training, educational and promotional activities offered to District employees as well as the educational and promotional materials that have been created. Also discussed are the "outreach" efforts of the Facility Services Department to promote IPM to other school districts and other IPM organizations with which the District has an association or is a member.

Example training and educational materials; PowerPoint presentations; list of formal IPM training for Coordinators, Custodians, Maintenance personnel; kitchen personnel; IPM completion certificates, listing of speaking engagements, etc., are found in the appropriate Appendices as noted below.

4.1 Facility Services Department

IPM training for Facility Services Department personnel includes a basic understanding of the District's IPM Program. Training also includes a more comprehensive understanding of our IPM philosophy, practices and procedures and why Facility Services personnel are key to the success of the Program. Information is tailored to specific job functions, e.g., plumbers, carpenters, custodians, etc.

The Facility Services Department has also invested in resources and tools including IPM books for our reference library, a stereo microscope, a magnifying video viewer for presentations and to capture digital images and other laboratory equipment to aid in the identification of pests. The "Pest Lab" has been extremely valuable in enhancing the skills and training of the IPM Program Coordinators.

IPM Program Coordinators

The District's IPM Program Coordinators, which includes the three Custodial Supervisors and the Grounds Supervisor, are charged with the responsibility of managing the District's IPM Program. To ensure these individuals have the necessary skills and knowledge, the District has committed to provide as much professional training from outside sources as is possible within budgetary constraints. While funds are limited, we continue to "leverage" every opportunity to provide training and education for our Coordinators.

The IPM Program Coordinators and some key staff members from the Grounds Department have received training and are licensed by the State as non-commercial pesticide applicators even though licensing is not required for school district employees in the State. See Section **6.0 Pesticides** for more information.

A listing of IPM Program Coordinator training can be found in Appendix H.

Custodial, Maintenance and Grounds Personnel Training

Head Custodians receive annual IPM training in pest identification; pest biology, habitat, behavior and reproduction; identification and correction of pest conducive conditions; pest reporting and management using **iPestManager**; monitoring techniques using "sticky traps"; IPM inspection procedures and mitigation strategies; recordkeeping; pesticide hazards, notification and MSDS requirements; and exclusion methods and materials.

All Head Custodians will be required to complete the IPM training program offered by the Custodial Department. Upon completion of the program, Head Custodians will be tested to demonstrate they have a minimum level of proficiency. Certificates of completion will be

given to successful participants. Head Custodians will function as the IPM Site Coordinator for their school and will have the responsibility to train and mentor the other Custodians at their site.

Maintenance personnel receive training in basic IPM concepts; pesticide hazards, notification and MSDS requirements; and exclusion methods and materials.

Ground personnel receive training in basic IPM concepts; pesticide hazards, notification and MSDS requirements; healthy turf maintenance procedures; and landscaping techniques to minimize harborage and entrance conditions. Grounds personnel will also be instructed in pest reporting using **iPestManager** since noxious weeds are also considered pests.

A listing of attendees and training topics for IPM Program Coordinators, Custodians, Maintenance and Grounds personnel (also including Food Services) can be found in Appendix H.

4.2 Food Services

Food Services employees work in areas that are highly vulnerable to pests. These areas are also regulated by the FDA and regularly inspected by the Salt Lake Valley Health Department. Food Service's employees receive training in basic IPM concepts; pest reporting using **iPestManager**; identification and correction of pest conducive conditions; monitoring techniques using "sticky traps" mitigation strategies; pesticide hazards, notification and MSDS requirements; and exclusion methods and materials. Refresher training will be conducted as determined by the Child Nutrition Department and certificates of completion will be given to all participants.

A listing of attendees and training topics for Food Services personnel can be found in Appendix H.

4.3 Teachers, Staff and Students

Teachers, Secretaries, Staff and Others

IPM training for staff members other than Facility Services and Food Services personnel typically occurs at Faculty Meetings. These short (15-20 minutes) training presentations are arranged by the IPM Program Coordinators with individual Principals when openings in their school Faculty Meeting schedules permit. The presentations have been very well received and have proven to be effective in generating interest in IPM and eliciting cooperation with teachers and coaches. Presentations include an overview of the District's IPM Program, information about IPM concepts and the importance of housekeeping and instructions on how to use **iPestManager** to report pests. IPM "tips", as they pertain to certain job functions, e.g., teachers, coaches, etc., will also be included.

