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# South Dakota Department of Transportation



## Safety Program

Study SD2000-10  
Final Report

Prepared by  
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# EXECUTIVE SUMMARY

## PURPOSE:

The current safety and loss control program for the South Dakota Department of Transportation is not reaching its full potential and does not adequately prevent accidents and injuries. In recent years the SDDOT has gone through a series of organizational changes. They have experienced, what the Department describes as, an unacceptably high number of preventable accidents and injuries. According to the information provided to the author by the Department, there were 218 injury accidents in the Department reported in 1994. 139 injury accidents reported in the Department during FY 1996. During FY 1997 there were 215 injury accidents. There were 164 injury accidents during FY 1998. According to information provided by the Department, there were 2,987,407 hours worked in 1994, 2,197,211 hours worked in 1999, and 2,244,286 in 2000. Assuming a similar number of hours were worked during the three years in question would enable the calculation of the Incident Rate for those years. The incident rate for FY 1994 was 14.6, FY 1996 would be 12.7. the incident rate for FY 1997 would be 19.6. The incident rate for 1998 would be 14.9. The Incident Rate for 1999 was 9.8 and the Incident Rate for FY 2000 was 10.2. According to figures published by the Bureau of Labor Statistics, the incident rate for highway construction and maintenance workers was 10.7 in 1994, 9.6 for 1996, 9.7 for 1997, 9.3 for 1998 and 8.9 for 1999.

Supervisor and employee attitudes are a contributing factor in the amount of accidents occurring. The current attitude allows employees to perform unsafe behaviors without fear of consequences, which results in an increased number of preventable injuries and property damage accidents.

Substantial and continuous improvement in safety performance within the South Dakota Department of Transportation is needed. The purpose of this research project was to review the current safety program and practices in place within the Department and recommend areas for improvement.

## APPROACH:

The general approach of the consultant was to review all pertinent written rules, policies and procedures and compare them with generally accepted safety policies for similar and other industries. Also included was a review of the accident reports provided to the consultant by the Department, a review of the Safety Committee Meeting minutes for all four regions, the claims history for the prior year's accidents, and an on-site visit to each of the regions across the state. During the on-site visits, interviews were conducted with random employees at all levels of the Department and employee work practices were observed.

A survey instrument was developed by the consultant and approved by the Technical Panel to guide the employee interviews and ensure that pertinent information was obtained during the interview. The survey instrument was designed with open-ended

questions to encourage the employees to expand their answers. The employees were chosen by the supervisor and were instructed by the consultant and the SDDOT employee monitoring the project, on the nature of the project. They were informed that the goal of the interview was to get their perceptions and feelings, as well as the factual information on the current SDDOT safety program. The employees were assured that their responses during the interview would remain anonymous.

Visiting work sites and observing the tasks being completed by SDDOT employees was also completed during the on-site visits across the state. This was done both with the knowledge of the SDDOT personnel involved and without their knowledge. There were three basic methods the consultant employed to perform the observations. The first would be to inform the SDDOT employees that the consultant would be observing them as they worked. The consultant would then travel to the location of job and perform a direct observation, asking questions of the employees when appropriate. The second method would be to inform only the supervisor and request information on the type and location of the job being performed. The consultant would then travel to the job location and park in a safe location to observe the tasks being performed, never making contact with the SDDOT employees. The third method the consultant used was to make unannounced visits to observe the work practices used. This third method was used primarily during moving operations such as mowing, snowplowing, cold patching, etc. No SDDOT personal was involved or contacted during the third type of work site review.

## **FINDINGS, CONCLUSIONS, RECOMMENDATIONS:**

The on-site interviews combined with the work practice audits provided, in the consultant's opinion the most valuable information. The consultant believes that a great majority of the employees interviewed answered each of the questions honestly and thoughtfully. Answers to the questions posed in the survey instrument were fairly consistent throughout the state.

The Reduction-in-Force that occurred a few years ago was a time period that appears to be very significant in the minds of Department employees interviewed. It was stated during a majority of interviews that since the RIF the Department's Safety Program has changed. The perception is that more safety information was available, training was more available, employees were not asked to do too much with such limited manpower and the overall visibility of the Safety Program was better prior to the RIF. Unfortunately, there is very limited information on the Department's safety program other than the number of accident during the time period of 1996-1998. No factual conclusions or comparisons can be drawn from that data. No information was available on the number of training sessions that was available, or the number of sessions that employees attended prior to the Department's downsizing. For FY 2001 the pertinent training that was available for DOT personal included:

- 1) Asphalt Surface Treatment
- 2) Concrete Surface Repair
- 3) Defensive Driving
- 4) First Aid/CPR



- 5) Flagger Certification Instructor Training
- 6) Joint Sealing with Silicone Sealant
- 7) Operation Lifesaver
- 8) Workplace Safety

There are also a number of independent study courses available for DOT employees. These include:

- 1) Coaching the Maintenance Vehicle Operator
- 2) Commercial Drivers License
- 3) Highway Plans Reading
- 4) Construction Math
- 5) Maintenance Math
- 6) Motor Grader Operator Training
- 7) Sign and Delineator Installation and Maintenance
- 8) Truck Operator Training

The number of pertinent courses available to DOT employees as outlined above does cover a wide range of topics and should be sufficient for the “outside” training. While a single employee would not (and should not) attend all the classes in a single year, the number and type of course would enable an employee to attend at least one different class every year. Adding an independent study course and the monthly safety meetings should be adequate for the annual refresher training.

### **Recommendation 1; Revise the Current Accident Investigation Procedures**

It is recommended that more in-depth accident investigations be completed on injury and property damage accidents. Supervisors should have the primary responsibility for completing the investigation with the Safety Committee providing feedback and assistance.

One deficiency of the Department’s safety program was the lack of accident investigations being completed. Accident Reports forms are being filed out, but true investigations are not being done.

The primary purpose of accident investigation and analysis activities is to prevent accidents. As such, the investigation or analysis must produce factual information leading to corrective actions that prevent or reduce the number of accidents. The more complete the information, the easier it will be for the Department to take effective corrective actions. Accident investigation records, individually and collectively, serve as guides to the areas, conditions, and circumstances to which accident prevention efforts can most profitably be directed.

All accidents should be investigated, regardless of severity of injury or amount of property damage. The extent of the investigation depends on the outcome or potential outcome of the accident. An accident involving only first aid or minor property damage does not have to be investigated as thoroughly as one resulting in death or extensive property damage, that is unless the potential outcome could have been disabling injury or death. The Department currently has the policy that every accident must reported. Even though this policy is understood throughout the Department, it is clear that there are

accidents that are not being reported. Most of these involve minor property damage that the employee and many times the supervisor does not feel a report is warranted. Even after a report is completed, an investigation is rarely done. The investigation now is comprised of the report being filled out and passed on to the Safety Committee who decides whether the accident was preventable or not. What limited information is gleaned from the report on preventable accidents is then passed on to determine what, if any, disciplinary action is to be taken.

The individual with primary responsibility to complete the accident investigation is the immediate supervisor of the individual involved in the accident. Depending on the severity of the accident the supervisor may require assistance from other sources such as the Safety Committee, maintenance staff, Central Office staff, outside safety professionals, etc. Ideally the Safety Committee will act as an adviser and guide to the supervisor on accident investigations and should verify the supervisor's findings and the adequacy of his or her investigation. The Safety Committee should conduct accident investigations only in serious cases where a special committee may be set up.

### **Recommendation 2; Formal Hazard Identification and Corrective Program**

It is recommended that a program for identifying and correcting hazards be implemented. The Safety Committee will have primary responsibility for completing documented inspections on a routine basis.

Another area of improvement for the Department's safety program is the finding and correction of hazards prior to accidents occurring. It was shown during the employee interviews that there is no clear-cut method or path to report and correct hazards. Most Department employee's interviewed had their own ideas of who to report hazards to, and who to turn to with safety concerns in general.

Hazard identification and correction is a basic function of any safety program. There are many ways to acquire information about workplace hazards, including formal inspections, informal inspections, accident investigations, and employee safety meetings.

*Formal inspections* of work areas should be a duty of the Safety Committee. All permanent work areas, including shops, labs, offices, etc, should receive a documented inspection on a rotating basis. The direct supervisor of the work area inspected should also be present to get first hand information, answer questions, etc. upon completion of the inspection, the supervisor is given the opportunity to correct any deficiencies found and provide feedback to the Safety Committee prior to the next monthly Committee meeting. A copy of the inspection should also be given to the upper level manager (ex. Region Engineer) and to the Central Office.

*Informal inspections* should be done on a continuing basis by all Department employees. Every effort should be made by supervisors to check on moving work areas and remote work sites on a consistent basis. If a supervisor finds hazards they should be immediately corrected. Supervisors must manage safety to the same extent they manage any other

aspect of production and must be held accountable for safety performance to the same extent they are held accountable for any other area of their job. Employees need to feel comfortable with correcting hazards within their control, and reporting hazards they cannot immediately correct. This means that the roles within the Safety Program of the Department must mirror all other management functions within the Department.

Work site hazards noticed by other SDDOT employees need to be reported to appropriate supervisors. The current culture of the Department does not encourage this type of reporting. All employees interviewed by the consultant stated they were comfortable in correcting hazards and communicating safety concerns within their work group. A majority of those interviewed stated they were not comfortable in communicating concerns to other work groups and a few who had done so felt it was a negative experience. The consultant believes this is due to the lack of importance placed on daily safety issues by the Department. Again it must be emphasized that all Department employees must be held to the same standard of managing safety to the same extent of any other aspect of their job.

