Salt Lake City Corporation
Public Utilities

WATER RECLAMATION and STORM DRAINAGE
WATER SUPPLY and WATERWORKS

STORM WATER MANAGEMENT PLAN

UPDES PERMIT NO. UTS000002
FOR DISCHARGES FROM
MUNICIPAL SEPARATE
STORM SEWER
SYSTEMS

Submitted to:
State of Utah
Department of Environmental Quality
Division of Water Quality
STORM WATER MANAGEMENT PLAN

UPDES PERMIT NO. UTS000002

FOR DISCHARGES FROM

MUNICIPAL SEPARATE STORM SEWER SYSTEMS

SUBMITTED TO:

STATE OF UTAH
DEPARTMENT OF ENVIRONMENTAL QUALITY
DIVISION OF WATER QUALITY

SUBMITTED BY:

SALT LAKE CITY CORPORATION
PUBLIC UTILITIES DEPARTMENT

JUNE 1, 1998
BMP 1:
Clean all required portions of the drainage system every five years.

GOAL:
To keep the storm drainage conveyances clean and clear of debris, and minimize organic matter and litter from entering into the storm drainage system and Waters of the State.

DESCRIPTION:
The Salt Lake City Storm Drainage Utility is responsible for keeping the drainage conveyances clean. Approximately 225 miles of pipe, 50 miles of open ditches and channels, and 12 1/2 miles of river are in the drainage system. Salt Lake City maintains a fleet of three Vactor trucks for cleaning storm drain structures. The maintenance program is designed to facilitate cleaning the entire system on a five-year cycle. Major storm drains are inspected on an annual basis. Detention basins are inspected annually. Salt Lake City operates four drag line machines to clean storm drains larger than 24 inches. A main line is scheduled to be cleaned when the annual inspection indicates approximately 20 percent of the pipe capacity is filled with sediment.

MEASUREMENT:
The Hansen Work Order System will be used to track system maintenance. Each system feature such as pipes, manholes, and detention basins, have been assigned a unique record in the data base. Maintenance activity on each structural feature of the Salt Lake system will be tracked. The number of complaints is also tracked.

REDUCTION OR BENEFIT:
The benefit attributed to the implementation of this Best Management Practice is the removal of sediments and pollutants that collect in the storm drain conveyances and ultimately enter the Waters of the State. The removal of this sediment mitigates adverse consequences to aquatic life in streams and lakes. Aesthetic values of the waters are also enhanced by reducing the litter and sediment load. Keeping the lines free and clear of debris allows storm water runoff to convey through the drainage system as designed.
IMPLEMENTATION:
Salt Lake City Storm Drainage will continue to implement this Best Management Practice. The Storm Drainage Manager is responsible for coordinating and prioritizing this task. The Hansen Work Order System will be used for scheduling and as a tracking measure of the status of the drainage system. With proper implementation and the available resources, the goal of cleaning the drainage system every five years should be met. The following presents the 1995, 1996, and 1997 portion of the drainage system cleaned:

<table>
<thead>
<tr>
<th>YEAR</th>
<th>PIPE</th>
<th>GUTTER</th>
<th>INLETS</th>
<th>BOXES</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>46,857 ft.</td>
<td>296,279 ft.</td>
<td>4,834 inlets</td>
<td>1,524 boxes</td>
</tr>
<tr>
<td>1996</td>
<td>27,153 ft.</td>
<td>135,433 ft.</td>
<td>3,444 inlets</td>
<td>636 boxes</td>
</tr>
<tr>
<td>1997</td>
<td>41,359 ft.</td>
<td>274,463 ft.</td>
<td>3,112 inlets</td>
<td>854 boxes</td>
</tr>
</tbody>
</table>
BMP 2:
Inspect all major storm drains and detention basins annually. Clean and repair the facilities as needed.

GOAL:
To keep all of the major storm drains and detention basins in repair and clean of any debris or sediment that may keep them from efficient operation.

DESCRIPTION:
The Salt Lake City Storm Drainage Utility is responsible for keeping all major storm drains and detention basins clean and repaired. Major storm drain lines are inspected on an annual basis. The Storm Drainage Utility Manager is responsible for coordinating these efforts and he will use the Hansen Work Order System to keep track of the inspection dates, cleaning, and repairs. Salt Lake City operates four drag line machines to clean storm drain lines larger than 24 inches. A main line is scheduled to be cleaned when the annual inspection indicates approximately 20 percent of the pipe capacity is filled with sediment. Detention basins are inspected annually. The Storm Drainage Utility Manager will schedule these inspections during the months of January through March, prior to spring run off. Inspection dates, cleaning and repairs will be tracked on the Hansen Work Order System.

MEASUREMENT:
The Hansen Work Order System will be used for keeping track of all of the major storm drains and detention basins inspected, and document any repairs or cleanup.

REDUCTION OR BENEFIT:
The benefit attributed to the implementation of this Best Management Practice is the maintenance of flow capacity, and the reduction of sediments and pollutants that would collect in the storm drain conveyances and ultimately enter the Waters of the State. The removal of this sediment and debris mitigates adverse consequences to aquatic life in streams and lakes. Aesthetic values of the waters are also enhanced by reducing the litter and sediment load. Keeping the lines, and detention basins free from any obstructions allows the storm water runoff to convey through the drainage system as designed.
IMPLEMENTATION:
The Salt Lake City Storm Drainage will continue to implement this Best Management Practice. The Storm Drainage Manager is responsible for scheduling and coordinating the inspections and clean up of these facilities on an annual basis. As lines are inspected, repairs are made and the line is cleaned, as necessary. Any repairs or clean up will be documented on the Hansen Work Order System.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>FEET OF PIPE INSPECTED</th>
<th>DETENTION BASINS INSPECTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>60,800</td>
<td>38*</td>
</tr>
<tr>
<td>1996</td>
<td>60,800</td>
<td>39*</td>
</tr>
<tr>
<td>1997</td>
<td>70,000</td>
<td>39*</td>
</tr>
</tbody>
</table>

* All of the detention basins were inspected. In 1996, the Victory Road detention basin was added to the (MS4) municipal separate storm sewer.
BMP 3:
Support Salt Lake City Leaf Bag Program.

GOAL:
To minimize or eliminate fall leaves from getting into the gutters and storm drain system.

DESCRIPTION:
The leaf bag program is administered through the Public Service Division. Between five-and-six hundred thousand leaf bags are given out in October and November. Three crews, with three team members each, and three long bed dump trucks are used to pick up the leaf bags. The leaves are used in the composting operation at the landfill. The composting is available for government landscaping projects, commercial landscaping, and residential use. The inception of the leaf bag program was October 1985. The leaf bags have shown up in various parts of the world most recently Ontario, Canada, and Milwaukee, Wisconsin.

Prior to implementing this BMP the old City ordinance asked residents to pile their leaves in the gutter, and City crews would remove them at a specified time. Problems such as water backing up in the gutters, slippery roads, leaves washing into and plugging storm drain intakes, and safety issues for children existed.

MEASUREMENT:
The number of leaf bags given out, and the tons of leaves composted and used for landscaping will be used to measure the effectiveness of this Best Management Practice.

REDUCTION OR BENEFIT:
The implementation of this Best Management Practice helps prevent organic pollutants to the (M.E.P.) Maximum extent possible, from entering the drainage system, mitigating the consequences of organic pollution from the leaves that may otherwise enter the storm drain conveyance and the receiving water bodies. Additional benefits of safety to the community, and the availability of composting material for landscaping are also gained by this BMP.
IMPLEMENTATION:
Salt Lake City Storm Drainage Utility will continue to support this Best Management Practice. The Storm Drainage Utility will assist Public Works in distributing bags, and dissemination of information to the City residents. The costs of keeping this BMP implemented in 1995, 1996, and 1997 was $200,000 used for the cost of the bags, clean up crews, and equipment. The following presents the number of leaf bags given to the public, and tons of leaves collected in leaf bags:

<table>
<thead>
<tr>
<th>YEAR</th>
<th>BAGS GIVEN OUT</th>
<th>TONS OF LEAVES COLLECTED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>550,000</td>
<td>1,500</td>
</tr>
<tr>
<td>1996</td>
<td>550,000</td>
<td>1,400</td>
</tr>
<tr>
<td>1997</td>
<td>550,000</td>
<td>2,000 *</td>
</tr>
</tbody>
</table>

* 1997 Mild weather conditions contributed to continual bagging of leaves by residents. Thus, more tons of leaves were collected.
BMP 4:
Continue the Neighborhood Clean up Program.

GOAL:
To keep household junk and debris from finding its way into the storm drainage conveyances that lead to the rivers and canals.

DESCRIPTION:
Salt Lake City conducts a yearly neighborhood clean up program. Residents may place yard debris such as grass, leaves, tree limbs, and other non-hazardous waste by the curb for collection by City crews. An effort is made to separate bushes and trees for mulching, the program runs for thirty-one weeks, from April to November with approximately 13,000 tons of yard debris collected annually. The areas are rotated each year in an effort to offer the citizens both spring and fall clean up every other year. Each week approximately 1,300 to 1,500 residential homes receive the service.

MEASUREMENT:
The annual tons of residential debris removed each year is the measurement used for this Best Management Practice.

REDUCTION OR MEASUREMENT:
The benefits attributed to the implementation of this Best Management Practice is the reduction of yard debris that may migrate into the storm drainage conveyances and ultimately into the Waters of the State. The removal of this debris mitigates nuisance materials from plugging storm drains, or from having an adverse impact to aquatic life in streams and lakes. Aesthetic values to the neighborhood and waters are also enhanced by implementing this BMP.
IMPLEMENTATION:
Salt Lake City Storm Drainage will continue to implement this Best Management Practice. The Sanitation Division of the Salt Lake City Public Works is responsible for the coordination of this BMP, and provides the labor. The manpower and equipment used include: three front end loaders with operators, ten dump trucks with drivers, and laborers at each site.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>TONS OF MATERIAL REMOVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>16,700</td>
</tr>
<tr>
<td>1996</td>
<td>17,000</td>
</tr>
<tr>
<td>1997</td>
<td>20,000</td>
</tr>
</tbody>
</table>
BMP 5:
Remove leaves from gutters during the fall leaf season.

GOAL:
To clean leaves out of the gutters and drainage intakes before they get into the storm drain system. Thus, minimizing organic material from getting into the Waters of the State.

DESCRIPTION:
The Salt Lake City Storm Drainage Utility will continue to clean leaves from the gutters and drainage inlets during the fall leaf season. This Best Management Practice will be done in conjunction with the Public Services Division. Street sweepers and vactor trucks are deployed in a coordinated effort during early September to clean leaves from the streets and storm drain intakes. BMP 3: The Leaf Bag Program, BMP 4: the Neighborhood Annual Clean up Program, work hand in hand with BMP 5. The combinations of these BMPs synergistically mitigate leaves and other debris that may migrate into the storm drains and waterways from residential areas.

MEASUREMENT:
The tonnage of leaves that are removed and taken to various locations for composting will be used for measuring the success of this Best Management Practice.

REDUCTION OR BENEFIT:
The implementation of this Best Management Practice eliminates several tons of organic material from entering the drainage system, and Water of the State. Additional benefits of this BMP include clean intakes and gutters.
IMPLEMENTATION:
This Best Management Practice was previously implemented and the Salt Lake City Storm Drainage Utility will continue the program. An annual cost of $300,000 will be appropriated by the Storm Water Utility to provide this BMP. The Drainage Manager, Sanitation Manager, and the appropriate personnel will meet early September to coordinate their efforts prior to the leaves falling. Street sweepers and Vactor truck efforts will be prioritized through a continual coordination effort. In 1995 and 1996 respectively, 800 tons and 600 tons of material were removed from gutters by street sweepers and vactor trucks.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>TONS OF MATERIAL REMOVED BY STREET SWEEPERS AND VACTORS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1995</td>
<td>800</td>
</tr>
<tr>
<td>1996</td>
<td>600</td>
</tr>
<tr>
<td>1997</td>
<td>600</td>
</tr>
</tbody>
</table>
BMP 6:
Support the Salt Lake City Curbside recycling effort.

GOAL:
To reduce or eliminate material that can be recycled from getting into curbs, storm drainage conveyances, and Waters of the State.