IPM presentations have also been made to School Improvement Councils (SIC) and School Community Councils (SCC) on an "as requested" basis. These meetings have been well

received and involve Principals, teachers and interested parents. We anticipate the availability of **iPestManager** to provide parents with easily accessible information about pests, pest sightings in their children's school, quarterly pest and pesticide reports and educational links to IPM websites will prove to be a valuable resource.

A listing of training and educational presentations offered to schoolteachers and staff can be found in Appendix H.

Student Training

The IPM Program Coordinator may provide educational materials and hands-on presentations about IPM and the fundamentals concepts for students on an "as requested" basis. To date, there have been only a few requests for such presentations but they have been well received. We anticipate the availability of **iPestManager** in the classroom will foster additional interest.

4.4 Promotional Materials

Pest Press

The Pest Press is a collection of IPM specific articles that are posted on the Facility Service's Department website. The Pest Press is designed to provide information about IPM in general as well as specific pests; along with information about their behavior and methods of controlling them. These short and easy-to-read documents are available to anyone with Internet access and can be accessed and printed from **iPestManager**. The Pest Press can also be distributed in printed form in schools, offices, classrooms, Faculty rooms, kitchens, and other areas. Examples can be found in Appendix G.

Brochures and Posters

IPM related brochures, posters and other handouts have been developed for distribution to schools and employees. Job specific brochures (See example "Teachers Brochure" in Appendix H) have been developed and are distributed frequently by the IPM Program Coordinators when they visit schools to investigate pest problems. New brochures are in the planning stage, e.g., a specific brochure for Food Services personnel with information on PVAs, harborage, food storage and sanitation guidelines and a specific brochure for Maintenance personnel with information on up to date exclusion methods and materials. Posters that promote **iPestManager** and the District's IPM Program have likewise been developed and are posted throughout our schools. Examples can be found in Appendices H and K.

Media Releases

Periodic updates and news releases will be offered to the media to keep the public informed of the progress and success of the IPM District's program and other related areas of interest. Examples can be found in Appendices J and L.

4.5 Outreach Efforts

The Salt Lake City School District first started to promote IPM to other school districts when asked to speak at a UFOMA (Utah Facility Operations and Maintenance Association) annual meeting a few years ago. UFOMA is attended by school facility and maintenance personnel from around the state and primarily includes facility directors, custodial supervisors, etc. From these first outreach efforts, the District has been involved with numerous efforts to create awareness of about IPM and has been invited to speak and share our knowledge and experiences with many different organizations.

Utah IPM Coalition

The Salt Lake City School District started the Utah IPM Coalition at the suggestion of Dr. Marc Lame, beginning about 2007 because there was some level of interest in IPM from our presentations at UFOMA. We speculate that no other school districts in Utah have IPM programs based on ad hoc conversations at UFOMA and similar meetings. We also know that neither the State School Board nor the State Health Department has been active in promoting IPM awareness to schools.

Invitations to the Utah IPM Coalition were extended to facility, custodial and food services personnel from the nearby school districts (less than a 40 mile radius). Letters announcing the coalition were also sent to school superintendents, the state school nurses association and the state child nutrition association. Coalition meetings have been held from one to three times per year with attendance ranging from 10 to 30 people. Presenters have been included experts from Indiana University, University of Arizona, Utah State University and Utah State Extension Service with topics ranging from IPM concepts, pest management and control, pesticides, and turf management.

Unfortunately, the Utah IPM Coalition could dwindle away without the Salt Lake City School District's commitment and efforts to keep it going. The Facility Services Department is often stretched too thin with other outreach efforts to take on the role of marketing and managing a statewide coalition. In spite of requests to other districts to host coalition meetings or surveys seeking to indentify topics of interest, the willingness of other school districts to move the coalition forward as a group effort appears "marginal" at best. We believe the coalition needs to be championed by organizations with a larger scope of influence, e.g., PTA, state department of education, state health department, Extension services, etc. to succeed with any chance of sustainability.

Information about the Utah IPM Coalition including past agendas, announcements, presentations, attendee lists, etc., can be found in Appendix T.

Utah Asthma Task Force

The Salt Lake City School District, through its Director of Facility Services, has been associated with the Utah Asthma Task Force for many years. The Asthma Risk Factors Committee, of which the Director is a member, is one of several committees that have

helped to create the Utah Asthma Plan. The purpose of the Risk Factors Committee is to identify asthma risk factors and promote intervention strategies to reduce those risks in Utah including air quality, chemicals, pets, allergens, etc. Recently, the Risk Factors Committee committed to incorporate Integrated Pest Management as one of its goals in the Utah Asthma Plan because of the recognition that IPM can be effective in reducing asthma triggers associated with pests and pesticides. Information about the District's involvement with the Utah Asthma Task Force and IPM related issues can be found in Appendix U.