*Employee safety meetings* are another area of gaining hazard information. Although crew safety meetings are being held on a consistent basis in the Highway Maintenance section of the Department, that is not the case in the other areas of the Department. All employees of the Department should be attending documented monthly safety meetings. The length and topics of the meetings should be such that it meets the needs of the individual group. Where a Highway Maintenance group may meet for an hour to discuss hazards and safety issues of an upcoming project, a Central Office group may meet for 15 minutes to review the location of emergency escape routes out of the building. The emphasis of the meetings should be to relay pertinent information and discuss safety concerns of the individual group.

### **Recommendation 3; Revise the Role of the Safety Committee**

It is recommended that the role of the Department's Safety Committee be expanded to include additional duties. Additional Safety Committees should be formed for all Divisions within the Department.

Safety and Health Committees can be invaluable to the loss control program by providing the active participation and cooperation of many people in the Department. They also can be unproductive and ineffective. The difference between success and failure lies with the staffing and structure, and the support the committee receives while carrying out its responsibilities.

Currently the SDDOT has Region Safety Committees for each of the four regions. These need to be expanded to include all Divisions of the Department. Currently the role of the Safety Committee is to ensure that safety meetings are being held and to determine whether or not reported accidents are preventable or not. While these are important functions, the role of the Safety Committee should be expanded. An effective Committee stresses cooperation and a commitment to safety as a shared responsibility between

management and workers. Employees at all levels can become actively involved in and make positive contributions to the Department's safety and health program.

Safety Committees should be responsible for many functions, including:

- 1) Regularly inspecting work areas to detect unsafe conditions and practices and hazardous material and environmental factors.
- 2) Planning improvement to existing safety and health rules, procedures, and regulations.
- 3) Recommending suitable hazard elimination, reduction, or control measures.
- 4) Periodically reviewing and updating existing work practices and hazard controls.
- 5) Assessing the implication of changes in work tasks, operations, and processes.
- 6) Monitoring and evaluating the effectiveness of safety and health recommendations and improvements.
- 7) Assisting in the accident investigation program.
- 8) Reviewing safety meeting forms and providing feedback to questions or suggestions that may arise from crew safety meetings.

The current make up of the Safety Committees is designed to be split between union and non-union employees. While this is desirable it has posed problems in the past in not having enough hourly employees participate in the Committee. It is important that the hourly and salary level of the Department be equally represented on the Committees. The current number of Safety Committee members, length of terms, and meeting schedule is adequate and no change is recommended.

#### **Recommendation 4; Create a Central Office Safety Position**

It is recommended that the SDDOT have a full-time position dedicated to the Department's Safety Program. This safety professional must have the ability to interact with all Divisions and all levels within the Department.

The safety person should coordinate and oversee all loss control efforts. Specific duties that should be performed by the safety professional would include:

- 1) Working with each Division to develop individual loss control and safety plans.
- 2) Develop and Track Safety Goals for the Department.
- 3) Reviews all workers' compensation, property damage and liability claims. Analyzes data for trends.
- 4) Develops and coordinates safety training programs.
- 5) Summarize Safety Meeting information and re-distribute as appropriate.
- 6) Summarize Accident Investigation results and re-distribute.
- 7) Provide visible support from the Central Office.

The Department does not have a central clearinghouse that can effectively track the overall effectiveness of the Safety Program. As it is now there is not one position that monitors the safety performance of the Department. Any information that is produced in one region is not assured of being shared with the other regions or Divisions. Very little safety information is being shared between regions and divisions. Having one individual who is responsible for overseeing the program will help ensure that the program is on course. This individual will advise and guide management, supervisors and employees on all matters pertaining to safety.

### **Recommendation 5; Implement a Safety Incentive Program**

It is recommended that the Department implement a Safety Incentive Program to encourage safe work habits. A customized program will motivate all Department employees to want to work safely and encourage co-worker safety.

It is the experience of the consultant that incentive programs promote and encourage safe work habits. What few programs the Department had in place to encourage safety were not applied across the entire Department. Accident prevention basically depends upon the desire of people to work safely. Even with the best safety program in place, all hazardous conditions and unsafe practices cannot be anticipated. Employees frequently must use their own imagination, common sense, and self discipline to protect themselves.

A customized program enables the employees to choose their own awards. By utilizing short term, monthly, goals this program minimizes the pitfalls of traditional safety incentives. Supervisors are encouraged to recognize safe employees by handing out the award certificates on a monthly basis at the crew safety meetings. This also enables the meetings to get off to a positive start. Employees are able to get their families involved in the selection of awards, which provides additional incentive to work safely.

### **Recommendation 6; Enforce Current and Updated Safety Policies**

It is recommended that the SDDOT enforce the safety rules and policies for all employees of the Department. It was mentioned frequently during the employee interviews that there are no consequences for not following the rules, policies and procedures. Most employees thought this was a deficiency of the safety program. The Department can show its support of the safety program by simply enforcing the safety policies that is currently in place.

The department has a safety manual that was updated as part of this project. This updated safety manual provides the opportunity to step up enforcement of the polices outlined in the manual, and also the other safety polices in place. Supervisors in all departments and at all levels must manage safety to the same degree that they manage all other aspects of their job. Supervisors and managers must be held accountable for the safety performance of their group.



## **PROBLEM DESCRIPTION**

A comprehensive safety and loss control program is one in which all employees are committed to the process of continuous improvement and working safely. A successful safety program will be a top down process that starts with the administration. If the administration does not see the need for a program, or they are unwilling to commit the resources necessary to make it work, it cannot be successful. During employee interviews 75% of the employees stated they felt that their local supervisors and managers do support the Safety Program, but they do not see visible support from the Central Office. Each region appears to be operating as a separate entity. The current safety and loss control program for the South Dakota Department of Transportation (SDDOT) is not reaching its full potential and does not adequately prevent accidents and injuries. The culture of the Department must change and safety must become a value in the entire Department before continuous positive results will be seen. Having safety as a core value means that the Department believes that accidents and injuries are unacceptable and preventable. Employees at all levels must be committed to preventing accidents. It also means that each employee, at every level in the Department, must be held accountable for their safety performance.

In recent years the SDDOT has gone through a series of organizational changes. The perception for a majority of employees interviewed was that the current SDDOT Safety Program is not as strong as it was prior to some of these changes. The Department has experienced, what has been described as, an unacceptably high number of preventable accidents and injuries. This was demonstrated during the employee interviews where over 80% of the employees interviewed admitted to having at least one work related accident. . According to the information provided to the author by the Department, there were 139 injury accidents in the Department during FY 1996. During FY 1997 there were 215 injury accidents. There were 164 injury accidents during FY 1998. One way to compare accident information is to compare incident rates. Incident rates measures how many accidents an organization has per 100 employees. If the SDDOT worked a similar amount of hours in the three years prior to 1999, as they did in 1999, the incident rate 1996 would be 12.7 accidents per 100 employees, national average for similar workers according to the Bureau of Labor Statistics was 9.6. The incident rate for 1997, assuming similar hours worked, would be 19.6 accidents per 100 employees, while the national average for similar workers according to the Bureau of Labor Statistics was 9.7. The 1998 incident rate for the department, assuming 2.1 million hours worked would be 14.9, while the national average was 9.3 accidents per 100 employees, according to the Bureau of Labor Statistics. Regional incident rates show Minnesota DOT had an average incident rate of 13.6 for the period 1997-1999. Montana DOT had a 1999 incident rate of 6.6, Iowa DOT had a 1999 rate of 7.4, Wyoming DOT also had a 1999 incident rate of 7.4.

Many supervisors do not appear to be stepping up and taking responsibility for the safety performance of their crew. In some cases this task fell onto employees in a Leadman position, while in other cases it was left entirely up to the individual employee. This attitude allows employees to perform unsafe behaviors without fear of consequences, which results in an increased number of preventable injuries and property damage accidents.



## OBJECTIVES

### Develop a Formal Safety Program

As was stated earlier, a comprehensive safety and loss control program is one in which all employees are committed to the process of continuous improvement and working safely. Safety must become a value for the Department and also for individual employees. The SDDOT has a safety program in place, but it is not adequate in preventing accidents. Changing elements of the current program will improve its effectiveness.

A successful safety program has a number of elements it must contain, starting with clearly defined roles in the safety program. This is one deficiency in the current SDDOT program. When this was discussed during the employee interviews there were different answers, even among co-workers. There are a number of supervisors who are not managing safety within their work group. These supervisors place a great importance on getting the routine tasks done, but allow safety to take care of itself. The management of the safety program must mirror the management of any other work task. Safety must have equal importance to the entire Department, as does any other job the Department does. Just as supervisors play a key role in the Department's success building and maintaining the state's highway system, they play a similar role in the Department's successful safety program. In addition to the supervisor's critical role, other managers and engineers must manage safety to the same extent they manage the other tasks of their group. There should be a direct line that all employees can follow if they have safety problems or concerns. This does not mean that employees are not responsible for their own safety. As an example, a supervisor is not responsible for marking deficiencies on a bridge, however they are responsible for ensuring this task is completed. Similarly, that supervisor is not responsible for putting the vest on the employee, parking the vehicle in a safe location, putting out appropriate warning devices, etc., but they are responsible for ensuring these get done. Just as it is the employee has the responsibility for completing the task, they are responsible for completing the task safely. This will happen only if safety is as important to the supervisor, and therefore the supervisors group, as other tasks that must be completed. This way safety is a "top down" process. What is important to management will become important to the workforce.

Another element of a successful safety program is identifying and correcting hazards. According to the employee interviews, this was done sporadically in the past, but is not being completed now. Formal and informal workplace inspections are an effective method to identify hazards, which can then be corrected. Specific methods to complete workplace inspections are addressed in the recommendations.