DESCRIPTION:
Salt Lake City is proactive regarding recycling and offers a convenient recycling program to the residents. Since the inception of this program in 1994 the participants, and tons of material recycled has grown rapidly. The service is free to the residents and offered on a voluntary basis. The only cost for the residents is a $6.00 start up fee to pay for the recycling bins. The following material can be placed in the recycling bins: newspaper, tin and aluminum cans, #PET plastic clear, plastic coated milk or juice cartons, magazines, phone books, and non ferrous metals. The pickup is on a weekly basis.

MEASUREMENT:
The measurement of this Best Management Practice regarding storm water is the amount of material recycled and kept out of the storm drain system. Approximately 430 tons of material per month is recycled in Salt Lake City.

REDUCTION OR BENEFIT:
The benefit of implementing this Best Management Practice is the reuse of material that would otherwise take up valuable space at the landfill. The depletions of natural resources are less stressed when material is recycled. The reduction of several tons of material that may migrate to storm drain systems is reused.
**IMPLEMENTATION:**
Salt Lake City will continue to implement the recycling program. The program is in its fifth year, with approximately 26,000 households receiving the service. The coordinator for Salt Lake City is Ron Love. Approximately 4,400 households received the service in 1994 and approximately 26,000 residents are currently receiving the service. The tons of material recycled has increased from approximately 80 tons per month to 430 tons per month.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>TONS OF MATERIAL RECYCLED/MONTH</th>
<th># OF SUBSCRIPTIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>80</td>
<td>4,370</td>
</tr>
<tr>
<td>1995</td>
<td>88</td>
<td>4,160</td>
</tr>
<tr>
<td>1996</td>
<td>400</td>
<td>24,800</td>
</tr>
<tr>
<td>1997</td>
<td>430</td>
<td>26,007</td>
</tr>
</tbody>
</table>
BMP 7:
Support citizens clean up days of selected waterways.

GOAL:
To improve aesthetics of selected waterways by removing debris and to promote citizen awareness and responsibility regarding the waterway.

DESCRIPTION:
Salt Lake City Departments of Public Utilities and Public Works combine labor, equipment, and supplies to assist the community in cleaning the waterway. Approximately 200 tons of debris are hauled out to the landfill on the waterway clean up day. The clean up is scheduled in April around Earth Day. The community and Salt Lake City Departments work together to improve and beautify the waterway. Approximately 400-700 volunteers were involved in the project each year.

MEASUREMENT:
The change in the amount of debris removed from the waterway and hauled to the landfill is one measurement of the success of this Best Management Practice. The support of the community volunteers is an important aspect of this BMP. As the community becomes involved, awareness of preventing pollutants from entering the waterways should increase. Thus, fewer tons of debris should be in the river which would result in fewer tons of debris removed each year. This is an important measurement of the success of this BMP.

REDUCTION OR BENEFIT:
The benefit of this Best Management Practice is the reduction of garbage and debris destroying the beauty and water quality of the selected waterway. The community involvement in the clean up increases general awareness. The community benefit is a waterway that has better aesthetics, recreational use, and water quality.
IMPLEMENTATION:
Salt Lake City will continue to implement this Best Management Practice. The coordination efforts are made by the Public Utilities Drainage Manager and the Parks Department. The estimated cost of this BMP for equipment, supplies, disposal fees etc., is approximately $25,000. The last clean up day was scheduled for April 26, 1997. In addition to the river cleanup, several beautification projects were completed to enhance the river and its surroundings for the citizens’ enjoyment. Park benches, a boat ramp, tree planting and pruning, and a major effort of chipping trails were completed in the 1997 effort. As a result of the past years of cleanup in the Jordan River the tons of debris removed is declining. Therefore, the effort in 1998 will entail more beautification projects and a Jordan River Celebration. This will be scheduled during the summer of 1998 instead of spring 1998. The following presents the number of volunteers, tons of debris removed during 1994 - 1997.

<table>
<thead>
<tr>
<th>YEAR</th>
<th>NUMBER OF VOLUNTEERS</th>
<th>TONS OF DEBRIS REMOVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>678</td>
<td>195</td>
</tr>
<tr>
<td>1995</td>
<td>443</td>
<td>43</td>
</tr>
<tr>
<td>1996 *</td>
<td>53</td>
<td>0</td>
</tr>
<tr>
<td>1997</td>
<td>180</td>
<td>25</td>
</tr>
</tbody>
</table>

* 1996 Weather conditions resulted in a cancellation of the clean up. Beautification projects such as boat ramps and trail chipping were completed.
BMP 8:
Use the HANSEN work order system to track and schedule storm drain maintenance activities.

GOAL:
To document and track system maintenance with the computerized work order system (HANSEN). This documentation will be used to keep track of maintenance activity on each structural feature of the Salt Lake system and provide information for future maintenance activities.

DESCRIPTION:
Salt Lake City implemented the HANSEN work order system in 1993 for tracking of the sanitary sewer and storm water systems. The work order system allows each system feature such as pipes, manholes, and detention basins to have its own assigned unique record in the database. Work orders are generated for routine scheduled maintenance, needed repairs in the system, and emergencies. These work orders are assigned to maintenance personnel to make repairs and/or replacements. The amount of time spent on the maintenance activity, materials used, and work performed is recorded on the work order and the information is input into the HANSEN database.

MEASUREMENT:
The measurement for this Best Management Practice is the work performed on the storm drainage system. The number of work orders assigned and the repairs and/or replacements to portions of the drainage system to insure the system is clean and functions properly.

REDUCTION OR BENEFIT:
The benefit attributed to the implementation of this Best Management Practice is the use of a tracking system to access records regarding maintenance and repairs on the drainage system. These records provide information for scheduling of maintenance, repairs, and cleaning of the drainage system. The maintenance activities provide a drainage system that functions properly to mitigate pollutants entering Waters of the State.
IMPLEMENTATION:
Salt Lake City Public Utilities will continue implementation of this Best Management Practice. The Storm Drainage Manager is responsible for assigning work orders, making sure that proper notes are asserted on the work order by maintenance personnel, and making sure that work orders are provided to the work order office. The work order office is responsible to input the information into the HANSEN Work Order system for future use in maintaining the storm drainage system. Presented in the next two pages are Maintenance Repair Work Orders completed by the Drainage Department.
BMP 9:
Conduct an annual training seminar for maintenance personnel on their role in maintaining storm water quality.

GOAL:
To insure that storm drainage maintenance personnel are aware of their responsibility in maintaining storm water quality as work is performed on the drainage system.

DESCRIPTION:
The Salt Lake City Storm Drainage Utility is responsible for maintaining the storm drainage conveyances and keeping them clean. As part of this responsibility maintenance crews are trained to understand and have a knowledge of their role in maintaining storm water quality. Salt Lake City storm drainage maintenance personnel are trained regarding their role in maintaining storm water quality in the following areas: construction activities, cleaning storm drain lines, boxes and inlets, identifying flows or discharges into the storm drain system and reporting them for investigations, working on beautification projects and cleanup of selected waterways with citizens.

MEASUREMENT:
The measurement for this Best Management Practice is the training provided for maintenance personnel. The quality of the training and topics discussed should focus on Best Management Practices that they can implement to maintain storm water quality while performing their job. Another aspect of the training should focus on illicit discharge identification.

REDUCTION OR BENEFIT:
The benefit attributed to this Best Management Practice is providing support and training to the drainage maintenance crew in order for them to understand the significance of maintaining storm water quality. With a maintenance staff that has received training, maintenance of the system should be performed with storm water quality addressed to eliminate or mitigate poor judgement or accidents that may discharge pollutants into the storm drain system and Waters of the State. Illicit connection's and/or discharges are reported for investigations and solutions. Thus, the benefit of this Best Management Practice is a reduction of pollutants to the Waters of the State.
IMPLEMENTATION:
Salt Lake City will continue to implement this Best Management Practice. In 1997, storm water quality was addressed during safety meetings and prior to the Annual Jordan River cleanup. Quarterly training meetings are planned in 1998. These training meetings will be more formal with detailed information on Best Management Practices and illicit discharge identification. The Storm Drainage Manager and Storm Water Coordinator are responsible for this training.
BMP 10: Develop disposal program for sediments from storm drain cleaning.

GOAL: To insure proper disposal of sediments from storm drain cleaning in an efficient and environmentally sound manner.

DESCRIPTION: The Salt Lake City Storm Drainage Utility is responsible for sediment removal and proper sediment disposal. As sediment and debris is removed from the storm drain facilities during regular scheduled maintenance it is hauled to a bio solids dewatering bed at the Water Reclamation Facility. The bio solids dewatering bed has been reserved for storm drainage sediment and debris. The sediment and debris is stacked in windrows for dewatering to take place. The water from the sediment conveys through the sluice gates in the bed and is returned to the headworks of the plant for proper treatment. When the windrows of sediment and debris has dewatered the debris is loaded on ten wheel dump trucks and hauled to an approved landfill for disposal.

MEASUREMENT: The measurement for this Best Management Practice is the number of loads that are properly dewatered and hauled to the landfill for proper disposal that is environmentally sound.

REDUCTION OR BENEFIT: The benefit attributed to the implementation of this Best Management Practice is the amount of sediment and debris removed from the storm drainage system that receives environmentally sound disposal. Cleaning the storm drainage system and removing sediment and debris mitigates this pollution from entering Waters of the State. The reduction of several tons of sediment from the storm drain system mitigates adverse consequences to aquatic life in streams and lakes. Aesthetic values of the waters are also enhanced by reducing the litter and sediment load.

IMPLEMENTATION: Salt Lake City will continue to implement this Best Management Practice. In 1997, approximately 206 twelve cubic yard ten wheeler dump truck loads of sediment and debris were taken to the bio solids beds for dewatering. After the sediment and debris was dewatered it was taken to the landfill for environmentally sound disposal.

Salt Lake City Storm Water UPDES Permit
Storm Water Management Plan 19
BMP 11:
Continue requirements for on-site detention for developments.

GOAL:
To improve water quality by the engineering on-site storage facilities which are designed to improve water quality and allow a more controlled runoff discharge through storm drain piping or groundwater recharge.

DESCRIPTION:
Salt Lake City has had a drainage regulation requiring on-site detention for developments since 1978. Salt Lake City requires all commercial, industrial, and residential developments with impervious areas greater than 15,000 square feet to provide on site detention facilities to limit the discharge to a pre development rate of 0.2 cfs/acre during the 100-year storm. The uses of on site detention promotes storm water quality by reducing the post development run off velocities and resulting sediment transportation.

MEASUREMENT:
The measurement for this Best Management Practice is the number of drainage plans approved.

REDUCTION OR BENEFIT:
The benefit attributed to the Best Management Practice of requiring on-site detention is the enhancement of water quality by settling out some of the pollutants that have an effect on the receiving waters. The mitigation of flooding is another benefit of this BMP. Thus, the capacities of all design areas are to be sufficient to contain the estimated runoff volume from a 100-year, 24 hour storm event over those portions of the gross aggregate area under design.

IMPLEMENTATION:
Salt Lake City will continue to implement this Best Management Practice. The Design and Inspection teams are responsible for reviewing and inspecting proposed construction development to insure it conforms to the City’s Surface Water Runoff Policy, the City’s Restrictive Discharge Policy, and good engineering practices. In 1996, 72 drainage plans were approved, and in 1997, 75 drainage plans were approved. 100% of the plans approved met the drainage regulations developed by Salt Lake City.
BMP 12:
Enforce the requirements of the Zoning Ordinance Chapter 21A.34.050 for developments adjacent to waterways.

GOAL:
To provide protection, preservation, proper maintenance, and use of Salt Lake City's watercourses, lakes, ponds, floodplain, and wetland areas to include downstream drainage areas for present and future residents of Salt Lake City.

DESCRIPTION:
The Salt Lake City Community and Economic Development Division is responsible for enforcing the LC Lowland conservancy ordinance. The ordinance protects water bodies that encompass the LC lowland conservancy overlay district such as streams, lakes, ponds, and wetlands, as identified on the zoning map, and also the Jordan River and the Surplus Canal. The ordinance has certain protection area standards such as setback requirements, permitted uses, conditional uses, natural vegetation buffer strips, and landscape plan requirements.