Legislative Involvement

There are no Utah laws requiring school districts to implement or adopt Integrated Pest Management on a voluntary or mandated basis. Through its involvement with the Utah Asthma Task Force, the Salt Lake City School District is actively engaged in supporting the efforts of members from the Utah Medical Association to develop draft legislation that would minimize schoolchildren's exposure to pesticides and chemicals in the environment through the adoption of IPM. As of the date of this Plan, meetings with stakeholders are being conducted and proposed legislative language is being drafted. A legislative sponsor has yet to be identified.

Speaking Engagements

The Director of Facility Services and the Department's IPM Program Coordinators have been asked by numerous organizations to speak and/or make presentations about the many aspects of IPM and/or the success of our IPM Program. We are committed to fostering an interest in IPM and will willingly accept requests to promote and teach others about IPM or to share our experiences. A list of speaking engagements can be found in Appendix H.

4.6 IPM Organizations

The Salt Lake City School District is a new member of the EPA's Pesticide Environmental Stewardship Program (PESP). We also maintain close ties with the IPM Institute of North American and the Western Region School IPM Implementation and Assessment Working Group. Information about the District's membership and involvement with the other IPM organizations can be found in Appendix V.

5.0 GENERAL OPERATIONS

The **GENERAL OPERATIONS** section of this plan addresses the day-to-day actions, practices and procedures which the Facility Services Department will utilize to conduct its IPM Program. The following paragraphs outline the Department's general practices and strategies for dealing with specific pests, general exclusion and mechanical control guidelines, general guidelines for the Grounds Department and relationships with Pest Management Professional / Service Providers.

Some of the functional and operational activities, e.g., pest identification and information, reporting and monitoring practices and acceptable thresholds for pests, are also discussed in Section **3.0 iPestManager**.

Approved pesticides, pesticide safety and notification and posting practices are addressed in Section **6.0 Pesticides**.

5.1 Pest Information and Control Strategies

Proper pest identification is important to successful pest management. **iPestManager** (See Section 3.0) provides the basic information to aid in pest identification and understanding pest behavior and control strategies. Pest control strategies are those actions, practices or procedures that have been found to be effective in controlling specific pests within the District, e.g., ants, cockroaches, mice, bats, etc. While iPest provides adequate control strategies for most pests, there are some circumstances where a detailed pest specific control strategy is required.

A detailed strategy includes extensive information on pest behavior, habitat preferences, food sources, monitoring recommendations and suggested procedures for effective and permanent eradication. The IPM Committee is responsible for developing pest specific strategies on an as-needed basis. New strategies will be developed as new pests problems emerge. Pest specific strategies can be found by topic in Appendix F. Technical papers and articles related to IPM, pests and pesticides can also be found in Appendix P. Similar information is available from online resources which can be found in Appendix R.

5.2 Exclusion and Mechanical Controls

The Facility Service's Maintenance Department, a.k.a., "the Shops", is an important part of the IPM process since they repair and seal exterior openings, adjust door closers, install door sweeps, etc. to exclude pests from our buildings. Maintenance is an integral part of IPM and communication between the Custodial and Maintenance staff is essential in determining solutions that work within the guidelines of the IPM process.

Typically, the Custodial staff is responsible for identifying the cause of pest problems and determining possible solutions. If necessary, the Custodian will submit a Work Order to the Shops to request repairs and/or installation of exclusion or mechanical controls. Shop

personnel have been trained in IPM principles particularly in exclusion and mechanical control techniques. The IPM Program Coordinator will also provide the Shop Foreman and Supervisors with up-to-date and “best practice” information on exclusion methods and products as they become available.

To prevent future pest problems, a pest management review is conducted during the design process for new building construction or for major remodel and renovation projects in order to identify pest vulnerable areas (PVAs) and incorporate exclusion and/or mechanical control suggestions into the construction documents.

iPestManager can currently track Work Orders, including the associated labor and materials costs, submitted to the Maintenance Department for repairs, installation of exclusion or mechanical controls or other pest management activities. Planning is underway for the next version of **iPestManager** to include a “timesheet” feature that would allow all personnel, e.g., Administrators, IPM Program Coordinators, Custodians, Foremen, Supervisors, etc., to record any time spent on IPM related activities. This feature plus the cost information associated with Work Orders will provide the District with an accurate accounting of the total costs for Integrated Pest Management. See Appendix O for invoices and other records that detail the current costs related to the District’s IPM Program.