When accidents occur, there must be a process in place to investigate the accidents and determine all the contributing factors and causes. At present accident reports are being completed, usually by the employee, but no investigation is done. Safety Committees then review the report and determine if it was preventable or not. This is not an investigation to determine the causes. Accident investigation techniques are addressed in the recommendations.

An effective safety program must have guidelines for employees to follow, and also consequences if they are not followed. The Department has a safety manual that was updated during this project. Supervisors must be willing to enforce the procedures in the safety manual, along with the other rules, policies and procedures the Department currently has. These should be addressed in the same manner as any other policy. Again, safety must be incorporated into the values of the Department. Safety should not be a separate function for employees, but a natural extension of the tasks that are being completed. Therefore employees should not be responsible for completing a task, but completing a task safely. If safety was sacrificed, the task was completed improperly, and suitable consequences should follow. As was stated above employees are responsible for completing tasks, therefore they must be responsible for completing tasks safely. If they are not done safely, supervisors should step in just as if the task was not done. The consequences for not following safety procedures should be similar to the consequences for not completing a task properly. In the consultant's opinion, there should not be separate discipline for safety deficiencies and production oriented deficiencies. By the same token for having consequences for failing to perform safely, there should be consequences for performing safely. Properly administered, a safety incentive can encourage safe behaviors and increase employee moral. Workers can feel that they are being caught doing things right.

The final element addressed in an effective safety program is continual training. Prior to the Reduction in Force the SDDOT did much of their own training and retraining of employees. Since then the BOP has taken over these duties. The quality of the training was never questioned during the employee interviews. What a majority of employees wanted was an increase in the quantity of the training provided and provide training at more convenient times and locations.

#### Develop a Promotional Plan for Introduction of the Safety Program to DOT Employees

The Department currently has a safety program in place, although it has not been very effective in preventing accidents. During the employee interviews a majority of employees were satisfied with the overall program. In the opinion of the consultant, scrapping the current plan and instituting a new program would be a mistake. Employees appear resistant to change and have an apparent negative attitude toward change. If the current program was thrown out and a totally new program implemented, this would give employee an opportunity to step back and wait for it to fail. Rather than promote this as a totally new program it will be better to modify the current program. The changes to the current program will include making the Regional Safety Committees take a more active role in the safety process. The role they have now will be expanded to include workplace inspections; planning improvement to existing safety and health rules, procedures and regulations; assisting in accident investigation procedures, and providing feedback to questions and concerns raised about the safety program.

Another change to the current program will be revising the accident investigation procedures. Currently the investigation is comprised of the employee filling out the incident form and this being passed on to the Regional Safety Committee which decides if the accident was preventable or not. The change recommended will involve the

front line supervisor to a greater extent and the Regional Safety Committee will act as an advisor and review board.

Another change to the current program is to create a Central Office Safety Position. Duties of this position would be to help develop and track safety goals for the Department; review all accident reports and analyze for trends, summarize and re-distribute this results as appropriate; summarize safety meeting information and re-distribute as appropriate; and provide visible support of the safety program from the Central Office.

Implementation of a safety incentive program is another change to the current program. An incentive program will provide motivation for Department employees to work safety and encourage co-worker safety.

Enforcement of current and updated safety policies is the final change to the current program. Enforcement in conjunction with incentive is a crucial element of a safety program. Employees need to be encouraged to perform safely, but in those instances where safety rules are disregarded there must be enforcement action to ensure employees follow all the rules and policies.

## **TASK DESCRIPTION**

### **Task 1: Attend a “Kick-Off” Meeting**

This was completed when the consultant met with the technical panel had detailed discussions about the study and the current safety program.

### **Task 2: Conduct a Review**

The consultant requested and received information on the current safety practices, accident reports, training programs, safety committee notes, and other written safety procedures that the department is using. After reviewing what was already in place the consultant compared this with other safety programs that are in use by highway construction and maintenance contractors in this state and similar state DOT programs, and generally accepted safety practices. Armed with this information the consultant developed a survey instrument to measure the perceptions of Department employees.

### **Task 3: Meet With the Technical Panel**

The objective of this task was to review with the Technical Panel the survey instrument. A face to face meeting with the Technical Panel and the consultant was not done. Instead the proposed survey instrument was e-mailed to the Technical Panel for review and recommendations. A blank copy of the survey instrument can be found in Appendix A.

### **Task 4: Using the Survey Instrument-Identify SDDOT Safety Practices**

This task provided the most useful information. Using the survey instrument, the consultant interviewed Department employees to ascertain their perceptions of the current safety program. Results of the interviews can be found in Appendix B. In addition to the interviews, the consultant witnessed employees performing work tasks.

### **Tasks 5 and 6: Define the Components of Proposed Safety Program and Present Finding to Technical Panel and Propose Safety Program**

At the conclusion of the program review, employee surveys and work observation, the consultant developed recommendations for improvement of the current safety program. These recommendations were communicated to the Technical Panel during a meeting with the Panel.

### **Task 7: Update and Revise Current SDDOT Safety Manual**

The consultant reviewed the safety manual in use by the Department and made updates and changes to it to reflect the latest regulations. A copy of the updated safety manual is in Appendix C.

### **Task 8: Provide Technical Panel Detailed Plan Indicating how to Implement Safety Program and Provide a Tool to Aid the Measurement of the Effects of the Program has had on Safety**

During the meeting with the Technical Panel it was expressed by the consultant that the best way to improve the safety performance of the department is not to produce a whole new safety program, but rather to improve the current safety program. Implementation of

the recommended changes are outlined in the recommendations. Measurement of the effects of the Program can be accomplished by using the same survey instrument and comparing the results.

**Task 9: Provide Detailed Promotional Plan on How the New Safety Program Should Be Presented**

It is the opinion of the consultant the Department revise the current safety program and should not implement a totally new safety program. The training sessions that accompany the project will be the initial way to introduce the changes to the program that will be implemented. Recommendation #5, Implement a Safety Incentive will generate quite a bit of attention, in the opinion of the consultant. This will encourage positive change as well as generate interest and promote the changes in the safety program.

**Task 10 and 11: Prepare Final Report and Make an Executive Presentation to SDDOT's Research Review Board**

## FINDINGS AND CONCLUSIONS

The on-site interviews combined with the work practice audits provided, in the consultant's opinion the most valuable information. The consultant believes that a great majority of the employees interviewed answered each of the questions honestly and thoughtfully. Answers to the questions posed in the survey instrument were fairly consistent throughout the state.

### Summary of Employee Interviews

The interviews that were done were broken up into five areas: General, Training, Personal Protective Equipment, and Accident Reporting. The general area explored employee perception on the current safety program. If employees were taking an active role and interest in the safety program they would have been able to answer questions as to where the policy statement was located, who to report hazards to and the accident investigation procedure. Another indication of this is when asked to rate the current program, hourly employees ranked it higher than supervisors (who are more involved with the program). Over one third of the employees interviewed stated that they do disregard safety rules to get the job done. 95% of the employees interviewed thought that rules were disregarded by employees. This indicates that either the rules are inappropriate, or that these employees do not believe that safety is as important as the other aspects of the job. 93% of the supervisors interviewed had had a work related accident. Although a majority of these supervisors had worked for the Department for a number of years, it is still possible to work without being involved in an accident. When asked who is in charge of safety for their area, answers varied throughout the state.

The training section examined how employees are trained for the job. A majority of the training that is occurring is on-the-job. Supervisors are more aware of BOP training than hourly employees and there were a number of employees who had never been to any BOP training. Most employees feel however, that they do have adequate training to do their job safely, and the training they do have, they have picked up over the years.

Personal Protective Equipment section explored what types of PPE are available and being used. There were no problems noted in this area, other than employees deciding when to wear the PPE, rather than a strict policy.

The final area looked at accident reporting. Accident reporting is a major function of the Regional Safety Committee. Although this is an important aspect of the safety committees, more emphasis must be placed on investigations both at the committee level and the supervisor level. The accidents that are occurring are not being shared on the state level. Most employees are not aware of the number of accidents that are occurring in their own areas, not to mention statewide. A greater emphasis on implementing corrective actions should help this.

One area that was noticed in doing these interviews and work observations is that very little safety information is being passed from Area to Area and Region to Region. The

Central Office must become a clearinghouse for this type of information and fact gather so it can be disseminated to all other areas. The complete results from the survey can be found in Appendix B.

### **Comparison with Behavioral Based Safety**

A traditional safety program is a top down process. There are certain elements, as discussed earlier that must be in place and functioning properly for the safety program to be successful. Employees' responsibility for safety mirrors their responsibility for any other production-oriented task. Being a top down process does not mean that front-line employees have no responsibility in the safety program. The reality is just the opposite. Those employees play a critical role in accident prevention. Employees must be held accountable for their actions, whether they are performing safe behaviors or unsafe behaviors; there must be consequences. Negative consequences (other than an accident occurring) for unsafe behaviors and positive consequences for safe behaviors. Safety is people business. Employees play a role in every accident. In a majority of accidents it is a combination of unsafe behaviors and unsafe conditions that are a direct cause of the accidents. Therefore how employees are doing their job is of critical importance. This is how a behavioral based safety program and a traditional safety program are similar.

The biggest difference between a behavioral based safety program and a traditional safety program is the behavioral based safety program focuses exclusively on employee actions. A behavioral based safety program assumes that the basic elements of accident investigations, workplace safety audits, supervisor and manager roles, and support for the safety program throughout to Department, to be in place and strong factors in the safety program. This allows the program to focus on employee behavior. In a behavioral based safety program a list of critical behaviors is designed. These are the behaviors that appear to be causing accidents in an organization. After the critical behaviors have been identified these behaviors are measured. The behaviors are measured by observing workers performing their regular tasks. The number of times the critical behaviors are performed is measured and the number of times the behavior is performed safely is compared to the number of times the behavior is performed unsafely. This information is then relayed to the entire Department via newsletters, charts, graphs and any other communication outlet that the Department has in place.