MEASUREMENT:
The measurement for this Best Management Practice is the approval of required plans, and enforcement of the ordinance. Soils reports identifying soil stability, drainage control plans, and site grading and excavation plans must be submitted and approved prior to any work being done.

REDUCTION OR BENEFIT:
The benefit attributed to this Best Management Practice is in the stated purpose of the overlay zone to "improve water quality, by filtering and storing sediments and attached pollutants, nutrients, and compounds before they drain into streams or wetlands, and by maintaining the natural pollutant assimilating capabilities of the stream, floodplains and wetlands."

IMPLEMENTATION:
Salt Lake City will continue implementing this Best Management Practice which has been in place since 1992. The Planning Section of Community and Economic Development is responsible for reviewing requests to build or use the overlay district. Their review of plans, and the criteria in Zoning Ordinance 21A.34.050 are used in the process of request being approved or rejected. In 1997, no plans were approved.

( A copy of the ordinance is presented in the next three pages of this chapter. )
21A.34.050 Lowland conservancy overlay district.

A. Purpose Statement. It is the purpose of this district to promote the public health, safety and general welfare of the present and future residents of Salt Lake City and downstream drainage areas by providing for the protection, preservation, proper maintenance, and use of Salt Lake City's watercourses, lakes, ponds, floodplain and wetland areas. The requirements of this district shall supplement other applicable codes and regulations, including state and federal regulations and the Salt Lake City floodplain ordinance.

B. Lowland Protection Areas. Areas protected by the LC Lowland conservancy overlay district encompass areas consisting of waterbodies such as streams, lakes, ponds and wetlands, as identified on the zoning map, and also the Jordan River and the Surplus Canal. These areas are referred to herein as lowland protection areas.

C. Lowland Protection Area Standards.

1. Setback Required. A nonbuildable setback area around the waterbodies described in subsection B of this section above shall be required. The non-buildable setback shall be fifty feet for nonresidential uses and twenty-five feet for residential uses from the boundary line of the LC lowland conservancy overlay district as identified on the zoning map, or from the banks of the Jordan River or Surplus Canal.

2. Permitted Uses. No development or improvement to land shall be permitted within the limits of a waterbody. Within the setback area identified in subsection C1 of this section above, permitted uses shall be limited to the following, subject to the other requirements of this district.

   a. Agricultural uses, provided such uses are permitted in the underlying district and do not involve any grading, earthmoving, modification of site hydrology, removal of wetland vegetation or construction of permanent buildings/structures;

   b. Open space and recreational uses that do not involve any grading, earthmoving, modification of site hydrology, removal of wetland vegetation or construction of permanent buildings/structures.

3. Conditional Uses. Within the limits of a waterbody, conditional uses shall be limited to those involving only limited filling, excavating or modification of existing hydrology, as listed below:

   a. Boat launching ramps;

   b. Swimming beaches;

   c. Public and private parks including wildlife and game preserves, fish and wildlife improvement projects, and nature interpretive centers;

   d. Boat docks and piers;

   e. Roads and bridges;

   f. Observation decks and walkways within wetlands;

   g. Repair or replacement of existing utility poles, lines and towers; and

   h. Watercourse relocation and minor modifications.

   Within the setback area, conditional uses shall be limited to the following:

   a. All uses listed above;

   b. Stormwater drainage and detention facilities;

   c. Pedestrian paths and trails; and

   d. Public and private open space that requires grading or modification of site hydrology.

4. Natural Vegetation Buffer Strip. A natural vegetation strip shall be maintained along the edge of the stream, lake, pond or wetland to minimize erosion, stabilize the streambank, protect water quality, maintain water temperature at natural levels, preserve fish and wildlife habitat, to screen man-made
structures, and also to preserve aesthetic values of the natural watercourse and wetland areas. Within the twenty-five-foot natural vegetation strip, no buildings or structures (including paving) may be erected, except as allowed by conditional use. However, normal repair and maintenance of existing buildings and structures shall be permitted. The natural vegetation strip shall extend landward a minimum of twenty-five feet from the ordinary high water mark of a perennial or intermittent stream, lake or pond and the edge of a wetland. The natural vegetation strip may be interrupted to provide limited access to the waterbody.

Within the natural vegetation strip, trees and shrubs may be selectively pruned or removed for harvest of merchantable timber, to achieve a filtered view of the waterbody from the principal structure and for reasonable private access to the stream, lake, pond or wetland. Said pruning and removal activities shall ensure that a live root system stays intact to provide for streambank stabilization and erosion control.

5. **Landscape Plan Required.** A landscape plan shall be submitted with each conditional use permit application for development activity within the LC lowland conservancy overlay district and contain the following:
   a. A plan describing the existing vegetative cover of the property and showing those areas where the vegetation will be removed as part of the proposed construction;
   b. A plan describing the proposed revegetation of disturbed areas specifying the materials to be used. The vegetation must be planned in such a way that access for stream maintenance purposes shall not be prevented; and
   c. Such a plan shall be in conformance with the requirements of Part IV, Chapter 21A.48, Landscaping and Buffers.

D. **State and Federal Permits Required.** A conditional use shall not be granted unless the applicant has first obtained a Section 404 Permit from the Army Corps of Engineers and a Stream Alteration Permit from the Utah State Department of Natural Resources, Water Rights Division, as applicable.

E. **Conditional Use Standards.** In addition to demonstrating conformance with the conditional use standards contained in Part V, Chapter 21A.54, Conditional Uses, each applicant for a conditional use within the LC lowland conservancy overlay district must demonstrate conformance with the following standards:

1. The development will not detrimentally affect or destroy natural features such as ponds, streams, wetlands, and forested areas, nor impair their natural functions, but will preserve and incorporate such features into the development's site;
2. The location of natural features and the site's topography have been considered in the designing and siting of all physical improvements;
3. Adequate assurances have been received that the clearing of the site topsoil, trees, and other natural features will not occur before the commencement of building operations; only those areas approved for the placement of physical improvements may be cleared;
4. The development will not reduce the natural retention storage capacity of any watercourse, nor increase the magnitude and volume of flooding at other locations; and that in addition, the development will not increase stream velocities;
5. The soil and subsoil conditions are suitable for excavation and site preparation, and the drainage is designed to prevent erosion and environmentally deleterious surface runoff;
6. The proposed development activity will not endanger health and safety, including danger from the
obstruction or diversion of flood flow;

7. The proposed development activity will not destroy valuable habitat for aquatic or other flora and fauna, adversely affect water quality or groundwater resources, increase stormwater runoff velocity so that water levels from flooding increased, or adversely impact any other natural stream, floodplain, or wetland functions, and is otherwise consistent with the intent of this title;

8. The proposed water supply and sanitation systems are adequate to prevent disease, contamination and unsanitary conditions; and

9. The availability of alternative locations not subject to flooding for the proposed use. (Ord. 26-95 § 2(17-4), 1995)
BMP 13:
Prepare Standard BMPs for site development.

GOAL:
To have a set of standard construction BMPs that are available to developers and engineering consultants that may be used to enhance storm water quality.

DESCRIPTION:
The purpose of this Best Management Practice is to have a guidance document available to developers, engineering consultants, and contractors regarding storm water management during site development and construction activities. This document would provide Best Management Practices and discuss the impacts of construction activities to storm water quality.

MEASUREMENT:
The measurement of this Best Management Practice is the quality of the guidance document and the Best Management Practices that are implemented during site development as a result of this document.

REDUCTION OR BENEFIT:
The benefit of this guidance manual is to provide developers, engineering consultants, and contractors with information regarding Best Management Practices that may be implemented at construction sites during site development. As these BMPs are implemented storm water pollution prevention techniques and practices are used to mitigate pollutants from conveying to storm drain systems and Waters of the State.

IMPLEMENTATION:
This Best Management Practice was implemented prior to its permit schedule. The guidance document was developed in May of 1994. Salt Lake City has referred this guidance manual, “Storm Water During Construction Activities” to several contractors in Salt Lake City. Salt Lake City will continue to implement this Best Management Practice.
BMP 14: Develop annual review program for private drainage detention facilities.

GOAL: To insure that control structures are in place and functioning properly on private drainage detention basins to protect water quality and meet 100-year, 24 hour storm event runoff requirements.

DESCRIPTION: Salt Lake City Public Utilities has a restrictive discharge policy for developments that meet the criteria found in Salt Lake City Storm Drainage Regulation No. SW-1. The policy generally applies to developments proposing installation of more than 15,000 square feet of impervious surface if either of the following property areas are exceeded:

One (1) gross aggregate acre if the project comprises of a commercial, industrial, institutional governmental or utility construction project.

Two (2) gross aggregate acres if the project comprises of a subdivision (residential, non-residential, and minor), a group of planned unit development (P.U.D.) or a residential construction project.

The gross aggregate area shall include streets and other dedicated lands, easements, and rights of way.

The restrictive discharge policy requires the on-site concentration or collection of all surface and storm water runoff within the project area, and restricts the eventual discharge of this runoff to a maximum allowable discharge rate of two-tenths cubic feet per second per acre (0.20 cfs/acre) of development. Private drainage detention basins for development is one of the designs used to meet the restrictive discharge policy. Salt Lake City Public Utilities Drainage Division is responsible for inspecting these private detention basins.

MEASUREMENT: The measurement for this Best Management Practice is the inspections on the private detention basins to insure control structures are in place and functioning properly.
REDUCTION OR BENEFIT:
The benefit of this Best Management Practice is a drainage system that addresses the treatment of surface and storm water runoff, both wet-weather and dry weather discharges. The detention basins function is the temporary storage of storm runoff, which is used to control the peak discharge rates, and which provides gravity settling of pollutants. Orifice plates may be used to restrict the discharge of the runoff to the maximum allowable discharge rate of two-tenths cubic feet per second per acre. Large debris such as cups, sticks, cans, cardboard, etc. generally do not pass through the orifice plate. They eventually drop to the bottom of the detention basin. The reduction of sediment and pollutants to Waters of the State is one of the purposes of this Best Management Practice. As a result of this Best Management Practice water quality, and the aesthetics of the waterway is improved.

IMPLEMENTATION:
Salt Lake City has partially implemented this Best Management Practice. Salt Lake City's Industrial Storm Water Coordinator inspects facilities regarding their UPDES State Storm Water Permit and implementation of their Storm Water Pollution Prevention Plan. During this inspection detention basins are inspected to make sure they are clean of debris and sediment, and functioning properly. Salt Lake City has 824 private detention basins that will require annual inspection. The Industrial Storm Water Coordinator and Drainage Manager are responsible for providing resources to fully implement this Best Management Practice.
BMP 15:
Support the existing Salt Lake City Street Sweeping program.

GOAL:
The goal of this Best Management Practice is to reduce the impact on receiving waters from pollutants and debris accumulating on the streets from residential, industrial, and commercial use.

DESCRIPTION:
Salt Lake City Public Service Department operates a fleet of nine street sweepers. Industrial and commercial areas are scheduled to be swept on a monthly basis. Residential areas are scheduled to be swept every six months. A street sweeper is attached to the street department’s asphalt grinding and chipping section to sweep the streets behind maintenance activities. Streets are swept following the collection of debris placed by residents during the neighborhood clean up program.

MEASUREMENT:
The measurement of this Best Management Practice is the miles of street swept and debris removed from the streets.

REDUCTION OR BENEFIT:
The benefit attributed to street sweeping on regular basis is to reduce sediments and other attached pollutants from transporting into the storm sewer system and Waters of the State.
IMPLEMENTATION:
Salt Lake City will continue to implement this Best Management Practice. Salt Lake Storm Sewer Utility pays one-half of the cost for street sweeping in Salt Lake City. The Public Service Division Manager tracks and schedules the street sweeping.

<table>
<thead>
<tr>
<th>DATE</th>
<th>AMOUNT SPENT ON STREET SWEEPING</th>
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</thead>
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<tr>
<td>1995</td>
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<td>15,156 Miles</td>
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<tr>
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<td>28,898 Miles</td>
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<tr>
<td>1997</td>
<td>$755,000</td>
<td>29,000 Miles</td>
</tr>
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</table>
BMP 16: Review salt pile storm water management.

GOAL: To have an environmentally sound storm water management plan implemented around street deicing salt piles.