5.3 School Grounds Procedures

Pests as applied to school grounds include not only insects and mammals but noxious weeds, turf grass diseases, plants, etc. The Grounds staff continually monitors school grounds for pest problems. **iPestManager** can also be used to report pests on school grounds.

When pest symptoms are detected, the Grounds staff follows up by investigating the symptoms to determine the cause and formulate an action plan to deal with the problem. In most instances, a cultural or mechanical change can alleviate the problem. Cultural and mechanical changes include aeration, mowing height adjustments, nutrient analysis, water application rates or plant selection. Thresholds for pests such as weeds, disease, insects, rodents or other mammals are also set. As long as the established thresholds are not exceeded, action may not be needed.

If thresholds are exceeded, a decision is made as to the means used to deal with the pest. This may include cultural changes, mechanical changes or last resort chemical applications. The Grounds staff currently has four state licensed pesticide applicators. We currently only used pesticide products that have “caution” as the signal word on the label. For weed, insect or disease problems, we only use pesticides to spot treat the affected area.

Procedures for dealing with pest specific problems on school grounds are also addressed by the pest control strategies found by topic in Appendix F.

5.4 Pest Management Professionals / Service Providers

Pest Management Professionals (PMP's), a.k.a., Service Providers are or can be effective co-partners in any IPM Program. The benefits of a Pest Management Professional are greatest when they perform the role of diagnostician and educator rather than pesticide applicator. As of the cover date of this Plan, the Facility Services Department does not have a contract with a Service Provider for pest management services. If needed, the Department may contract with proven PMP's who demonstrate a willingness to operate as diagnosticians. Sample contracts for bidding IPM services in accordance with this Plan are found in Appendix E.

6.0 PESTICIDES

Pesticides are considered a viable option for effective IPM and are sometimes necessary to control insect infestations or to aid turf recovery in areas that have been overrun by weeds. The general term pesticide includes products known as **insecticides** and **rodenticides** for the control of insects and rodents plus **herbicides** and **fungicides** for the control of weeds and turf diseases on school grounds. Herbicides and fungicides are far more likely to be used than insecticides and rodenticides.

The Salt Lake City School District will only apply pesticides after supportive documentation has established the need for such applications and every possible IPM alternative has been exhausted. Pesticide application, when necessary, will be performed by licensed applicators using the least amount and least-toxic chemicals possible and only to the specific area involved. Applications and formulations will strive to limit the potential for exposure, i.e., applications of residual-active pesticides will not be applied to exposed, human-contact surfaces.

6.1 Approved Pesticide List

The District will only apply pesticides from the **Approved Pesticide List** found in Appendix C for a specific pest or grounds problem. The Approved Pesticide List can also be found on **iPestManager**. The approved list is purposely limited to only those pesticides that will actually be used by the District's IPM Program Coordinators when necessary rather than an exhaustive list of pesticides that may never be used.

The IPM Committee will periodically review the Approved Pesticide List and make any changes/additions/deletions necessary to ensure the safest and least-toxic pesticides are recommend for use.

6.2 Pesticide Safety and Recordkeeping

The Salt Lake City School District will not allow any District employee to apply pesticides unless they are trained and licensed by the Utah Department of Agriculture and Food and possess a fundamental knowledge of Integrated Pest Management.

A feature of **iPestManager** is that all information related to a pesticide applications is carefully tracked including the product name, EPA registration number, quantity used, date and time of application, location, application method, target pest, applicator name and license number. A pesticide report can be produced by **iPestManager** that documents all pesticide applications on an as-needed or annual basis. Copies of all pesticide reports can be found in Appendix I. However, as of the date of this Plan, a pesticide report has not been produced since pesticides, excepting herbicides applied to the grounds, have not been used.

In accordance with Utah Occupational Safety and Health (UOSH) requirements for Hazardous Communication, Material Safety Data Sheets (MSDS) for all approved pesticides are available from the District's IPM Program Coordinators and can be found on iPestManager and Appendix C of this Plan.

Any PMP's or Service Providers contracted to apply pesticides in Salt Lake City School District buildings or on the grounds will be required to provide evidence of proper licensure and training.