It is assumed that when employees see the results of the behavior survey they will want to improve and perform the critical behaviors safely more often. This is then the impetus for continuous improvement in the safety program. Obviously for the information to be statistically valid a huge number of critical behaviors must be observed. The behavior surveys must be done on a continual basis. If not done properly, and if employees are not excited by the prospect of an overall improvement of the safety program the behavior surveys can be looked at with an air of suspicion. This is one of the downfalls of behavior based safety program. Other problems include the high number of behavior observations that must be completed to make it statistically valid. These behavior observations must be done on a monthly basis to show the improvement (or lack of improvement) on a consistent basis to fuel the improvement process. Typically line employees perform the

behavior observations because they are most familiar with how the particular tasks are supposed to be completed. Obviously when employees are performing behavioral observations they are unavailable to be doing the tasks they normally would be. A lack of manpower is currently one of the biggest complaints employees have now with the Department. Dedicating the time to perform behavioral observations, in the consultant's opinion, would be viewed as a negative by the workforce.

Rather than attempting to implement a true behavioral based safety program at this time, it is the opinion of the consultant that the Department implement the recommendations below. The recommendations will improve the current safety program and put the responsibility for accident prevention on all employees of the Department. As the safety program continues to develop and employees become more comfortable with their role in the program it will become a logical step to move towards a more behavioral based program in the future.

## **RECOMMENDATIONS:**

### **Recommendation 1; Revise the Current Accident Investigation Procedures**

It is recommended that more in-depth accident investigations be completed on injury and property damage accidents. Supervisors should have the primary responsibility for completing the investigation with the Safety Committee providing feedback and assistance.

One deficiency of the Department's safety program was the lack of accident investigations being completed. Accident Reports forms are being filed out, but true investigations are not being done.

The primary purpose of accident investigation and analysis activities is to prevent accidents. As such, the investigation or analysis must produce factual information leading to corrective actions that prevent or reduce the number of accidents. The more complete the information, the easier it will be for the Department to take effective corrective actions. Accident investigation records, individually and collectively, serve as guides to the areas, conditions, and circumstances to which accident prevention efforts can most profitably be directed.

Accident investigations should follow a four-step process. The detail each step is completed depends on the severity of the incident.

- 1) Gather all information and determine the facts. This is done in many ways depending on the situation. Employee interviews may be done; rules, policies and procedures should be reviewed; photographs or sketches of the accident scene may be taken; if equipment is involved all maintenance and inspection records should be reviewed; etc. Although there are many methods, the goal is the same: to determine the facts and separate opinions on how the accident occurred. Immediate supervisors will be responsible for a majority of the fact gathering.



Serious accidents may also draw upon the experience of others such as the safety committees, Central Office Staff, outside agencies, etc.

- 2) Determine all the contributing factors. All accidents are composed of one or more contributing factors. These factors can be broken down into three basic areas – direct causes, indirect causes and basic causes. Direct causes are those that directly caused the accident or injury. An example may be a pick-up backing into a post. Indirect causes are those unsafe conditions that are present in the workplace and/or unsafe actions employees perform. Generally there are more than one or two indirect causes for every accident. Basic causes are poor management safety policy or procedures, or personal factors or environmental factors. The more causes that can be determined the greater likely hood of preventing future accidents. Again immediate supervisors will have primary responsibility for determining contributing factors but all who review the investigation report will aid in determining contributing factors.
- 3) Suggest corrective actions. After the contributing factors have been determined each one should be analyzed to determine what, if any, corrective action should be taken. Immediate supervisors will play a role in determining corrective action along with the Safety Committee who will play a major role in determining corrective action.
- 4) Implementation of the corrective actions. Perhaps the most critical step is implementing the suggested corrective action. If an accident investigation has been done perfectly up to this point, then no corrective action is taken, then no implementation is done, the accident is doomed to be repeated. The Safety Committees will have primary responsibility for implementing the corrective action.

All accidents should be investigated, regardless of severity of injury or amount of property damage. The extent of the investigation depends on the outcome or potential outcome of the accident. An accident involving only first aid or minor property damage does not have to be investigated as thoroughly as one resulting in death or extensive property damage, that is unless the potential outcome could have been disabling injury or death. The Department currently has the policy that every accident must reported. Even though this policy is understood throughout the Department, it is clear that there are accidents that are not being reported. Most of these involve minor property damage that the employee and many times the supervisor does not feel a report is warranted. Even after a report is completed, an investigation is rarely done. The investigation now is comprised of the reported being filled out and passed on to the Safety Committee who decides whether the accident was preventable or not. What limited information is gleaned from the report on preventable accidents is then passed on to determine what, if any, disciplinary action is to be taken.

The individual with primary responsibility to complete the accident investigation is the immediate supervisor of the individual involved in the accident. Depending on the severity of the accident the supervisor may require assistance from other sources such as the Safety Committee, maintenance staff, Central Office staff, outside safety professionals, etc. Ideally the Safety Committee will act as an adviser and guide to the

supervisor on accident investigations and should verify the supervisor's findings and the adequacy of his or her investigation. The Safety Committee should conduct accident investigations only in serious cases where a special committee may be set up.

## **Recommendation 2; Formal Safety Improvement Identification and Corrective Program**

It is recommended that a program for identifying and correcting hazards be implemented. The Region Safety Committee will have primary responsibility for completing documented inspections on a routine basis.

Another area of improvement for the Department's safety program is the finding and correction of hazards prior to accidents occurring. It was shown during the employee interviews that there is no clear-cut method or path to report and correct hazards. Most Department employee's interviewed had their own ideas of who to report hazards to, and who to turn to with safety concerns in general.

Hazard identification and correction is a basic function of any safety program. There are many ways to acquire information about workplace hazards, including formal inspections, informal inspections, accident investigations, and employee safety meetings.

*Formal inspections* of work areas should be a duty of the Safety Committee. All permanent work areas, including shops, labs, offices, etc, should receive a documented inspection on a rotating basis. The direct supervisor of the work area inspected should also be present to get first hand information, answer questions, etc. upon completion of the inspection, the supervisor is given the opportunity to correct any deficiencies found and provide feedback to the Safety Committee prior to the next monthly Committee meeting. A copy of the inspection should also be given to the upper level manager (ex. Region Engineer) and to the Central Office.

*All Department employees should do informal inspections on a continuing basis.* Every effort should be made by supervisors to check on moving work areas and remote work sites on a consistent basis. If a supervisor finds hazards they should be immediately corrected. Supervisors must manage safety to the same extent they manage any other aspect of production and must be held accountable for safety performance to the same extent they are held accountable for any other area of their job. Employees need to feel comfortable with correcting hazards within their control, and reporting hazards they cannot immediately correct. This means that the roles within the Safety Program of the Department must mirror all other management functions within the Department.

Work site hazards noticed by other SDDOT employees need to be reported to appropriate supervisors. The current culture of the Department does not encourage this type of reporting. All employees interviewed by the consultant stated they were comfortable in correcting hazards and communicating safety concerns within their work group. A majority of those interviewed stated they were not comfortable in communicating concerns to other work groups and a few who had done so felt it was a negative

experience. The consultant believes this is due to the lack of importance placed on daily safety issues by the Department. Again it must be emphasized that all Department employees must be held to the same standard of managing safety to the same extent of any other aspect of their job.

*Employee safety meetings* are another source for gaining hazard information. Although crew safety meetings are being held on a consistent basis in the Highway Maintenance section of the Department, that is not the case in the other areas of the Department. All employees of the Department should be attending documented monthly safety meetings. The length and topics of the meetings should be such that it meets the needs of the individual group. Where a Highway Maintenance group may meet for an hour to discuss hazards and safety issues of an upcoming project, a Central Office group may meet for 15 minutes to review the location of emergency escape routes out of the building. The emphasis of the meetings should be to relay pertinent information and discuss safety concerns of the individual group.

### **Recommendation 3; Revise the Role of the Safety Committee**

It is recommended that the role of the Department's Safety Committee be expanded to include additional duties. Additional Safety Committees should be formed for all Divisions within the Department.

Safety and Health Committees can be invaluable to the loss control program by providing the active participation and cooperation of many people in the Department. They also can be unproductive and ineffective. The difference between success and failure lies with the staffing and structure, and the support the committee receives while carrying out its responsibilities.

Currently the SDDOT has Region Safety Committees for each of the four regions. These need to be expanded to include all Divisions of the Department. Currently the role of the Safety Committee is to ensure that safety meetings are being held and to determine whether or not reported accidents are preventable or not. While these are important functions, the role of the Safety Committee should be expanded. An effective Committee stresses cooperation and a commitment to safety as a shared responsibility between management and workers. Employees at all levels can become actively involved in and make positive contributions to the Department's safety and health program.

Safety Committees should be responsible for many functions, including:

- 1) Regularly inspecting work areas to detect unsafe conditions and practices and hazardous material and environmental factors.
- 2) Planning improvement to existing safety and health rules, procedures, and regulations.
- 3) Recommending suitable hazard elimination, reduction, or control measures.
- 4) Periodically reviewing and updating existing work practices and hazard controls.

- 5) Assessing the implication of changes in work tasks, operations, and processes.
- 6) Monitoring and evaluating the effectiveness of safety and health recommendations and improvements.
- 7) Assisting in the accident investigation program.
- 8) Reviewing safety meeting forms and providing feedback to questions or suggestions that may arise from crew safety meetings.