DESCRIPTION: Salt Lake City Public Service Department is responsible for implementing the Best Management Practice around street deicing salt piles. During 1997, four locations were used to store street deicing salt piles. These four locations included: Victory Road area, Hogle Zoo area, Fairmont Park, and Delong Street area. At the Victory Road site, $22,000 was spent in 1997 for an asphalt pad that slopes to a concrete holding sump. The sump is pumped out and the brine solution is used to pre-wet streets prior to a storm that has been forecasted. Barriers are placed on the perimeter of the site as an added protection. Hogle Zoo, Fairmont Park, and Delong Street all have asphalt pads and barriers around the perimeter as control measures.

MEASUREMENT: The measurement for this Best Management Practice is the prevention of the salt, and brine solution from leaving the containment area and migrating to storm drainage systems or leaching into the groundwater.

REDUCTION OR BENEFIT: The benefit attributed to this Best Management Practice is that through proper management of street deicing salt piles the storm drain system and groundwater will not be polluted by the salt piles. If these salt piles are not properly managed the runoff may end up in storm drains and waterways without being used for the intended purpose to deice streets for the safety and welfare of Salt Lake City residents. Sodium Chloride the compound for salt is toxic to fresh water aquatic life and is very high in Total Dissolved Solids. Therefore, the benefit of properly managing salt piles is to reduce a saline solution discharge that is high in total dissolved solids and toxic from entering the Waters of the State.
IMPLEMENTATION:
Salt Lake City Public Works will continue to implement this Best Management Practice of properly managing salt piles. The asphalt pads and barriers is one measure that has been implemented on all of the sites. The holding sump at the Victory Road is another Best Management Practice that has been implemented at the Victory Road site. Salt Lake City has salt domes planned the budget as a future Capital Improvement Project.
BMP 17:
Procedures for monitoring storm water management on Public Works Projects.

GOAL:
The goal of this Best Management Practice is to meet General storm water conditions by identifying and controlling any problems with erosion, sedimentation, or other pollutants that may enter the drainage system on Public Works Projects.

DESCRIPTION:
Salt Lake City has developed a program for Public Works Projects regarding monitoring of storm water. Any site greater than five acres is required to obtain a UPDES construction permit and implement a Storm Water Pollution Prevention Plan. Best Management Practices are implemented to control sediment and erosion control. Salt Lake City has a design team and inspection team to insure that the storm water is properly managed and monitored to mitigate pollutants.

MEASUREMENT:
The measurement for this Best Management Practice is the UPDES construction permits, storm water pollution prevention plans, and erosion and sediment controls implemented on Public Works Projects.

REDUCTION OR BENEFIT:
The benefit of having this Best Management Practice is to mitigate sediment transportation and attached pollutants from entering storm drain systems and waterways. When the construction is complete, BMPs for water quality such as on-site detention basins, and grass swales may exist, which may have long term impact on the site.

IMPLEMENTATION:
Salt Lake City’s Department of Public Works has a standard specification requiring contractors to submit a Notification of Intent to be covered under the State of Utah General construction Storm Water Permit for projects that will disturb 5 acres. The general permit conditions require that the contractor implement a storm water pollution prevention plan (SWP3). Inspection teams and the Industrial Storm Water Coordinator make sure that Best Management Practices are in place on the project. Straw bales, berms, silt fencing and other erosion control methods are used when needed to mitigate pollutants. On site detention basins, and grass swales are used on these projects when applicable. In 1995, 1996, and 1997 respectively, 43, 74, and 36 projects included these requirements, 100% had pollution prevention plans and controls implemented.
BMP 18: Review proposed street projects for applicability of structural BMPs.

GOAL: The goal of this Best Management Practice is to review all street maintenance projects for applicability of installation of structural BMPs such as grass swales and detention basins to reduce pollutants.

DESCRIPTION: Salt Lake City has developed a process where a design team reviews all proposed street maintenance projects to determine if structural BMPs such as grass swales and detention basins should be installed. An inspection team inspects the project to make sure the structural BMPs are properly installed to specifications. The purpose of this BMP is to assess flood management projects on street maintenance to assure that water quality to the receiving water bodies is addressed for additional pollutant removal.

MEASUREMENT: The measurement of this Best Management Practice is the percent of street maintenance projects that are reviewed and inspected with structural BMPs installed. As these structural BMPs are installed, the key measurement is the reduction of pollutants transported into the rivers and streams.

REDUCTION OR BENEFIT: The benefit of structural BMPs such as grass swale or detention basins is the improvement of water quality to the receiving water bodies. These BMPs rely primarily on settling to remove pollutants. The filtration action of the grass and exfiltration through the soil layer remove some of the pollutants that would otherwise reach the receiving water bodies.

IMPLEMENTATION: Salt Lake City Public Utilities will continue to implement this Best Management Practice with a design and inspection team to review all proposed street maintenance projects. In 1996, and 1997 respectively design and inspection teams reviewed 22, and 18 street maintenance projects for structural BMPs that would provide additional pollutant removal from storm water. Projects such as California Avenue, in Salt Lake City were designed to include grass swales with long detention times to settle out pollutants as a structural BMP.
BMP 19:
Review all proposed storm water projects for water quality impacts.

GOAL:
The goal of this Best Management Practice is to develop the best methodology for evaluating and improving water quality on all storm water capital projects.

DESCRIPTION:
Salt Lake City has developed a procedure for evaluating water quality aspects of all storm water capital improvements. Best Management Practices 17 and 18 are key elements and work synergistically with BMP 19 to meet this goal. Any site greater than five acres is required to obtain a UPDES construction permit and implement a Storm Water Pollution Prevention Plan. A list of applicable structural BMPs that will improve water quality is part of the design and inspection process.

MEASUREMENT:
The measurement of this BMP is the number of storm water projects reviewed and the impact the capital improvements have on improving water quality discharging to the receiving water bodies.

REDUCTION OR BENEFIT:
The benefit of this Best Management Practice is the design of structural BMPs to improve water quality. As capital improvements occur structural BMPs will be installed which should conversely relate to water quality improvements as control devices are used to provide additional pollutant removal. Thus, the impact of pollutants on the receiving water bodies will be mitigated.

IMPLEMENTATION:
Salt Lake City will continue the implementation of this Best Management Practice. The design and review team assures that all storm water projects are reviewed for water quality impacts. UPDES construction permits are obtained and SWP3s are implemented and inspected to make sure that pollutants do not migrate into receiving waters. The design and review team assures that the proper structural BMPs are used to enhance water quality. In 1996, and 1997 respectively Salt Lake City reviewed 72, and 75 storm water projects.
BMP 20:
Review detention basins for feasibility of retrofitting for water quality enhancements.

GOAL:
To review and develop a plan regarding the feasibility of retrofitting existing detention basins for water quality enhancements.

DESCRIPTION:
The purpose of this Best Management Practice is to review the existing structural controls in the flood basin to determine if structural components are feasible for enhancing storm water quality. This review will be conducted during a complete basin master planning effort to be conducted by the Salt Lake City Storm Water Sewer Utility.

MEASUREMENT:
The measurement for this Best Management Practice is the review process of existing structural controls and implementation of retrofits to the structures to enhance storm water quality.

REDUCTION OR BENEFIT:
The benefit of this Best Management Practice is the retrofitting of existing structural controls that can be feasibly made to enhance storm water quality. As water quality enhancements are made to the these structures sediments and pollutants are removed. The receiving Waters of the State are benefitted by improved water quality.

IMPLEMENTATION:
Salt Lake City is currently working on the implementation of this Best Management Practice. During the master planning effort by the Salt Lake City Storm Water Sewer Utility the review process will be completed for existing detention basin modifications. The review process will determine the feasibility of modifications that may be used on existing detention basins to improve water quality.
**BMP 21:**
Develop an education program on the proper use of pesticides and fertilizers.

**GOAL:**
To have an education program available to educate residents, commercial applicators, and municipal agencies regarding the proper use of pesticides, fertilizers, and herbicides.

**DESCRIPTION:**
The purpose of this Best Management Practice is to have an education program available regarding the proper use of pesticides, fertilizers, and herbicides. This program is to reach residents, industries, and municipal agencies. The Salt Lake City Public Utilities, and Salt Lake County Storm Water Coalition have programs available to provide this type of public information. Additionally, a Salt Lake City-County Health Department Facility is available at 6030 West 1300 South to provide information regarding use of the pesticides, fertilizers, and herbicides. This facility will accept pesticides, fertilizers, and herbicides from residents, and small businesses that have left over products. These excess products are available to the general public at no cost for their use. Various publications have been used to educate the general public regarding the use of pesticides, fertilizers, and herbicides. These publications are circulated in newspaper inserts, pamphlets, and fliers.

**MEASUREMENT:**
The measurement for this Best Management Practice is the education provided to the various groups applying pesticides, fertilizers, and herbicides. As these groups become educated the products are properly used and the pollutants from over application are mitigated.

**REDUCTION OR BENEFIT:**
The benefit of this Best Management Practice is an educated public that recognizes the significance of proper use of pesticides, fertilizers, and herbicides. The benefit attributed to this education effort is the reduction of pollutants to Waters of the State as a result of over application of these products.
BMP 22:
Develop SWPP program similar to pretreatment program.

GOAL:
To develop a program similar to the wastewater pretreatment program that is proactive in working with the businesses in Salt Lake City. The goal is to provide the businesses with information and assistance to help them stay in compliance with storm water objectives.

DESCRIPTION:
The Salt Lake City Drainage Utility has developed a program to assist businesses in obtaining their UPDES industrial storm water permits, developing and implementing Storm Water Pollution Prevention Plans and staying in compliance with storm water regulations. Inspections of the facilities, along with providing information to the facilities is a big part of this program. The pretreatment program and SWPP program work together in this effort.

Monitoring of various outfalls is part of the program to determine any illicit connections or illegal discharges to the municipal separate storm sewer system (MS4). When a pollutant is found during a screening process, the system is traced back to the source or business when possible. This is followed up with a solution to prevent or mitigate the pollutants from entering the receiving waters.

MEASUREMENT:
The measurement for this Best Management Practice is the percent of industries with permits, and the percent of Storm Water Pollution Prevention Plans that are implemented. The ability to get businesses to comply and meet storm water standards is very important for the long term success of the program. The number of inspections, enforcement of illegal discharges, and disconnection of illegal connections is another measurement beneficial to the SWPPP and pretreatment programs.

REDUCTION OR BENEFIT:
The benefit of this program is working with the industries in Salt Lake in a positive manner to find solutions and Best Management Practices that will mitigate or eliminate pollutants. This approach will work for both short and long term solutions to improve the quality of water entering receiving waters. The pretreatment program in Salt Lake City has been very successful in working with industries. Businesses are assisted in meeting their discharge standards to the POTW. The reduction of pollutants leaving industry and entering the MS4 is a primary goal of the program.
IMPLEMENTATION:
Salt Lake City has established this program and will continue to implement this Best Management Practice through inspecting and working with businesses on a continual basis. Dry weather monitoring, wet weather screening, storm event sampling will be another aspect of the SWPP program. In 1995, 1996, and 1997 respectively 121, 105, and 111 sites were visited.
BMP 23:
Maintain industrial user SIC code database.

GOAL:
To have an updated listing of local industries having a Standard Industrial Classification Code, (SIC) requiring them to have a State Industrial UPDES storm water permit and a Storm Water Pollution Prevention Plan implemented.

DESCRIPTION:
Salt Lake City Public Utilities will maintain an updated industrial user SIC code data base. The data base will be used to identify industries in Salt Lake City that are required to have State Industrial UPDES storm water permits and Storm Water Pollution Prevention Plans that are implemented. The first three digits of the business license is the SIC code. The updated list will identify any new or existing industries that are required to meet storm water regulations and be inspected on a regular basis.

MEASUREMENT:
The measurement of this Best Management Practice is the percent of total required industries on the database that obtain permits and meet storm water regulations as a result of contacts by letters, site visits, etc. made from the use of this data base.