6.3 Utah Pesticide Regulations for Schools

Presently there are no Utah laws that regulate the use or application of "general use" pesticides in buildings or on grounds by school personnel. However, professional or contracted pesticide applicators that perform pest management services for schools on a for-hire basis using "general-use" pesticides are required to hold a current commercial applicator license from the Utah Department of Agriculture and Foods.

There are no Utah laws or Federal regulations requiring school districts to implement Integrated Pest Management programs. Information about Utah pesticide applicator regulations can be found in Appendices D and S. Utah pesticide regulations and example laws and/or regulations from other states can be found in Appendix S.

6.4 Licensed Applicators

All four of the District's IPM Program Coordinators and three members of the Grounds staff are licensed by the State as non-commercial pesticide applicators even though licensing is not required for school district employees in the State of Utah. This was a voluntary effort, however, each of the participants agreed that licensing was important to ensure a higher level of professionalism, to bring creditability to the District's IPM Program and to better understand the procedures and dangers associated with pesticides should they be necessary. Our IPM Program Coordinators and Grounds personnel spent considerable classroom and study time preparing for their license exams offered by the State of Utah Department of Agriculture and Food, Plant Industry Division Pesticide Program. A few of the Coordinators also tested for more than one specialty area, e.g., health, structural, vertebrate, ornamental and turf, etc. Information about the State's pesticide program, applicator requirements, recertification requirements and copies of the District's non-commercial applicator licenses can be found in Appendix D.

6.5 Notification and Posting

The Salt Lake City School District does not currently send a notification letter to parents at the beginning of the school year explaining the use of pesticides because such notification is not required by law. A sample notification letter can be found in Appendix E should this become necessary in the future.

We will post a Notification document in the school office or facility lobby 24 hours in advance should it be necessary to apply any approved pesticide in the school or facility or on the grounds. The Notification document will remain posted for at least 48 hours after application. An example notification form is found in Appendix E. Planning is underway for the next version of **iPestManager** that would include a feature to automatically print a Notification Form whenever any pesticide application action step is initiated.

Parents or guardians can read the about the pesticides approved for use on the Approved Pesticide List found on **iPestManager**. See Section **7.0 Reports and Records** for more information about pesticide usage reporting.

7.0 REPORTS AND RECORDS

The Facility Services Department will prepare routine reports using the data available from **iPestManager** (pest sightings and monitoring activities; routine inspection results; pest management incidents; strategies used to resolve pest problems; and pesticide applications) as the primary means of evaluating the success of our IPM Program.

7.1 Quarterly and Annual Reports

A District report that summarizes pest sightings and pesticide applications on a quarterly basis can be found in Appendix I. All quarterly reports are available to the public on **iPestManager** and can be accessed by anyone with Internet access. This information will remain in the District's **Integrated Pest Management Plan, Volume I** binder for the current year. At year's end, these records will be removed from the IPM Plan binder, filed and retained for a minimum of seven years.

7.2 Site Records

School specific reports, data and other information, e.g., special **iPestManager** reports, pest monitoring forms, IPM inspection reports or the notification form associated with a pesticide application, will be filed by school or facility name in the District's **Integrated Pest Management Plan Site Records, Volume II**.

All information related to pesticide applications including the product name, EPA registration number, quantity used, date and time of application, location, application method, target pest, applicator name and license number will be recorded and likewise filed by school or facility name in the District's **Integrated Pest Management Plan Site Records, Volume II**.

8.0 PROGRAM SUSTAINABILITY

The primary goal of the District's IPM Program is to effectively control the pest populations in our schools, while minimizing and/or eliminating the use of pesticides through a comprehensive program of education, reporting and proactive intervention. Of equal importance, however, is the sustainability of program over the long term and how it will remain viable through future changes in management and personnel. The following paragraphs are provided, primarily based on the past five years of experiences, as suggestions and recommendations to maintain the District's IPM Program into the future.

8.1 Organizational Leadership

Leadership Role

Integrated Pest Management requires the participation and cooperation of many people, engaged in many different activities, to succeed. However, the primary responsibility for leadership of this effort must be assumed by the department having the overall knowledge and responsibility for pest management. While the custodial and grounds maintenance functions seem to be the likely choice, there are others, e.g., Food Services, etc., who have an equally important role.

The Facility Services Department has been responsible for the District's IPM Program but it has only been successful because of the recognition that other departments must be involved and equally committed. Such involvement will only occur if Facility Services makes a conscious effort to reach out to other departments and creates the enthusiasm and involvement necessary for success. Future success will depend upon the leadership of the Facility Services Department.