The current make up of the Safety Committees is designed to be split between union and non-union employees. While this is desirable it has posed problems in the past in not having enough hourly employees participate in the Committee. It is important that the hourly and salary level of the Department be equally represented on the Committees. The current number of Safety Committee members, length of terms, and meeting schedule is adequate and no change is recommended.

#### **Recommendation 4; Create a Central Office Safety Position**

It is recommended that the SDDOT have a full-time position dedicated to the Department's Safety Program. This safety professional must have the ability to interact with all Divisions and all levels within the Department.

The safety person should coordinate and oversee all loss control efforts. Specific duties that should be performed by the safety professional would include:

- 1) Work with each Division to develop individual loss control and safety plans.
- 2) Develop and Track Safety Goals for the Department.
- 3) Review all workers' compensation, property damage and liability claims. Analyzes data for trends.
- 4) Develop and coordinate safety training programs.
- 5) Summarize Safety Meeting information and re-distribute as appropriate.
- 6) Summarize Accident Investigation results and re-distribute.
- 7) Provide visible support from the Central Office.

The Department does not have a central clearinghouse that can effectively track the overall effectiveness of the Safety Program. As it is now there is not one position that monitors the safety performance of the Department. Any information that is produced in one region is not assured of being shared with the other regions or Divisions. Very little safety information is being shared between regions and divisions. Having one individual who is responsible for overseeing the program will help ensure that the program is on course. This individual will advise and guide management, supervisors and employees on all matters pertaining to safety.

## **Recommendation 5; Implement a Safety Incentive Program**

It is recommended that the Department implement a Safety Incentive Program, administered by Stec's Advertising, to encourage safe work habits. A customized program will motivate all Department employees to want to work safely and encourage co-worker safety.

It is the experience of the consultant that incentive programs promote and encourage safe work habits. What few programs the Department had in place to encourage safety were not applied across the entire Department. Accident prevention basically depends upon the desire of people to work safely. Even with the best safety program in place, all hazardous conditions, unsafe practices cannot be anticipated. Employees frequently must use their own imagination, common sense, and self discipline to protect themselves.

A customized program enables the employees to choose their own awards. By utilizing short term, monthly, goals this program minimizes the pitfalls of traditional safety incentives. Supervisors are encouraged to recognize safe employees by handing out the award certificates on a monthly basis at the crew safety meetings. This also enables the meetings to get off to a positive start. Employees are able to get their families involved in the selection of awards, which provides additional incentive to work safely.

The Stec's Advertising program is set up on a monthly basis. Each employee will be eligible to earn individual "DOT Bucks" for each calendar month worked without a lost time or medical reportable injury, or any incident causing cost to the department. The DOT Bucks will be awarded on a monthly basis. If an employee has a lost time or medical reportable injury, or any incident causing cost to the Department in excess of \$150, that employee will lose their eligibility to earn individual DOT Bucks for the corresponding calendar month.

In addition to the individual DOT Bucks, employees will be divided into teams. If all employees on a given team work a full calendar quarter without a lost time or medical reportable injury, or any incident causing cost to the Department, each employee on that team will earn DOT Quarterly Bonus Bucks. If an employee on a given team has a lost time or medical reportable injury, or any incident causing cost to the Department, all employees on that team will lose their eligibility to earn Quarterly Bonus DOT Bucks for that calendar quarter. Team employees who work safely will retain their Individual DOT Bucks.

All full-time SD Department of Transportation employees will be eligible to participate in the program on the first day of active full time employment. Any employee who is on a leave of absence or receiving workers' Compensation or short – or long – term disability benefits on the last day of a pay period, will be ineligible to receive DOT Bucks for that period. Participation will resume immediately upon return to active work status.

Teams consist of employees assigned to similar work assignments in the same area. The Department has the option of determining the team make-up before the program starts.

Individual DOT Bucks will be issued by Stec's Safety Awards once each month for the prior month. DOT Buck Certificates will be imprinted with employee name, employee number and itemized values of DOT Bucks earned. Upon receipt, SD DOT supervisors will distribute the DOT Bucks to each of their employees. Monthly Safety Meetings provide a venue to accomplish the distribution.

Cost to the Department for this program includes initial set up charges, catalog updates and the actual DOT Bucks issued. Initial set up charges, which include Stec's Advertising developing a data base of current employees, printing "DOT Bucks" and providing a custom catalog for each employee, is \$12.75 per employee. Additional employees can be added to the database at no extra charge. Maintenance costs will be the actual DOT Bucks issued. The Department has the option to determine the actual amount earned by employees. The consultant recommends a sliding scale depending on the job description. Eight dollars per calendar month for the Maintenance groups, \$6.00 per calendar month for Engineering groups, and \$5.00 per calendar month for Office groups. Twenty dollar Team Quarterly DOT Bonus Bucks will be in addition to the individual awards. Catalogs are usually updated every two years. Cost for updated catalogs range from \$4.00 to \$6.00.

#### **Recommendation 6; Enforce Current and Updated Safety Policies**

It is recommended that the SDDOT enforce the safety rules and policies for all employees of the Department. It was mentioned frequently during the employee interviews that there are no consequences for not following the rules, policies and procedures. Most employees thought this was a deficiency of the safety program. The Department can show its support of the safety program by simply enforcing the safety policies that are currently in place. The penalties for disregarding safety rules must be the same penalties as for breaking any other rule. That is Bureau of Personal standards should be used. This shows that safety is as important as any other aspect of operations.

The department has a safety manual that was updated as part of this project. This updated safety manual provides the opportunity to step up enforcement of the polices outlined in the manual, and also any other safety polices in place. Supervisors in all departments and at all levels must manage safety to the same degree that they manage all other aspects of their job. Supervisors and managers must be held accountable for the safety performance of their group.

# APPENDEX A

## SDDOT SURVEY INSTRUMENT

Job Title: \_\_\_\_\_  
Location: \_\_\_\_\_  
Date: \_\_\_\_\_

### GENERAL

1) Have you ever had an accident while working for the DOT?                      YES                      NO

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

2) Do you communicate your concerns to co-workers if you see them working unsafely?                      YES                      NO

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

3) Does the DOT have a policy statement regarding safety:                      YES                      NO

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

4) Who is in charge of safety for your Area? \_\_\_\_\_

4a)                      your unit? \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

5) How much control do you have over your personal safety?    1(none)    2    3    4    5(total)

6) How much control do you have over your co-workers safety? 1(none)    2    3    4    5(total)

7) How would you rank the overall DOT safety program                      1(poor) 2    3    4    5(excellent)

8) How would you rank your safety performance?                      1(poor) 2    3    4    5(excellent)

9) What is the procedure for reporting unsafe conditions?

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

10) Is management committed to safety/accident prevention? YES NO

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11) Is it permissible to disregard safety rules to get a job done? YES NO

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12) Do supervisors recognize employees for a job well done? YES NO

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12a) In your opinion, what would be an effective method to provide your input on the safety program?

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### TRAINING

13) Is there a formal training plan or checklist for new employees? YES NO

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14) Is the training that is done, documented? YES NO

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15) Have you been given enough training and information to do your job safely? YES NO

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16) What training do seasonal employees get?

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17) Is there any type of refresher training for current employees? YES NO



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18) What training is required before operating a piece of equipment?

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19) Is there any task specific training for employees? YES NO

**Example: work zones setup, mowing medians, cold patching in traffic**

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20) Is this training documented? YES NO

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21) How are new policies communicated to all workers?

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22) Do you feel (employees/supervisors) have input in safety policies? YES NO

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23) Do you feel you have any input in safety policies? YES NO

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24) Are safety meetings conducted monthly in all the areas? YES NO

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25) Are there any consequences if monthly safety meetings are not conducted? YES NO

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26) Are there any consequences for employees who do not attend meetings? YES NO

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27) Where do meeting topics come from?

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28) Do employees have adequate input during safety meetings? YES NO

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29) Do you think that concerns raised from your meetings have any use in other areas? YES NO

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30) Are concerns raised during safety meetings communicated to the appropriate people? YES NO

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31) Does your Area get any input from safety meetings from other areas? YES NO  
31a) Other units? YES NO

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32) If no, how could you get this information?

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33) Is the training provided by the DOT adequate for most employees? YES NO

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34) If no, what training is missing?

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35) As a (supervisor/employee), do you feel you get the appropriate training for your job? YES NO

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36) What are your concerns regarding training?

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### PERSONAL PROTECTIVE EQUIPMENT

37) Is there appropriate PPE for all employees? YES NO

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38) If no, what equipment are you lacking?

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39) Do employees know what PPE is required for specific tasks? YES NO

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40) Are PPE requirements enforced? YES NO

41) Are the following PPE available for each employee:

41a) Hard Hat YES NO

41b) Hearing Protection YES NO

Type \_\_\_\_\_

41c) Safety Glasses

Clear YES NO

Tinted YES NO

41d) Safety Vests YES NO

42) Is there a policy regarding safety shoes? YES NO

42b) Clothing? YES NO

42c) What other types of PPE do you use?

43) What are the consequences of not wearing the required PPE?

### Accident Reporting

44) Do situations regularly occur where safety rules must be violated to get the work done? YES NO

45) About how many property damage accidents occurred in your area:  
Last month \_\_\_\_\_  
Last year \_\_\_\_\_

46) What was the approximate direct costs of these accidents? \$ \_\_\_\_\_

47) About how many personal injuries occurred in your area :  
47a) Last month \_\_\_\_\_  
47b) Last year \_\_\_\_\_

48) Who is required to complete accident reports? YES NO  
\_\_\_\_\_  
\_\_\_\_\_

49) In your opinion do the appropriate people review accident reports? YES NO  
\_\_\_\_\_  
\_\_\_\_\_

50) If no, who should review the reports?  
\_\_\_\_\_  
\_\_\_\_\_

51) Do you get information from accidents occurring in other areas? YES NO  
51a) Other units? YES NO  
\_\_\_\_\_  
\_\_\_\_\_

52) In your opinion, what is the leading cause of property damage accidents?  
\_\_\_\_\_  
\_\_\_\_\_

53) In your opinion, what is the leading cause of injury accidents?  
\_\_\_\_\_  
\_\_\_\_\_

54) What is a reasonable number of property damage accidents per month? \_\_\_\_\_

55) What is a reasonable number of injury accidents per month? \_\_\_\_\_

56) Who is responsible for investigating accidents?