REDUCTION OR BENEFIT:
The benefit or having an updated SIC data base of industrial users will be to identify and contact new or unregulated industries in Salt Lake City and work with them regarding their compliance with storm water regulations. The end result will be better educated industries regarding storm water and fewer contaminants leaving their facilities to the MS4s storm drain system and eventually to the receiving water bodies.
IMPLEMENTATION:
Salt Lake City will continue implementing this Best Management Practice in order to have a list of those businesses required to meet storm water regulations. In 1997, an updated list from the State of Utah, Division of Environmental Quality was obtained by Salt Lake City. This list supplied information regarding all of the industries in Salt Lake City that have obtained State storm water permits. It was used for facility inspections and Storm Water Pollution Plan reviewal. The guidelines given in the State General Permit for Storm Water Discharges Associated with Industrial Activity, on page three, number 19a, 19b, 19c, 19d, 19e, 19f, 19g, 19h, 19i, 19j, and 19k will be used to determine which industries are on the database. The Salt Lake City Business Licensing Department will be used to obtain a database of businesses that meet the aforementioned State criteria for NOI permitting. Salt Lake City provided the State of Utah an industrial user SIC code database in 1994. Letters were sent out to the 915 industries required to obtain a general industrial storm water permit by the State of Utah on August 2, 1994.
BMP 24:
Coordinate with POTW pretreatment program.

GOAL:
To work in parallel with the POTW’s pretreatment program working in partnership with the industrial and business community to provide consistent guidance and direction.

DESCRIPTION:
Salt Lake City Public Utilities storm water and pretreatment sanitary sewage personnel work in a team effort in partnering with the business community to identify and remove illicit connections to the storm drain system. Both programs inspect facilities and respond to trouble calls. During inspections if any illicit connections or discharges are noticed a coordinated effort between the two programs is used to remove any illicit connection, or to resolve any illegal discharges.

MEASUREMENT:
The measurement for this Best Management Practice is the dissemination of information and consistent guidance given to the regulated business community. The number of illicit connections or illegal discharges found and resolved is another important measurement.

REDUCTION OR BENEFIT:
The benefit of this Best Management Practice is the coordination of program efforts, and providing consistent direction and guidance to the regulated business community. Storm water discharging to the sanitary sewer adds to the hydraulics of the plant and may hydraulically overload the plant. This decreases the efficiency of the plant and water that should not need treatment is treated. If laterals that should be tied to the sanitary sewer are tied to the storm drain, a pollution and health hazard may exist in storm drain system. Removing any illegal connections or resolving illicit discharges benefits both systems.

Salt Lake City Storm Water UPDES Permit
Storm Water Management Plan 38
IMPLEMENTATION:
Salt Lake City Public Utilities will continue to implement this Best Management Practice. The pretreatment program has three full time and one part time positions that inspect, and monitor waste streams discharged to the sewer from industries. The storm water program has one full time and one part time position to inspect industries regarding storm drain compliance. The same part time person works with both programs and helps coordinate between the programs. Any illicit connection or discharge observed by any of the personnel is immediately reported to the proper program coordinator to resolve the problem. A coordination of efforts is required to resolve such problems. In incidents where a storm drain is improperly tied into the sanitary sewer, the business is required to tie into the storm drain system, where a sanitary sewer lateral is tied to a storm drain system, the business is required to tie into the sanitary sewer. The storm water program will inspect industries with the pretreatment program, or utilize information collected by the other department to reduce duplication of efforts. Storm water will work with pretreatment to include BMPs and other educational information. Between the coordination of efforts of these two programs 47 illicit discharges, and illegal connections were resolved in 1995 and 1996. In 1997, the illicit connections, and illegal discharges were 41. 100% of these incidents were resolved.
BMP 25:
Maintain records and database of all illicit connection investigations.

GOAL:
The goal of this Best Management Practice is to have records and a database of all illicit connections, their enforcement, and resolution for future reference.

DESCRIPTION:
Salt Lake City’s Industrial Storm Water Coordinator maintains files and records of all illicit connections. Paradox is the database used to keep track of illicit connections, individual files are maintained on each business investigated. These files contain any correspondence, enforcement, and the resolution concerns.

MEASUREMENT:
The measurement of this Best Management Practice is the number of illicit connection investigations and their resolutions. In 1995 and 1996 there were 47 investigations regarding illicit connections. In 1997, there were 41 investigations regarding illicit connections.

REDUCTION OR BENEFIT:
The benefit of this Best Management Practice is an active record of illicit connection inspections, enforcement, and the means of resolving the problem. As illicit connections are removed from the storm drain system the receiving waters have less pollution.

IMPLEMENTATION:
Salt Lake City will continue the implementation of this Best Management Practice by maintaining an updated database and filing system. The Storm Water Coordinator is responsible for these records and keeping an updated database of illicit connections and enforcement.
BMP 26:
Review all new development plans for compliance and illicit connections.

GOAL:
The goal of this Best Management Practice is to insure that all new commercial and industrial development plans are in compliance and that illicit connections to the storm drain are not constructed.

DESCRIPTION:
Salt Lake City Public Utilities has a design and review team that reviews all development plans to insure that illicit connections to the storm drains are not constructed. The design and review team makes sure that the storm drain system is properly connected to the storm drain and not to the sanitary sewer. They make sure that regarding on-site detention for developments greater than 15,000 square feet is in the plans. Additionally, they insure that all laterals that should tie into the sanitary sewer are properly connected. The contracts division is a second back-up as they review the plans before issuing permits for connected laterals. The final review is from the inspection team that actually works with contractors and developers to make sure that the laterals are physically connected to the proper system.

MEASUREMENT:
The measurement for this Best Management Practice is the number of plans reviewed.

REDUCTION OR BENEFIT:
The benefit of this Best Management Practice is an assurance that new connections are properly made. This eliminates illicit discharges to the storm drain system that would be untreated and pollute the receiving bodies of water. Additionally, it provides consistent guidance to the business community.

IMPLEMENTATION:
Salt Lake City will continue implementing this Best Management Practice by utilizing the design and review team as well as on site inspections to make sure all new developments are properly connected. As new development plans are submitted to Salt Lake City Public Utilities a design team is given the plans to review and assist the developer with any changes that may be required. Once the plans are approved the developer is required to take out the proper permits with the contracts division. As the development is being constructed an inspector works with the contractor making sure that proper connections are made. In 1996, and 1997 respectively Salt Lake City reviewed 582, and 448 development plans for compliance and illicit connections.
BMP 27:
Promote City County Health Department Hazardous Waste Collection Days.

GOAL:
To provide individual households a collection day where they can properly dispose of household hazardous waste.

DESCRIPTION:
Salt Lake City Public Utilities has promoted this Best Management Practice by providing information to the general public. Fliers have been inserted in Salt Lake City customer water bills, inserts in the Deseret Newspaper and Tribune Newspaper have been used to promote the collection of household hazardous waste. A permanent facility at 6030 West 1300 South was opened in 1995, by Salt Lake City-County Health Department. The facilities hours of operation 9 a.m. to 3 p.m was included, and a phone number for additional information. The facility has been very well received by the public and business community. Household hazardous wastes are accepted, with the program encouraging reusing the products when possible. For example, paint is used by the graffiti removal program and is available free to the public.

MEASUREMENT:
The measurement for this Best Management Practice is the fliers, inserts, and additional information provided by Salt Lake City to promote the Household Hazardous Waste Collection at Salt Lake City-County Health Departments permanent facility.

REDUCTION OR BENEFIT:
The benefit of this program and Best Management Practice is providing a convenient way to properly dispose of household hazardous waste. As the program has developed new ideas such as the reuse program are being implemented. Pollutants that may have been causing potential damage to surface and ground water are eliminated.
IMPLEMENTATION:
Salt Lake City Public Utilities has implemented this Best Management Practice by hosting two Household Hazardous Waste Collection Days in 1997 and supporting the new facility. The collection days were held on the following days and collected the following volumes of material:

September 20, 1997

<table>
<thead>
<tr>
<th>Material</th>
<th>Volume</th>
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<tbody>
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<td>30 gallons</td>
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<tr>
<td>Paint (latex)</td>
<td>70 gallons</td>
</tr>
<tr>
<td>Fuels</td>
<td>25 gallons</td>
</tr>
<tr>
<td>Antifreeze</td>
<td>25 gallons</td>
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<tr>
<td>Aerosols</td>
<td>60 pounds</td>
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<tr>
<td>Lab Pac</td>
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October 18, 1997

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<td>Paint (oil base)</td>
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<td>Paint (latex)</td>
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<td>Fuels</td>
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<td>Antifreeze</td>
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<td>Aerosols</td>
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<td>Lab Pac</td>
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</tr>
<tr>
<td>Oil</td>
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</table>

In 1995, 1996, and 1997, there were 200,000 inserts distributed each year in the Sunday newspaper. In 1996, and 1997 fliers were mailed to all of Salt Lake City’s 47,361 storm water customers regarding, “How to dispose of Household Hazardous Waste”. The newspaper inserts, and fliers promoted the permanent Household Hazardous Waste Collection facility.
BMP 28:
Develop a program for investigating illicit flows and connections.

GOAL:
To conduct on-going field screening in the MS4 to resolve any illicit connections or flows.

DESCRIPTION:
Salt Lake City Storm Drainage Utility has a program for investigating illicit flows or connections. The MS4 is screened by Wet Weather Screening and Dry Weather Screening Programs. The intent of these two programs is to screen suspected major storm sewer sheds for the presence of excessive pollutants in discharges from the MS4. Salt Lake City maintains a series of storm drain maps for the entire City system. The maps are broken down by quarter section. The target area will be the I-15 corridor that contains a mix of older industrial and commercial land uses. The manholes located furthest downstream on each map will be investigated for illicit flows. Any suspected illicit flows will be investigated upstream until resolved.

The Wet Weather Screening will include the following field measurements: Temperature, Total Dissolved Solids, pH, and Dissolved Oxygen. A field analysis of Total Chlorine Residual will also be done. The laboratory analysis will include: Biochemical Oxygen Demand, Chemical Oxygen Demand, Total Suspended Solids, Total Dissolved Solids, Total Nitrogen, Total Kjeldahl Nitrogen, Total Phosphorous, Dissolved Phosphorous, Oil & Grease, (Total and Dissolved Cadmium, Copper, Lead, Zinc, Arsenic, Chromium, Cyanide, Nickel, Selenium, Silver) and a pH.

The Dry Weather Screening will include the following field measurements: Temperature, Total Dissolved Solids, pH. A field analysis of Total Chlorine Residual, Copper, Phenols, and Detergents will be performed. Field observations of flow rate, odors, color, clarity, floatables, deposits/stains, biological growth, vegetation, and structural conditions will also be noted.

MEASUREMENT:
The measurement for this Best Management Practice is the data collected from the area screened during the life of the permit and the illicit flows removed from the MS4.

BENEFIT OR REDUCTION:
The benefit of this Best Management Practice is the screening of the system and removal of illicit flows that discharge to the Waters of the State.
IMPLEMENTATION:
Salt Lake City will continue implementing this Best Management Practice with Dry and Wet Weather Screening of the MS4. The entire system will be screened during the life of the UPDES permit. Salt Lake City screened and removed 2 illicit connections. In 1995 and 1996, 19 sites were dry weather monitored, and 2 sites were wet weather screened. In 1997, their were 42 sites dry weather monitored, and 3 sites wet weather screened.
BMP 29:
Prepare Memorandum of Understanding with City-County Health Department.

GOAL:
To have a Memorandum of Understanding between Salt Lake City and the Salt Lake City-County Health department regarding enforcement of state health laws, rules, regulations, and standards applying to the municipal separate storm sewer system.

DESCRIPTION:
Salt Lake City Public Utilities and Salt Lake City-County Health Department (hereinafter Health Department) are required to enforce State and local storm sewer standards, ordinances, and regulations. Salt Lake City has enacted a storm water sewer system ordinance that states the following: “The only substances dischargeable under these ordinance into the City storm sewer are storm water, surface drainage, ground water, roof runoff, cooling water, or other non-polluted water. All other such waters must be discharged into the City’s sanitary sewer system.” The Health Department also has statutory authority to control possible sources of pollution into the City’s municipal storm sewer by storm water discharges associated with industrial activity and the quality of storm water discharge from sites of industrial activity. City Ordinance, Health Regulations and the Utah Water Quality Act are ordinances and regulations that are used to promote public health and environmental health quality. Salt Lake City and the Health Department met and prepared a Memorandum of Understanding (hereinafter MOU) in October 1993. The MOU discusses the procedures and methods that will be used to handle illicit connections, and illegal discharges.

MEASUREMENT:
The measurement for this Best Management Practice is the number of illicit discharges and illegal connections that are resolved as a result of this Memorandum of Understanding between the two agencies.