Management Philosophy

Perhaps the most fundamental lesson we have observed while implementing our program is that Integrated Pest Management can achieve the same or better results in controlling pests as traditional chemical-based means but in a healthier and safer way. By recognizing that IPM is a viable process and the public wants and demands safer alternatives to needlessly exposing children to chemicals, it should be evident that IPM should be adopted as a basic ongoing management philosophy for Facility Services and the District.

Director Involvement and Commitment

In order for an IPM Program or any other program, to be effective and successful, everyone must be committed to the program and that includes the Department Director. The responsibility for an effective program cannot be "pushed" down the organizational chart for others to manage, set goals, make decisions and evaluate success. This is the role of the Director, working in constant collaboration with the members of the IPM Program Team.

8.2 Policy and Regulation

Internal Policy

The success of our IPM Program is the direct result of our management philosophy rather than a mandate from a District policy or a top-down directive from the Office of the Superintendent. We have succeeded with a “bottom up” approach in spite of not having a strong IPM policy. However, a strong IPM policy at the District level is preferred because it minimizes the enforcement problems that may surface with District personnel and streamlines the operational issues between departments. Moreover, a strong IPM policy also creates more visibility for the Program and could foster more involvement with more people throughout the District. It should be the goal of the Facility Services Department and the IPM Program to continue to press for a Salt Lake City School District Board-adopted IPM policy rather than a department administrative procedure.

Laws and Regulation

Utah has no laws or regulations that would require the adoption of IPM. We have succeeded without the “pressure” of regulatory compliance. The District is well positioned even if Utah adopts legislation or Federal law mandating adoption of IPM. Both scenarios are likely in the future. However, the impact will be minimal as long as the District’s IPM Program is continued.

8.3 Culture and Environmental Concerns

Being “green” is no longer synonymous with the fringe elements of the environmental movement. Being green is considered mainstream and any means that provides a safer alternative than the conventional chemical approach is generally preferred. By leading out with an IPM Program, the District has taken a proactive rather than reactive position. Parents recognize and appreciate this and returning to traditional pest management procedures would be viewed negatively given the success and recognition our IPM Program has received.

8.4 Promotional Efforts and Training

Marketing The Program

Another fundamental fact that we have observed is that Integrated Pest Management requires constant promotion or marketing to remain viable. Existing employees transfer positions, retire or just become complacent and new employees are being hired which means there is a need to constantly market IPM awareness, train and update IPM skills and knowledge. As with any successful venture, there is a need to constantly remind people of the goals and benefits of a program.

Training and Education

We have invested hundreds of hours in training, promotional and outreach efforts to ensure the success of our IPM Program. At first glance, the associated costs might cause some concerns. However, we have tracked these costs and training efforts and have concluded that when included with other training topics, the incremental costs associated with IPM training are minimal. We have developed innovative tools, e.g., **iPestManager** that improve the efficiency of the IPM process and track all related costs. At this point, we are close to being able to accurately track all personnel time and costs associated with IPM. This will be an industry first and it is our opinion that the total program costs will still be less than the costs associated with contracted PMP costs.

Training and education will always be required to maintain the viability of the IPM Program. Similar to job safety and other skills training, IPM training does not end after the first session. Training is required for new employees or to address new problems with existing employees including new pests, exclusion procedures or updated tools (**iPestManager**). Likewise, promotional sessions with teachers and staff are also considered training. Without a commitment to constantly train (and promote), the effectiveness of the IPM Program will be diminished or even fail.

8.5 Goals and Awards

Success in any effort is measured against goals and objectives. Success with IPM is the same and measuring progress against goals should be an everyday effort. The “metrics” by which success is measured should change to reflect the needs of the IPM Program. Goals can be specific pest reduction, pesticide reduction, more training sessions or creating more promotional materials. New goals for the IPM Program should be created with input from as many stakeholders as possible and updated on an annual basis.

It is the philosophy of the Director of the Facility Services Department that departmental goals should be set as high as possible including competition for awards and recognition at a local and national level. By competing for awards, the Facility Services Department can measure itself against others, evaluate, improve and reinvent its programs and set new and more challenging goals. Setting a goal to win a local or national award is no different from a high school trying to win a state basketball title. However, finishing first is not the objective – instead, it is the satisfaction of succeeding, learning about new possibilities and improving the moral and self-esteem of the Department’s personnel that are important.

Integrated Pest Management Plan

Facility Records

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Facility Services Department

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