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57) In your opinion, what is the purpose of an accident investigation?

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58) Are your requests regarding the correction of unsafe conditions acted on promptly?

YES

NO

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### INSPECTIONS

59) Does your unit complete work area inspections?

YES

NO

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60) If yes, how often are these done?

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61) In your opinion are these effective in reducing hazards?

YES

NO

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62) Are pre-shift inspections done before operating equipment?

YES

NO

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63) Is it documented?

YES

NO

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64) Who reviews the inspection reports?

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65) What are the consequences if an inspection is not done?

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66) Have you ever not reported an accident you were involved in or do you know of an accident that occurred but was not reported? YES NO

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## APPENDIX B

### SURVEY RESULTS

76 employees interviewed  
Interviews averaged 2 hours  
28 "supervisors"  
48 hourly employees

Have you ever had an accident?

Total	82% yes	18% no
Supervisors	93% yes	7% no
Hourly	75% yes	25% no

Comments:

Split evenly between property damage and injuries

Do you communicate concerns?

Total 100% yes

Comments:

25% of hourly workers would not or do not correct supervisors.  
All supervisors felt the workers would correct them

Does the DOT have a policy statement?

53% yes 47% no

Comments:

"probably in the safety manual somewhere"

Who is in charge of Safety?

Region Level : 61% said Safety Coordinator rest identified either supervisor or Region Engineer

Area Level: Identified either supervisor or Area Engineer

How much control do you have over your:

Personal Safety:	43% "4"	57% "5"
Coworkers Safety:	25% "2"	50% "3"
	20% "4"	5% "5"
Safety Performance:	32% "3"	60% "4"
	8% "5"	

How would you rank the current safety program?

Supervisors:	36% rated "2"	23% rated "3"
	36% rated "4"	5% rated "5"



Hourly: 19% rated "2" 19% rated "3"  
44% rated "4" 18% rated "5"

What is the procedure for reporting hazards?

leadworker  
safety meeting  
supervisor  
whoever can fix it  
written hazard forms

Comments:

There was no mention of Safety Coordinator  
or Safety Committee

Is management committed to the safety program?

No 25%  
Yes 75%

Comments:

"Pierre (central office) is not too involved"

Is it permissible to disregard safety rules?

2 supervisors said "Yes"  
38% hourly said "Yes"

Comments:

All but 3 responses believes it does happen.

Do situations occur that you have to break safety rules?

Same 2 supervisors said "Yes"  
Same 38% of hourly said "Yes"

Comments:

Reasons given were the lack of manpower; no consequences; emergencies; Flagging is the most common safety rule broken.

Do supervisors recognize employees when they do a good job?

50% said Yes

Comments:

Positive answers were evenly split between hourly and Supervisors. Only one person said safety performance is recognized.

What would be an effective method to provide your input on safety program?

Safety committee  
Small group meetings  
Through monthly safety meetings

Is there a formal training plan or checklist for new employees?

50% thought there was some type of formal training program for new employees. Only 4 people said it was documented training.

Comments:

Seasonal employees get more formal safety training.  
Most training is on-the-job.

Have you been given enough training to do your job safely?

3 hourly employees said "No"  
38% of supervisors said "No"

Comments:

Most employees stated "they have picked it up over the years"  
Supervisors wanted more refresher training

Is there any type of refresher training for current employees?

46% said there isn't any

Comments:

There used to be more.  
There are classes (DDC; CPR; 1st Aid) that are required periodically  
Supervisors are more aware of the training available

Is there any task specific training for employees?

Most stated there is only on-the-job-training only.  
There is some training for certification tasks (flagging) - 4 employees mentioned this

How are new policies communicated to all workers?

Most common method: printouts set around the work area  
Other methods: during monthly safety meetings; verbal by supervisor; e-mail distributed

Do you have any input in safety policies?

84% of hourly felt supervisors do  
57% of hourly feel they do

Comments:

mainly through safety meetings, disappointment over feedback  
64% of supervisors feel hourly employees do have input.  
78% of supervisors feel they do have input in safety policies.

Are monthly safety meetings being held?

Only area of concern was engineering

Comments:

No consequences if not held  
Usually held in conjunction with other meetings  
Upper management (area engineers, region engineers, central office) do not regularly attend meetings

Monthly safety meeting information

Topics come from various sources - accident data  
100% felt they had adequate input during meetings  
Meetings last anywhere from 15 minutes to 2 hours

Monthly meeting concerns

85% feel their concerns are communicated to the right people, but do not get feedback very often.

Comments:

Most concerns can be handled by the individual crews.  
With the exception of the Black Hills region, crews feel that info in their meetings could be used elsewhere.  
Only one area passed on their meetings info via e-mail.

Is the DOT provided training adequate?

44% of hourly say "Yes"

Comments:

More task specific training  
More safety training  
Too much training done in the winter  
Hands on training needed  
All but 1 supervisor said “Yes”  
Would like to see “train-the-trainer”  
Going to Pierre is difficult  
Update the videos  
More standard new-hire training

Personal Protective Equipment

Not a problem for usual PPE (glasses, hardhat, earplugs, vests)  
T-shirts were an issue in a few shops  
Some complaints over the new vests

PPE requirements

64% believe that workers know what PPE is required (common sense)  
Only enforcement is in one Area for vests (written up)  
Consequences: talked to by supervisors or accidents won't be covered by Workers' Compensation.

How many accidents have occurred in your Area?

Hourly employees:  
4 employees appeared to know about property damage  
6 employees appeared to know about injury accidents  
Supervisors:  
36% appeared to know about property damage  
43% appeared to know about injury accidents

Who is responsible for completing accident reports?

Individual  
Supervisor  
Secretary

Do the appropriate people review the reports?

85% said yes

Comments:

Biggest problem is no follow up/ feedback.  
Area/Region Engineer and/or Safety Coordinator should review the reports  
Central Office reviewing the reports was mentioned only once.

Who investigates accidents?

50% of interviewees thought supervisors investigated accidents.

50% of interviewees thought Safety Committees investigated accidents.

Comments:

More supervisors said safety committee

More employees said Supervisors

What is the purpose of accident investigation

13% Correct problems

38% Prevent accidents

49% Place blame

Comments:

More supervisors thought the outcome of accident investigations was to place blame

Do you get Accident Information from other areas?

May get region information

Do not get state-wide information

Used to get summary

What is the leading cause of accidents?

Manpower; inattention; operator error

employees being in a hurry; taking short cuts

What is a reasonable number of accidents?

Similar answers between hourly and supervisors

73% thought zero was reasonable

Are workplace inspections being done?

The only documented workplace inspections are by the engineers checking contractor workzones.

Comments:

One supervisor thought these would not be helpful

Are equipment inspections being done?

Most employees said, unless called out, inspections are done, but not documented.

The only consequence if they are not done is if there is a breakdown

Do you know of an accidents that were not reported?

83% said they knew of accidents that were not reported

Comments:

Reasons for not reporting accidents: minor property damage; didn't want it recorded; fear of consequences; too much trouble reporting them

## APPENDIX C

# Safety Manual

The safety manual for the Department underwent revisions during the review process. As part of the revision parts of the old safety manual were deleted to make it more user friendly and keep the information safety specific. Examples of sections deleted are the wind-chill chart that was in the old manual, and Safety meeting topics. Sections were also added to reflect new regulations and updated programs. A section on ergonomics was added. Accident investigation procedures were expanded as were the sections on the responsibilities of the employee, supervisor and safety committee. Additional changes and corrections were made throughout the manual.

South Dakota  
Department of Transportation  
Safety Manual

**January, 2001**



## PREFACE

It is the policy of the South Dakota Department of Transportation that accident prevention shall be considered of primary importance in all phases of operation and administration. It is the intention of management to provide safe and healthy working conditions and to establish and insist upon safe practices at all times by all employees. The prevention of accidents is an objective affecting all levels of our Department and its activities. It is; therefore, a basic requirement that each employee accept and follow established safety regulations and procedures. Every effort will be made to provide adequate training to employees. However, if an employee is ever in doubt about how to do a job or task safely, it is his or her duty to ask for assistance. Employees are expected to assist management in accident prevention activities. Unsafe conditions must be reported immediately. Fellow employees that need help should be assisted. Everyone is responsible for the housekeeping duties that pertain to their jobs. Maximum productivity must never be at the expense of safety, but instead must result and be a consequence of safe performance.

Ronald W. Wheeler  
Secretary

Date

## INTRODUCTION

Every Department employee is responsible for his or her own personal safety on the job. This handbook has been prepared to help you work safely in your work environment. It is intended to be used as a guide that emphasizes your instruction from previous safety classes for future reference. It is your responsibility to learn and comply with these guidelines and any other updates communicated to you.

If you are ever concerned about on the job safety, contact your immediate supervisor right away.

The objective of the Departments Safety Program is to be proactive in reducing the occurrence of accidents and incidents, thereby, reducing the number of injuries to Department personal and minimizing the losses sustained by the State.

The methods used to meet this objective are:

- a. Development, implementation and enforcement of policies and procedures.
- b. Formal and informal safety training for all Department personal.
- c. Inspections of work sites, equipment, vehicles, shops and offices.
- d. Conducting crew Safety Meetings and Region Safety Committee activities.
- e. Performing Accident Investigations for all accidents, incidents and near miss occurrences.