REDUCTION OR BENEFIT:
The benefit attributed to this Best Management Practice is an understanding of the procedures, and methods used to deal with illicit connections and discharges between Salt Lake City and the Health Department. With this understanding the agencies are able to work together in a cooperative effort in making sure the illicit connections and discharges are properly handled and enforced. As illicit connections and discharges are removed from the storm drainage system fewer pollutants are discharged to the Waters of the State.
October 28, 1993

Mr. Garth Miner M.E.
Salt Lake City-County Health Department
Division of Environmental Health
610 South 200 East
Salt Lake City, Utah 84111

Re: Understanding of the procedures, and methods for handling illicit connections, and illegal discharges.

Dear Garth,

We want to reiterate our understanding of the procedures, and methods that will be used when dealing with illicit connections, and illegal discharges. In the meeting, held on October 26, 1993, we agreed that we would handle illicit connections, and discharges in the following manner:

1) Industries that have illicit connections that are connected to the storm drain will be given a reasonable amount of time, (45 to 60 days) to connect into the sanitary sewer, or make any necessary changes. We anticipate the industries that fall into this category to be older facilities built before, or during the sixties and seventies.

2) Industries that are illegally discharging willfully and wantonly will be reported to Salt Lake City and County Health Department for enforcement.

We appreciate the opportunity we had to meet with you and discuss the procedures that will be used to deal with any illicit connections. If you have any questions or comments, feel free to call.

Sincerely,

LeRoy W. Hooton, Jr.
Director

cc: File
IMPLEMENTATION:
Salt Lake City will continue implementing this Best Management Practice by working with the Health Department regarding illicit connections and discharges to the municipal separate storm sewer system. In 1997, the Health Department entered into 7 settlement agreements for violations of water quality regulations involving storm water in Salt Lake City. The agreements were for a total of $22,661. Of that amount $9,800 was suspended under certain terms. None of the settlements included environmental projects. Salt Lake City and the Health Department met in September of 1997, to discuss the MOU and develop ways to continue working together on illicit connections and discharges.

(Presented on the next page is a copy of the Memorandum of Understanding, on October 28, 1993).
BMP 30: Maintain staff to respond to reports of illicit discharges.

GOAL: To have a staff available to respond to any illicit discharges and resolve the problem with clean up, and/or cease and desist actions by the Salt Lake City-County Health Department or State of Utah, Division of Water Quality.

DESCRIPTION: Salt Lake City Storm Drainage Utility has one full time, and one part time position on staff to respond to any reports of illicit discharges and spills. The personnel are trained to respond, identify the pollutant, and investigate the source of the discharge and use regulatory authority to enforce actions against violators so that the illicit discharge activity is corrected.

MEASUREMENT: The measurement for this Best Management Practice is the number of illicit discharges that have required response and correction.

REDUCTION OR BENEFIT: The benefit of implementing this Best Management Practice is having a resource available to respond to and correct illicit discharge activity and resolve the problem. As illicit discharges are removed from the storm drain system the receiving water bodies become less polluted.

IMPLEMENTATION: This Best Management Practice has been implemented since September 1993, when a position for the Industrial Storm Water Coordinator was filled, and a part time position was filled in September 1994. These positions have received training in the 40 hour OSHA Hazardous Material Training. The staff is familiar with the storm drain system and trained regarding identifying and investigating the source of the discharge. In cases where an enforcement action is required against the violator the Salt Lake City-County Health Department or State of Utah, Division of Water Quality takes the action. In 1995, and 1996 a total of 47 illicit discharges were resolved. In 1997 a total of 41 illicit discharges were resolved.
BMP 31:
Promote interagency cooperation concerning illicit flows investigation.

GOAL:
To work together in a cooperative effort with other regulatory agencies to resolve illicit and illegal discharges.

DESCRIPTION:
A cooperative effort between the agencies for a thorough investigation, assessment, and gathering of evidence relating to illicit and illegal discharges has been promoted by Salt Lake City Public Utilities. Salt Lake City notifies the Salt Lake City-County Health Department and State of Utah, Division of Water Quality regarding illicit flows requiring their assistance. Salt Lake City Storm Drainage Utility works with the other agencies by providing maps, tracing the system to the illicit discharge and any other means required to investigate and resolve the illicit flow.

MEASUREMENT:
The measurement for this Best Management Practice is the number of illicit flows investigated and corrected.

REDUCTION OR BENEFIT:
The benefit of implementing this Best Management Practice is the interagency cooperation regarding the investigation, and gathering of evidence to resolve illicit and illegal discharges. As these illicit discharges are removed from the storm drain system the receiving water bodies become less polluted.

IMPLEMENTATION:
Salt Lake City will continue implementing this Best Management Practice by working with other agencies tracing and eliminating illicit flows. Salt Lake City has worked with the Salt Lake City-County Health Department, State of Utah Division of Water Quality, and the United States Environmental Protection Agency on past illicit flow investigations. This interagency cooperation concerning illicit flows investigation will continue. In 1995, and 1996 a total of 47 illicit discharges were resolved. In 1997, a total of 41 illicit discharges were resolved, with seven settlement agreements reached with the Health Department for violations of clean water regulations.
BMP 32: Pursue prosecutions and court ordered solutions to significant contamination problems.

GOAL: To resolve significant contamination problems that may require court orders and prosecutions.

DESCRIPTION: Salt Lake City Storm Drainage has the responsibility of eliminating significant contamination problems discharging to the MS4. In some incidents the contamination problem may be significant enough that it requires court orders and/or prosecutions.

MEASUREMENT: The measurement used for this Best Management Practice is the number of prosecutions and court ordered solutions that resolve significant contamination problems. Salt Lake City has had one case where we worked with the Salt Lake City-County Health Department regarding a court ordered solution.

REDUCTION OR BENEFIT: The benefit of implementing this Best Management Practice is in eliminating serious illicit discharges entering the storm drain system. The court ordered solution is intended to get the violator to comply with the storm water regulations. The reduction of significant contamination problems from the receiving water bodies has a major impact on the improvement of water quality.

IMPLEMENTATION: Salt Lake City Public Utilities will continue implementing this Best Management Practice through field investigation such as Dry and Wet Weather Screening, responding to reports of illicit discharges, and interagency cooperation regarding illicit and illegal discharges. Salt Lake City’s Industrial Storm Water Coordinator involves the proper regulatory agency regarding any findings with significant contamination problems. The State of Utah, Division of Water Quality, and Health Department have been and will continue to be made aware of significant contamination problems found in Salt Lake City. In 1995 there were 7 settlements with $14,500 in penalties, in 1996 there were 6 settlements with $8,300 in penalties collected by the Salt Lake City-County Health Department. In 1997 there were 7 settlements with $22,661. Of that amount $9,800 was suspended under certain terms.
BMP 33: Investigate Dry Weather flows.

GOAL: To Dry Weather Screen the MS4 flows to systematically investigate and remove illicit flows.

DESCRIPTION: Salt Lake City’s Storm Water Inspectors will investigate sources of observed dry weather flows. Inspectors will rely mainly on visual observation and use of colorimetric field test kits. This measure will require personnel to trace an observed discharge through the storm drain system.

MEASUREMENT: The measurement used for this Best Management Practice is the portion of the MS4 monitored, and the illicit discharges removed.

REDUCTION OR BENEFIT: The benefit of this Best Management Practice is the elimination of illegal connections and discharges to the storm drain system. As the illicit discharges are removed from the storm drain system the receiving water bodies become less polluted.

IMPLEMENTATION: Salt Lake City will continue implementing this Best Management Practice by investigating dry weather flows. The I-15 corridor is where the initial efforts have been made and the program has branched out to other areas of the MS4. The manholes located furthest downstream on each map will continue to be investigated for illicit flows. Any suspected illicit flows will be investigated upstream until resolved. Dry Weather monitoring will include the following field measurements: Temperature, Total Dissolved Solids, pH. A field analysis of Total Chlorine Residual, Copper, Phenols, and Detergents will be performed. Field observations of flow rate, odors, color, clarity, floatables, deposits/stains, biological growth, vegetation, and structural conditions will also be noted. Salt Lake City traced one illicit discharge in 1995 and one in 1996 and worked with the industry to remove the illicit discharge from the storm drain system. Nineteen sites were monitored in 1995 and 1996. In 1997, their were 42 sites monitored with no illicit connections or discharges found in the system.
BMP 34:
Develop a formal storm drain spill response plan.

GOAL:
To have a storm drain spill response plan that is consistently used when a spill occurs.

DESCRIPTION:
Salt Lake City Public Utilities has developed a storm drain spill response plan that is a Memorandum of Understanding with the Incident Response Team and the Salt Lake City Fire Department concerning the initial response to containment and cleanup of spilled materials. The departments involved in the spill response plan perform their role and work with the other teams to make sure that a safe, consistent, and efficient containment and cleanup occurs. The Fire Department takes the commanding role and determines what level of spill has occurred. Once a determination has been made Incident Response and Public Utilities assist in the spill response. This may include containment, clean up decisions regarding proper disposal and safety issues.

MEASUREMENT:
The measurement for this Best Management Practice is the number of storm drain spill responses.

REDUCTION OR BENEFIT:
The benefit of this Best Management Practice is a consistent, and safe spill response plan. The spill response plan provides the best possible approach to cleaning spills and eliminating or mitigating pollutants from entering the storm drain system. Thus, the reduction is keeping materials from spills contained and out of receiving water bodies.

IMPLEMENTATION:
Salt Lake City Public Utilities will continue implementing this Best Management Practice to insure a proper spill response. Salt Lake City Public Utilities has worked with Incident Response and the Fire Department on several spills that have occurred. Public Utilities has provided maps of the storm drainage system, installed booms and helped with the cleanup. The Salt Lake City-County Health Department is also involved in the process to make sure cleanup meets their requirements and to issue “Notice of Violations” when appropriate. In 1996, and 1997 respectively Salt Lake City responded to approximately 30, and 21 storm drain spills.
BMP 35:
Develop a list of certified contractors and suppliers for spill response.

GOAL:
To have a resource with supplies available to respond to spills.

DESCRIPTION:
Salt Lake City has a trained Incident Response team capable of handling most of the spills in Salt Lake City. The Incident Response team is equipped with protective clothing, booms, pads, pumps, and drums to contain and cleanup spills. Incident Response has a list of certified contractors used for major spills and spills beyond their scope. The contractors include: JBR Environmental, TW Environmental, and Envirotech. The suppliers used include: LN Curtis, Parker Environmental, and Lab Safety. Businesses and industries responsible for the spill may use their own certified contractor to contain and cleanup the spill.

MEASUREMT:
The measurement for this Best Management Practice is the generated list of certified contractors.

REDUCTION OR BENEFIT:
The benefit of this Best Management Practice is the resources available to handle spills as they occur. Thus, pollutants are eliminated or mitigated from getting into the storm drain system.

IMPLEMENTATION:
Salt Lake City will continue implementing this Best Management Practice of using Incident Response team. The other certified contractors are used upon request or as needed according to the circumstances of the spill.
BMP 36:
Provide 40 hours of OSHA required Hazardous Materials to selected personnel.

GOAL:
To have personnel trained to respond to spills correctly and safely.

DESCRIPTION:
OSHA required Hazardous Materials Operations is a training given by a certified Salt Lake City Fire Department instructor. The class focuses on proper techniques for dealing with spills. This includes: safety, level of protective clothing required, chemical identification, proper containment, decontamination procedures, and proper disposal measures. The 40 hours of training for drainage personnel qualifies them to assist the HAZMAT team. However, the 40 hours does not qualify the drainage personnel to handle hazardous material spills. In severe hazardous spills evacuation may be required. HAZMAT is in charge of these type of spills. The drainage crew involvement might include assistance in determining where the fugitive spill conveys through the drainage system and locations that may require evacuation and other measures.

MEASUREMENT:
The measurement for this Best Management Practice is the number percent of personnel trained to respond to spills. Fifteen employees have received this training and refresher course.

REDUCTION OR BENEFIT:
The benefit of this Best Management Practice is the availability of trained personnel to work with HAZMAT on hazardous spills. The result is a better cleanup effort which mitigates pollutants entering the storm drain system.

IMPLEMENTATION:
Salt Lake City Public Utilities has implemented this Best Management Practice by providing the 40 hour Hazardous Material training course to 15 storm drainage personnel. The training was on April 4, 1995 with a refresher course on April 5, 1996. Salt Lake City Drainage Utility will continue training personnel with the OSHA required class.
BMP 37:
Develop a program to promote public reporting of illicit discharges.

GOAL:
To have a program developed that promotes the interest of pollution prevention to the public, and provides information regarding illicit flows and reporting procedures.

DESCRIPTION:
The purpose of this Best Management Practice is to provide information to the public regarding recognition of illicit flows, and reporting procedures when an illicit discharge has occurred. With this information available the public can take an active role in preventing illicit discharges that pollute their local rivers and streams. Salt Lake City uses a quarterly News flyer that is inserted into the Storm Water Utility bills to provide information to the public regarding recycling, ways to dispose of hazardous waste, and other pollution prevention tips, with numbers to call regarding questions or information. In addition, the Salt Lake County Storm Water Coalition provides a yearly Storm Water and Groundwater Guide that is inserted into the local newspapers with information regarding storm water and pollution prevention with several phone numbers including the Salt Lake City-County Health Departments phone number.

MEASUREMENT:
The measurement for this Best Management Practice is the number of illicit flows reported and resolved.

REDUCTION OR BENEFIT:
The benefit of implementing this Best Management is a program that provides an opportunity for public involvement is removing illicit flows to their waterways. With an educated public, and a program available to report illicit flows more illicit discharges will be investigated and resolved. As these illicit discharges are removed from the storm drain system the receiving waters become less polluted.
IMPLEMENTATION:
Salt Lake City will continue implementing this Best Management Practice by providing information to the public regarding recognition and reporting procedures of illicit discharges. The quarterly bill stuffers and newspaper inserts will be used to provide pollution prevention information and numbers to call for problems in the community. In 1998, the Storm Water Coalition has a budget for public information and education. The tasks involved include radio advertising, a public perception poll, the newspaper insert, a web page, and business partnering as a means for education and information.
BMP 38:
Develop an education program for industrial users on oil and toxic materials disposal.

GOAL:
To have an education program that is targeted to industry and business audiences encouraging proper disposal of oil and toxic materials.

DESCRIPTION:
The purpose of this Best Management Practice is to provide education to industries and businesses that encourages the proper disposal of oil and toxic materials. The Department of Public Utilities has an industrial storm water and wastewater program that provides information to industries. The storm water and wastewater programs are resources that industry can use to obtain information regarding proper disposal methods and for educational materials. Both programs make inspections of regulated facilities for compliance of clean water regulations. Additionally, the Salt Lake County Storm Water Coalition has a program that provides public education and information.

MEASUREMENT:
The measurement for this Best Management Practice is the number of industries and businesses that are educated and properly disposing oil and toxic materials.

REDUCTION OR BENEFIT:
The benefit of implementing this Best Management Practice is to provide information and education to industry regarding proper disposal of oil and toxic material. As the industries are educated they become more environmentally aware and generally are encouraged to properly dispose of oil and toxic materials. Proper disposal reduces the amount of pollutants that may otherwise pollute the storm drain system, and Waters of the State.
IMPLEMENTATION:
Salt Lake City will continue implementation of this Best Management Practice through distributing education material to industries and businesses. Inspections will also be conducted at industries that are regulated by the storm water, and wastewater programs. In 1997, Salt Lake City supported the Salt Lake County Storm Water Coalition program that provided public information and education. The Salt Lake City-County Health Department provided waste management training for the Dry Cleaning Industry and Construction and Demolition Contractors and Consultants. Salt Lake City distributed several brochures to automotive related industries a Best Management Practice guide related to the industry for sanitary sewer discharges and storm water pollution control. In 1998, Salt Lake City will continue to support the aforementioned programs to help educate proper disposal of oil and toxic materials by industry.
BMP 39:
Develop an education program for residential users on oil and toxic materials disposal.

GOAL:
To have an education program aimed at residential audiences to promote the proper disposal of oil and household toxic materials.

DESCRIPTION:
The purpose of this Best Management Practice is to provide education to residential users to promote the proper disposal of oil and household toxic material. The Department of Public Utilities for Salt Lake City provides brochures and quarterly News information as stuffers in the Storm Water Utility bills (approximately 48,000 accounts). These bill stuffers promote the Household Hazardous Waste facility located at the landfill. They are used to announce the Hazardous Waste drop off days held at Salt Lake City Public Utilities. They provide information regarding what qualifies as a hazardous waste, proper disposal methods, and locations. The annual Salt Lake Valley Storm water and Ground water guide inserted in the local newspapers educate and inform residents regarding proper disposal of oil and toxic materials. Radio, and T.V. education provided by the Salt Lake County Storm Water Coalition is another educational tool that has been used to educate residential audiences regarding proper disposal.

MEASUREMENT:
The measurement for this Best Management Practice is the number of residents that are educated and properly disposing of material at the Household Hazardous Waste Facility.

IMPLEMENTATION:
Salt Lake City will continue implementation of this Best Management Practice by providing information to residents regarding the proper disposal of oil and household toxic materials. Public Utilities has an educational display in the foyer that provides information on storm water quality. The display is portable and is used at public meetings and events. In 1997, quarterly bill stuffers with disposal information, and numbers to call in the community were provided. The Salt Lake County Coalition sponsored T.V., and radio advertising, and the newspaper insert. Salt Lake City supported two Household Hazardous Waste drop off days for residents at the Public Utilities Department. In 1998, Salt Lake City will continue to support the aforementioned programs to help educate proper disposal of oil and toxic material by the public.
BMP 40:
Formalize reporting and investigating infiltration of sanitary sewage to storm drain.

GOAL:
To eliminate any exfiltration of sanitary sewage from the sanitary sewage collection lines that may infiltrate into the storm drain system.

DESCRIPTION:
The purpose of this Best Management Practice is to investigate the sanitary sewage collection system lines to address any exfiltration that may migrate to the storm drain system, and infiltrate sanitary sewage. The Sanitary Sewer Utility and Storm Water Utility for Salt Lake City are managed by the Department of Public Utilities. The manager over the two Utilities is responsible for coordinating the investigation, reporting, and the remedy for any exfiltration or infiltration problems that occur in the storm drain or sanitary sewer system. The methodology used includes the use of a camera to televis the sanitary sewer collection lines. The structural condition of the lines are checked to make sure a problem, or a future potential problem does not exist. Obstructions, in the line are part of the notations made by the camera operator. The operators videotape any areas of concern and the video is viewed by the Sanitary Sewer/Storm Water Utility Manager and if necessary a Public Utilities Engineer. They will determine what action is needed to resolve any exfiltration or infiltration problems. The storm drain conveyances and detention basins are inspected annually as part of Best Management Practice 2. If any problems are observed the camera may be used in the storm drain system as a means of analysis, and to develop a solution.

MEASUREMENT:
The measurement for this Best Management Practice is the number or problems resolved regarding infiltration of sanitary sewage to the storm drain system. The aggregate portion of the collection system investigated is another measurement.

REDUCTION OR BENEFIT:
The benefit of implementing this Best Management Practice is to have a storm drain system that is not receiving infiltration of sanitary sewage. The sanitary sewer collection system also benefits from investigating the lines to resolve any problems. The benefit of maintaining two separate systems reduces pollutants as they discharge to receiving waters. By eliminating infiltration of sanitary sewage into the storm drain system the pollutants remain in the sanitary sewer collection lines and convey to the Wastewater Treatment Plant for proper treatment. Thus, the Waters of the State are not receiving untreated raw sewage that may pose a threat to public health, safety, or welfare, or create a nuisance.
IMPLEMENTATION:
Salt Lake City will continue to implement this Best Management Practice to eliminate exfiltration of sanitary sewage that may infiltrate into the storm drain system. The sanitary sewer collections crew televises the lines on a daily basis which is prioritized by needs. Emergency situations, or suspicious collection line problems are first priority. New installations of collection lines are televised after their completion. The remaining sanitary sewer collection lines are systematically televised according to a mapping pattern that assures the lines are all televised within a 15 year period. The storm drain system is inspected annually to make sure a infiltration problem does not exist. In 1993, a residential home had its sewer line mistakenly connected to the storm drain when a new sewer line was installed by a contractor. As a result of the efforts of the maintenance crews investigation, the problem was discovered and Salt Lake City properly connected the sewer line to the sanitary sewer collection system.
**BMP 41:**
Maintain an industrial users database.

**GOAL:**
To have an industrial users database available with section 313 chemicals or heavy polluters for tracking purposes.

**DESCRIPTION:**
Salt Lake City uses paradox as the database for industrial users. As inspections are made and through field screening activities the database is modified. Industries that are subject to section 313 of title III of the 1986 (SARA), and industries that are determined to contribute substantial pollutant loadings to the City storm drain system are kept in this database. The intent of the database record is to be able to track potential pollutants upstream of any outfall. If a certain pollutant is detected in a drainage system outfall, a search of the database will reveal all upstream industries that have indicated the constituent pollutant is present at the industrial site.

**MEASUREMENT:**
The measurement for this database is an updated database record that is available when a pollutant is detected and traced back to the source as a result of the database.

**REDUCTION OR BENEFIT**
The benefit of this database is as a resource for tracking potential pollutants upstream of any outfall. The search of the database assists in the efforts and resolving the problem. The reduction of pollutants to the City storm drain system may result from using this database.

**IMPLEMENTATION:**
Salt Lake City has implemented this Best Management Practice by updating the records on a relational database. Site inspections and reviewing copies of Storm Water Pollution Prevention Plans are used to maintain this database. However, Salt Lake City needs to obtain the State list of businesses with section 313 chemicals and add them to the database.
BMP 42:
Obtain and review SWPPP prepared by industrial users within the Salt Lake City area.

GOAL:
To obtain copies and review SWPPP’s prepared by industries in the Salt Lake City area and make sure of their implementation.

DESCRIPTION:
Salt Lake City’s Industrial Storm Water Coordinator is responsible for setting up appointments with the industries in Salt Lake City regarding preparation and implementation of Storm Water Pollution Prevention Plans. Salt Lake City offers a 5% discount on an industries storm water fee for implementing a plan and providing a copy for the Industrial Storm Water Coordinator to review.

MEASUREMENT:
The measurement for this Best Management Practice is the number of industries that have prepared a SWPPP.

REDUCTION OR BENEFIT:
The benefit of obtaining a implemented SWPPP is the training of employees and pollution prevention measures that are in the plan. With a good plan that is properly implemented the industry reduces the amount of pollutants that may have entered the City’s storm drain system.

IMPLEMENTATION:
Salt Lake City’s Industrial Storm Water Coordinator will continue implementing this Best Management Practice. Appointments are set up with the industries that have not put together a plan, information such as the “EPA Double Scoop SWP3 Example” is made available to the business. The State of Utah information sheet regarding contents of a plan is provided. Salt Lake City has monitored 66 Industrial Storm Water Pollution Prevention Plans that are prepared and have been implemented.
BMP 43: Identify industrial groups and distribute water quality education materials to them.

GOAL: To provide information to target industrial groups with Best Management Practices regarding water quality, including notifying the industrial facilities of the compliance requirements of the State General Industrial Storm Water Permit.

DESCRIPTION: The purpose of this Best Management Practice is to identify industrial groups that may have an adverse impact on storm water quality. The State of Utah Industrial General Multi-Sector Permit for Storm Water identifies target industrial groups. These groups are required to obtain a State issued Storm Water Permit and implement water quality Best Management Practices. Educational material is distributed to these industries by Salt Lake City’s Industrial Storm Water Coordinator. Another method used to distribute water quality education material is through workshops, and educational material that is published and distributed for target industrial groups.

MEASUREMENT: The measurement of this Best Management Practice is the number of target industrial groups that are provided with water quality materials and obtain the State Industrial Storm Water Permit.