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## SECTION ONE

### RESPONSIBILITIES OF THE EMPLOYEE

All employees are responsible for their personal safety. It is the obligation of every employee to safeguard himself or herself in the performance of duties and to give equal consideration to others. If, however an accident does occur, you are required to report it to your supervisor as soon as possible, in all cases by the end of the shift in which the accident occurs. You will also be required to assist in the accident investigation process.

Each employee will be responsible for furnishing and wearing such personal clothing that will meet the ordinary safe requirements for general types of work and working conditions.

Employees are required to use all protective clothing and devices furnished by the Department for a particular job, i.e., vests, goggles, hard hats, gloves, etc.

Any condition that an employee feels is unsafe, and cannot be corrected by the employee must be reported immediately to the supervisor in charge.

Employees should stop at the scene of highway accidents and give reasonable aid to the level of their training to those who may have been injured, or to assist in the control of traffic. The employee must report accidents, as soon as possible (by radio, phone or in person), to the nearest state trooper or other law enforcement office. Do not leave the scene of an accident until help has arrived. Do not move vehicles/equipment involved in an accident. Do not attempt to pull private vehicles out of ditches or other "stuck" conditions, except as authorized by policy OM-3-96.

During emergency situations, when accountability of personnel is a consideration, employees will check in and out with assigned supervisors and comply with rules established at the time.

No employee is permitted to alter, displace, damage or interfere with the use of safety equipment, warning devices or signals whether it is factory installed or provided by the Department.

Employees are responsible for inspecting any piece of equipment they will use during the shift prior to using it. If deficiencies are found that will affect the safe use of the equipment, the equipment may not be used until repaired and the supervisor informed of the problem.

Employees who are working on the day the Monthly Safety Meeting is held are required to attend this meeting unless your absence is authorized and/or approved by your supervisor.

Employees are responsible for the housekeeping in their area. All scrap must be picked up and deposited in a suitable container. Tools should be inspected prior to use and put away after use.

Employees who willfully refuse to comply with supervisor's instructions to utilize protective equipment or refuse to comply with Department safety policies and procedures shall be subject to disciplinary action, as provided by the Bureau of Personnel Regulations.

## **RESPONSIBILITIES OF THE SUPERVISOR**

As a supervisor, you are responsible for the safety of all permanent and temporary employees assigned to your crew.

You must know all the safety rules, highway regulations and be familiar with the operation of all equipment, so you can properly instruct the employees on your crew.

Some of your responsibilities are:

### Equipment Inspection

You are required to ensure the equipment, which will be in used during the shift, is inspected by the employee who will be using that equipment. If a deficiency is found, it is your responsibility to see that it is repaired or replaced prior to the equipment being used.

### Shop, Yard & Office Inspection

As a supervisor you must ensure that periodic inspections of the shop, shop equipment, tools and safety equipment are completed.

First aid kits must be checked on a monthly basis to insure that the required elements are available and that the kit is in the proper location.

Fire extinguishers must be inspected on a monthly basis and the person making the inspection should date and place their initials on the tag when this is completed.

Supervisors must insist on good housekeeping, see that oil spills are removed properly and promptly, that oily rags are stored in a metal container with a self-closing lid and that tools are not left lying around.

### Work Areas

Supervisors are required to check work areas to insure that flags, flaggers and traffic control devices are properly placed and are being used when appropriate.

### Accidents

All supervisors are responsible to see that employees working under their supervision understand the obligations for filling out accident, injury and liability reports. Supervisors are responsible for investigating all accidents and ensuring that the proper paperwork is completed in a timely manner.

### Safety Meetings

The supervisor is required to hold at least one crew safety meeting each month. DOT form DOT-301 should be completed to document the topic(s) discussed during the safety meeting. One copy of this form is to be forwarded to the Region Safety Committee

The safety meeting can be held in conjunction with another meeting as long as at least 30 minutes during the meeting are dedicated to discussing safety issues.

## **RESPONSIBILITIES OF SAFETY COMMITTEES**

Region Safety Committees are an integral part of the safety program for the Department. Active participation by each committee member is necessary for a successful Safety Committee.

Each Region shall have a safety committee. The Safety Committee shall be composed of six members, three unit and three non-unit members, in accordance with the Union Agreement Article V, Section 5.01, on Union Management Cooperation and Safety. If unit member's chosen by Union Leadership are unable or unwilling to participate, substitute members will be chosen by the Region Engineer. At least one Region Safety Committee meeting will be held each month.

The committee's objectives will be to create and maintain an active interest in safety, to eliminate hazards and high-risk situations, to prevent reoccurring accidents and to reduce frequency rates of accidents and injuries.

The committee will review the crew safety meeting forms and discuss and formulate safety policies and recommend their adoption to the Region Engineer. They will review reported safety and health hazards to discover unsafe conditions and practices and evaluate proposed solutions.

The Safety Committee shall examine each accident report with the intent of ensuring an adequate accident investigation was completed, identifying regional accident trends, ensuring proper follow-up of corrective measures. They shall review the supervisor's recommendations for accident prevention based on probable accident causes. After considering information concerning any accident, injury, occurrence or unsafe act, the committee shall make recommendations to the Region Engineer. Accident reports shall be forwarded to the State Safety Engineer.

The Safety Committee shall complete one shop inspection every month to help eliminate unsafe conditions. It is up to the Safety Committee Chairperson to determine which shop to inspect during the month. Copies of the results of the inspection shall be forwarded to the Shop Supervisor, Region Engineer and State Safety Engineer.

The Safety Committee is responsible for evaluating safety suggestions, planning improvements to existing safety and health rules, procedures, and regulations, and assessing the implication of changes in work tasks, operations, and processes. The Committee will review and update existing work practices and hazard controls on an annual basis.

Safety Committee members should continually monitor and evaluate the effectiveness of safety and health recommendations and improvements. The Safety Committee will maintain a cooperative spirit between management and employees.

The Region Engineer shall designate a Region Safety Coordinator who will also act as the Chairperson for the Safety Committee.

## SECTION TWO

### GENERAL SAFETY RULES

These workplace safety procedures are the rules the Department follows to reduce accidents and injuries to Department employees and the public. Experienced and new employees alike must follow these rules and procedures in performing their jobs. Any employee not adhering to these work safety procedures will face disciplinary action as provided by the Bureau of Personnel Regulations.

- 1) Report all accidents and injuries to your Supervisor at once. In all cases by the end of the shift in which the accident occurred.
- 2) Report unsafe conditions to your supervisor.
- 3) Always wear required personal protective equipment in specified areas.
- 4) Dress properly. Wear appropriate work clothes and shoes or boots.
- 5) Never operate machinery unless all guards, covers, and safety devices are in place and operating properly.
- 6) Inspect all equipment prior to use.
- 7) Always lockout and tag before working on machinery.
- 8) Never use defective tools. Report all defective tools or equipment to your supervisors.
- 9) Keep work areas and clean and free of trash.
- 10) Do not jump down off equipment, use the provided steps and grab bars.
- 11) Clean up all spills

### LIFTING/BACK INJURY PREVENTION

Lifting and moving of objects must be done by mechanical devices rather than by manual effort whenever this is practical. The equipment used must be appropriate for the lifting or moving task. Lifting and moving devices must be operated only by personnel trained and authorized to operate them. Employees must not be required to lift heavy or bulky objects that overtax their physical condition or capability. Manual lifting and handling of material must be done by methods that ensure the safety of both the employee and the material.

The following are rules for manual lifting:

1. Inspect the load to be lifted for sharp edges, splinters, and wet or greasy spots.
2. Wear gloves when lifting or handling objects with sharp or splintered edges. These gloves must be free of oil, grease, or other agents that may cause a poor grip.
3. Inspect the route over which the load is to be carried. It should be in plain view and free of obstructions or spillage that could cause tripping or slipping.
4. Consider the distance the load is to be carried. Recognize the fact your gripping power may weaken over long distances.
5. Size up the load and make a preliminary "heft" to be sure the load is easily within your lifting capacity. If it is not, get help.

Muscle and back injuries can be very painful. To help prevent them, follow these guidelines for lifting and carrying, handling heavy or bulky materials, using team lifting, and lifting over your head.



### Lifting and Carrying:

1. Stand close to the object with feet spread for balance. . It may help to set one foot forward of the other.
2. Don't twist your body to get into position.
3. Squat down, keeping your back straight and your knees bent.
4. Grasp the object firmly.
5. Breathe in to inflate your lungs. (This helps support your spine.)
6. Lift smoothly with your legs, slowly straightening them. Then return your back to a vertical position.
7. Hold the object firmly and close to your body as you carry it
8. Turn by moving your feet, not by twisting your body.
9. The steps for setting an object on the ground are the same as above, but in reverse.

### Handling Heavy, Bulky Materials:

1. Use dollies or hand trucks for moving materials packed in bulky burlap sacks, crates, boxes and barrels.
2. Store heavy, bulky materials on lower shelves, or on pallets. This eliminates the need to lift heavy objects over your head and makes materials easy to reach.
3. Avoid storing heavy or bulky items on top shelves

"Team" Lifting: Two or more people should work together any time an object must be placed high on a shelf or can't be easily handled by one person.

1. If team lifting is required, personnel should be similar in size and physique.
2. One person should act as leader and give the commands to lift, lower, etc.
3. Two persons carrying a long piece of pipe or lumber should carry it on the same shoulder and walk in step. Shoulder pads should be used to prevent cutting shoulders and help reduce fatigue

Lifting over your head is usually a two-person task. One person may be able to lift a box from the floor to waist level quite easily, because this movement relies on leg muscles. But it may take two people to lift the same box to an overhead shelf, because this motion uses weaker arm and back muscles

### Clothing:

The type of clothing will vary with weather, type of work and the individual.