REDUCTION OR BENEFIT: The benefit of implementing this Best Management Practice is to provide water quality educational material to target industrial groups. The information provided facilitates the target industries the opportunity to meet the requirements of the State Storm Water Permit. This permit focuses on meeting water quality compliance. The benefit of implementing this BMP is the industries are educated with water quality material, have a understanding of regulations, and Best Management Practices that they can implement to be in compliance. As a result proper facility management, proper disposal methods, and water quality measurements are available for implementation. With implementation of these Best Management Practices a reduction of pollutants are discharged to the storm drain system, and Waters of the State.
IMPLEMENTATION:
Salt Lake City will continue to implement this Best Management Practice by distributing information and water quality material to the target industries. The implementation of BMP 38 regarding an education for industrial users on oil and toxic materials disposal compliments this particular BMP. In 1997, there were 111 industries that were formally inspected and provided water quality material. The Salt Lake County Storm Water Coalition program provided information and educational material. The Salt Lake City-County Health Department provided waste management workshops for the Dry Cleaning Industry, and Construction and Demolition Contractors and Consultants. Salt Lake City distributed several brochures to the automotive related industry regarding water quality. In 1998, Salt Lake City will continue to support and implement the aforementioned programs to distribute water quality education materials.
BMP 44:
Staff a position for coordinating storm water pollution prevention.

GOAL:
To have a full time position available to work with industry to minimize the pollutants released to the Salt Lake City storm drain.

DESCRIPTION:
Salt Lake City Public Utilities has one full time, and one part time position on staff to work with industry to minimize the pollutants released to the storm drain system. The staff is responsible and trained to work with other agencies and departments on illicit discharges or connections, and spill response. The Industrial Storm Water Coordinator works with industry regarding obtaining the State UPDES permit, preparing and implementing a SWPPP, and other issues regarding storm water that may require attention. Sampling for Storm Event Monitoring, Wet Weather Screening, and Dry Weather Monitoring, Part III B1&2 of the UPDES Municipal Separate Storm Sewer Permit, are also part of the staff's coordinating efforts.

MEASUREMENT:
The measurement for this Best Management Practice is staffing the position.

REDUCTION OR BENEFIT:
The benefit of this Best Management Practice is having a staff available to handle storm water issues and assist the business community in meeting regulations. Water quality improvement to the receiving water bodies is a major goal of the program. Implementation of the BMP's in the permit should have an impact on this goal.

IMPLEMENTATION:
Salt Lake City's Industrial Storm Water Coordinator will continue implementation of this Best Management Practice. Specific goals for 1998 have been developed to meet with industrial and construction sites. These goals include assisting industry, and construction sites in obtaining permits, preparing and implementing SWPPP's, inspections, and meeting permit sampling conditions. This position will work closely with the Salt Lake City POTW pretreatment coordinator. With a combined effort illicit discharges will be removed from the storm drain system and industry will receive consistent guidance. Salt Lake City has one full time position and one part time position.
BMP 45:
Review landfill monitoring data.

GOAL:
Review landfill data to determine if additional inspection, control, and monitoring requirements should be needed.

DESCRIPTION:
Salt Lake City’s Industrial Storm Water Coordinator is responsible for inspecting and reviewing landfill data to determine if they are complying with the Utah General Permit for Industrial Discharges. The data is reviewed to determine if additional inspection, control, and monitoring requirements should be needed.

MEASUREMENT:
The inspections and obtaining monitoring data is the measurement for this Best Management Practice.

REDUCTION OR BENEFIT:
The benefit of implementing this Best Management Practice is to have monitoring results and baseline data for the landfill. The monitoring data can be used to determine if additional controls are needed to mitigate pollutants from the landfill. As monitoring data is obtained the baseline data can be used with BMP’s, and any additional controls necessary to reduce pollutants entering the storm drain system.

IMPLEMENTATION:
The Salt Lake City-County landfill located at 6030 West 1300 South was inspected and monitoring data was obtained on August 9, 1996 and December 16, 1997. The Storm Water Coordinator for the State of Utah accompanied Salt Lake City’s representative on the inspection and also obtained the monitoring data. Blandfill located at 6976 West 1300 South was inspected and a SWPPP was obtained on September 24, 1996 and July 14, 1997. Salt Lake City will continue implementation of this Best Management Practice.
BMP 46: Develop a storm water quality training program for development review personnel.

GOAL: To expand the knowledge of site development review personnel regarding storm water pollution prevention techniques and practices.

DESCRIPTION: The Salt Lake City Public Utilities Engineering Department is responsible for reviewing site development. As part of this responsibility the review personnel require the development to meet regulations requiring the development and submission of temporary and permanent erosion control plans for both subdivisions and building site development. Salt Lake City development review personnel are trained regarding their role in making sure erosion control plans are included in new development. This training addresses storm water pollution that may be contributed through construction activity by uncontrolled erosion and sedimentation, fueling activities and dust generation. Storm water permitting from the State of Utah, Best Management Practices, and wheel cleaning regulations are additional topics discussed in the training.

MEASUREMENT: The measurement for this Best Management Practice is the training provided to the development review personnel. The quality of the training and topics discussed should focus on storm water quality techniques and practices for site development.

REDUCTION OR BENEFIT: The benefit attributed to this Best Management Practice is providing support and training to the development review personnel to expand their knowledge of storm water pollution prevention techniques. With this information provided to the development review personnel, erosion control plans, and storm water pollution prevention techniques are addressed during reviews. Thus, developments are required to have implemented pollution prevention at the site. As a result fewer pollutants reach the storm drain system and Waters of the State.

IMPLEMENTATION: Salt Lake City will continue to implement this Best Management Practice. In 1997, development review personnel were trained on pollution prevention techniques and the “Urban Stew” presentation was demonstrated. In 1998, specific training regarding Best Management Practices for construction and the State Construction Storm Water permit will be discussed.
BMP 47:
Coordinate with Salt Lake County to develop construction site BMP guidance manual.

GOAL:
To have a guidance manual for BMPs at construction sites that can be used by contractors in the Salt Lake area.

DESCRIPTION:
The purpose of this Best Management Practice is to have a guidance document available for contractors regarding storm water management during construction activities. This document would discuss the following: impacts of construction activities, preparing a SWPPP, and Best Management Practices.

MEASUREMENT:
The measurement for this Best Management Practice is the quality of the guidance document and the Best Management Practices at construction sites that are implemented as a result of this document.

REDUCTION OR BENEFIT:
The benefit of this guidance manual is to provide contractors with information regarding Best Management Practices that may be implemented at their construction site. As these BMPs are implemented storm water pollution prevention techniques and practices are used, and mitigate pollutants from conveying to storm drain systems and Waters of the State.

IMPLEMENTATION:
This Best Management Practice was implemented prior to its permit schedule. The guidance manual was developed in May of 1994. Salt Lake City has referred this guidance document, “Storm Water During Construction Activities” to several contractors in Salt Lake City. Salt Lake City will continue to implement this Best Management Practice in 1998.
BMP 48:
Develop a program for obtaining and reviewing SWPPP prepared by contractors.

GOAL:
To obtain Storm Water Pollution Prevention Plans prepared by contractors on all sites in Salt Lake disturbing more than 5 acres.

DESCRIPTION:
The purpose of this Best Management Practice is to obtain and review Storm Water Pollution Prevention Plans to insure construction sites are implementing pollution prevention techniques and practices. The State of Utah Storm Water Permit for Construction Activities requires contractors to develop and implement a SWPPP for construction activities that disturb greater than 5 acres.

MEASUREMENT:
The measurement for this Best Management Practice is the number of construction sites which meet the (greater than 5 acre criteria), that have developed and implemented a Storm Water Pollution Prevention Plan.

REDUCTION OR BENEFIT:
The benefit attributed to this Best Management Practice is to have construction sites that are in compliance with storm water regulations. The implementation of a Storm Water Pollution Prevention Plan with Best Management Practices utilized will reduce the problems with pollutants including uncontrolled erosion and sedimentation from entering storm drain systems and Waters of the State.

IMPLEMENTATION:
Salt Lake City will continue implementing this Best Management Practice. Salt Lake City works closely with the State of Utah regarding construction site activities. The State of Utah sends copies of State issued Notice of Intents, and Construction Permits to Salt Lake City. The Industrial Storm Water Coordinator reviews the permit, and inspects the construction site and requests a copy of their Storm Water Pollution Prevention Plan for review. When schedules are conducive the coordinators for both agencies team up for these inspections.
BMP 49:
Develop interdepartmental memorandum of understanding for enforcement of SWPPP.

GOAL:
To have an interdepartmental understanding of addressing the enforcement of construction activity erosion control plans and Storm Water Pollution Prevention Plans.

DESCRIPTION:
The purpose of this Best Management Practice is to have a memorandum of understanding regarding the procedures to enforce construction activity erosion control plans and SWPPP. The Salt Lake City Department of Public Utilities is responsible for obtaining SWPPP, and addressing enforcement. The State of Utah is notified when construction sites require enforcement. The two agencies work together to bring the site into compliance.

MEASUREMENT:
The measurement for this Best Management Practice is a memorandum of understanding that clearly defines the procedures for enforcement of SWPPP, and the number of enforcement actions taken.

REDUCTION OR BENEFIT:
The benefit of this Best Management Practice is to have an interdepartmental enforcement program developed for Storm Water Pollution Prevention Plans. The enforcement is utilized to bring construction sites into compliance with the storm water regulations. With the construction sites meeting compliance standards fewer pollutants enter the storm drain system and Waters of the State.

IMPLEMENTATION:
This Best Management Practice is partially implemented in Salt Lake City. An interdepartmental understanding of the enforcement procedures regarding Storm Water Pollution Prevention Plans exists. However, a formal memorandum of understanding has not been written. In 1998, an interdepartmental document will be written to address enforcement of erosion control plans, construction activity, and storm water pollution prevention plans.
BMP 50:
For City projects identify erosion control measures as a specific bid item.

GOAL:
To have consistent erosion control measures for City projects.

DESCRIPTION:
Salt Lake City will identify erosion control measures as a specific item in contract bid schedules and performance bond requirements. The purpose of identifying the erosion control measures is to make sure they are implemented to reduce pollutants from construction activity. Construction activity can contribute to storm water pollution through uncontrolled erosion and sedimentation, fueling activities and dust generation. Erosion control plans are needed temporarily during grubbing and the construction phase, and permanently after construction is complete. All construction projects disturbing 5 acres or greater are required to apply for coverage under the State of Utah general permit for construction activity. Salt Lake City has added Section 6.07 paragraph G to its general contract conditions which specifically requires contractors to obtain coverage under the general permit. The General permit requires contractors to prepare a SWPPP for construction activity.

MEASUREMENT:
The measurement for this Best Management Practice is the City projects that have erosion control measures as specific bid items.

REDUCTION OR BENEFIT:
The benefit of implementing this Best Management Practice is requiring contractors to control erosion on City projects. This requirement mitigates the transportation of storm water pollution through uncontrolled erosion and sedimentation from construction activity.

IMPLEMENTATION:
Salt Lake City has implemented this Best Management Practice. Contractors are required under general contract conditions to obtain a general permit for construction from the State of Utah when disturbing 5 acres or greater. Erosion control measures as specific bid items are in some of the City projects. Salt Lake City plans on reinforcing this BMP in the future to insure implementation.
BMP 51:
Participate in seminars conducted by State of Utah and other agencies.

GOAL:
To share information and new techniques through storm water seminars.

DESCRIPTION:
Seminars conducted by the State of Utah and other agencies provide information to educate and train storm water personnel. New techniques and regulations are introduced to assist the storm water personnel in better job performance.

MEASUREMENT:
The measurement of this Best Management Practice is the training and dissemination of information made available to Salt Lake City storm water personnel.

REDUCTION OR BENEFIT:
The benefit of this Best Management Practice is a consistent approach to resolving storm water issues State wide and sharing of information.
IMPLEMENTATION:
Salt Lake City has implemented this Best Management Practice by attending seminars that have been made available. The following seminars have been attended:


- Waste Minimization/Management Workshop, Concrete Industry, Sponsored by: Salt Lake City-County Health Department & Utah Department of Environmental Quality, July 16, 1996.

- Waste Minimization/Management Workshop, Mobile Cleaning Industry, Sponsored by: Salt Lake City-County Health Department & Utah Department of Environmental Quality, October 1, 1996.

- Environmental Protection Agency, Environmental Enforcement Negotiation Satellite Tele-Conference Training, Facilitated by Salt Lake City-County Health Department, November 13-14, 1996.

- Western States Project, Basic Criminal Environmental Investigations, Facilitated by Salt Lake City-County Health Department, May 28-30, 1997