Employees are not allowed to wear shorts on the job.

Shirts must be worn, at all times.

When working around hot asphalt, long sleeve shirts are recommended.

Open toed shoes, and sandals are not to be worn.

Boots are recommended for wear in the shop, yards and in work areas. Hard-toed shoes are suitable for most types of work.

Safety Vests must be worn in work areas and on construction projects that remain open to the traveling public. Instead of a vest, highly visible clothing (bright orange or green shirts) provided by the Department may be worn. However, if it is determined by your supervisor that the clothing is too faded due to age, washing, etc., a vest must be worn

Hard hats will be worn by all employees in areas designated by the contractor or by the DOT supervisor.

Stairways:

Keep stairs and landings clear of all equipment, merchandise, paper, etc., at all times.

Use the handrail.

Insure that the steps are not slippery.

Ladders:

Inspect all ladders prior to use to ensure they are structurally sound and that no grease or oil is on them.

Wooden ladders shall not be painted.

Ladders with broken or missing rungs shall not be used. These should be tagged out of service and repaired or replaced.

Always face the ladder and use both hands, when ascending or descending, maintaining three points of contact.

Be sure the bottom of the ladder will not slip on the floor or ground.

Extension ladders must either be tied off or have another person holding them when ascending or descending.

Hallways:

Hallways must be kept clear of miscellaneous items

Approach blind corners slowly.

Watch for people entering the hall from doorways.

Weather Hazards:

**HOT WEATHER.**

Sunburn - Wear lightweight, loose fitting clothing. Shirts and long pants must be worn at all times. It is suggested that a hat or cap be worn when working outdoors in the sun.

Heat Exhaustion - Heat exhaustion can be caused by direct rays of the sun or by heat and over exertion.

Know how to recognize and treat an individual for heat stress. Frequent breaks, additional water intake may be protective measure taken if the heat index exceeds 105° F in the shade

**COLD WEATHER.**

A general cooling of the body (hypothermia) and frostbite are hazards that may be encountered in cold weather. Dress in many loose fitting layers to help maintain your body heat. You should know the symptoms of hypothermia and frostbite, and the first aid action to take for each. Be aware of the forecasted temperature and wind velocity. Keep an eye on your co-workers for signs of cold weather problems.

## SECTION THREE

### MAINTENANCE AND CONSTRUCTION PROJECTS WORK AREAS

#### General:

To provide the traveling public with a safe and convenient travel route through a maintenance work area or a construction project, the employee in charge shall check the sign installations against the current Manual on Uniform Traffic Control Devices, traffic control plans, project plans or the signing layouts in the Department's Maintenance Foreman's Manual.

Employees working on or adjacent to highways should be constantly aware of equipment and vehicle movement. Project safety on construction projects shall meet the requirements set forth in the South Dakota Standard Specifications for Roads and Bridges, contract plans and proposals. Maintenance work areas are covered in detail in the Traffic Information section of the Foreman's Manual.

#### Traffic Control Devices:

Signing and barricading must be performed in a suitable and professional manner and is not to be a makeshift operation. Deteriorated traffic control devices command little respect and are not effective. Damaged, defaced or dirty signs are to be cleaned or replaced prior to use.

Leaving signs and barricades in place after they have served their purpose develops disregard by the public when the actual need exists for the observance of signs. Devices are not to be left in place during the lunch hour, unless the crews are actually present in the area while eating their lunch. When traffic control devices are no longer needed, remove them immediately.

There will be situations, which may warrant the use of additional signing or the use of flaggers. If this is the case, the supervisor or Project Engineer should use additional devices to protect the work area and/or the traveling public.

Night inspections of work area traffic control devices shall be made periodically by the supervisor and/or Project Engineer to check for reflectivity and problem areas that develop after dark.

#### Flagging:

A flagger shall be used when highway traffic, because of volume, speeds, or redirection, warrants slowing, stopping or redirecting the traffic, as dictated by the scope work.

Only persons who are physically and mentally qualified, are 18 years old or older, and have been suitably trained shall be used as flaggers. Flaggers should be fully instructed concerning their duties on the specific project, and must realize their responsibility.

If flaggers have to leave their post for any reason, they must arrange for someone to take their place until they return. They are of no value on maintenance or construction projects, either to the Department or to the traveling public, if they are allowed to mingle with the work crews or motorists instead of remaining at the proper location and alert to their duties.

If a person is assigned as a flagger, that employee should have no other duty assigned until such time the supervisor relieves the individual of the duties as a flagger.

For daytime work, all flaggers must wear a safety vest, shirt, or jacket of orange, yellow, or strong yellow-green or fluorescent versions of these colors, while they are flagging.

For nighttime work, similar outside garments shall be yellow, white, silver, orange, strong yellow-green or a fluorescent version of one of these colors and shall be visible at a minimum distance of 1,000 feet. The retro reflective clothing shall be designed to identify clearly the wearer as a person and be visible through the full range of body motions.

The flagger should stand on the shoulder of the approaching traffic lane, and be far enough away from the crew being protected so there can be no doubt as to their purpose. This distance may vary from 200 to 300 feet, depending upon road conditions and upon the visibility and location in regard to curves, roads and hills. In urban area when speeds are low and streets are closely spaced, the distance must be decreased.

The flagger shall place himself or herself so approaching drivers can see them from a distance, and be 500 feet from the "Flagger Symbol" sign. The flaggers must position the sign so it is visible in the traffic lane, and in a manner that will not jeopardize their own safety. They must be ready to jump clear of an approaching vehicle in case it does not stop.

The "South Dakota Department of Transportation Traffic Flagging Handbook" may be referred to as a guide.

#### Pilot Cars:

The use of a pilot car for traffic control can be very effective where the route is particularly hazardous, frequently altered, or is so involved as to preclude adequate signing. The pilot car is used to guide vehicles through the job or detour. Its operation must be coordinated with flagging operations or other controls at each end of the one-lane sections. Sufficient turnaround should be provided at these points.

Pilot cars shall be four wheeled motor vehicles equipped with a flashing amber light and have a sign reading "Pilot Car - Follow Me" mounted on the rear.

#### Parking Vehicles:

Department vehicles shall not be parked in areas that will interrupt the safe flow of traffic or obstruct the view of traffic control devices near maintenance and construction operations where the risk of an accident is great. When possible Department vehicles should be parked well off the roadway and away from public and work-site traffic.

## SECTION FOUR

### PERSONAL PROTECTIVE EQUIPMENT

Persons who must work where hazards cannot be eliminated or controlled at the source and where ordinary work clothes do not afford sufficient protection, shall use personal protective equipment that is available through the Department.

#### Eye Protection:

Eye Protection is designed to minimize and prevent eye injuries. Eye protection includes safety glasses (prescription and non-prescription); welding goggles, chemical goggles, welding hoods and face shields. Normal prescription glasses, or off the shelf sunglasses do not provide adequate eye protection, are not safety glasses, and are not to be worn in place of safety glasses. Safety glasses, goggles and face shields are available for Department employees.

Eye protection is mandatory when doing tasks such as welding, cutting, grinding, chipping and using power tools. Contact your supervisor if you are unsure of what type of eye protection is necessary.

Quite often, the need for eye protection is overlooked on such jobs as cutting wire and cable, using hand drills, chipping concrete, removing nails from scrap lumber shoveling material head-high, handling glass beads, working on the down wind side of a job, using wrenches and hammers overhead and other jobs where particles or debris may fall.

#### Safety Vests and Hard Hats:

The Department of Transportation recognizes the value of safety vests and hard hats for employee's safety and protection. It is for this reason these items are provided for employees where the work situation warrants use.

Safety Vests must be worn in work areas and on construction projects that remain open to the traveling public. Instead of a vest, highly visible clothing (bright orange or green shirts and coats) provided by the Department may be worn. However, if it is determined by your supervisor that the clothing is too faded due to age, washing, etc., a vest must be worn.

Hard hats are required to be worn in designated hard hat areas and when required by contract construction projects.

The use of these items, by all employees at other times is encouraged. These items are available to enhance your safety. It is up to the individual to wear the personal protective equipment provided whenever you feel it is necessary in addition designated areas.

This does not preclude an individual supervisor from designating other areas or work sites where wearing hard hats and safety vests will be required due to the work situation.

#### Hearing Protection:

Excessive noise can be defined as noise that makes it difficult to carry on normal conversation at a distance of three feet. Excessive noise should be reduced or avoided, whenever possible. Hearing protection should be used if noise reduction is not possible. Any time an operation is suspected to

exceed 85 dBa, a reading should be requested and until the exact exposure is known, hearing protection will be required.

Disposable earplugs, properly inserted, can provide excellent protection against excessive noise. Earmuffs are also a method of minimizing the amount of noise reaching the inner ear. A combination of earplugs and muffs give more protection than if they are used individually. Both earplugs and muffs are available from the Department.

Radio headsets are **NOT** to be worn while operating or working around machinery or equipment. Not only is this unsafe, but also has been found to cause ear damage due to the intense level exposure. Cotton is not an acceptable method of hearing protection.

Examples of noise levels you may encounter:

<u>Type of Equipment</u>	<u>Operating Conditions</u>	<u>Noise Level</u>
Air Compressor	Within 4' of machine	88
Crawler	Tractor Operator's Seat	100
Jackhammer	Operator Level	08
Motor Patrol	Door closed under load	87
Motor Patrol	Door open under load	94
Motor Patrol	Door open without load	92
Mower	Tractor Operator's Seat	95-102

As indicated by the above numbers, hearing protection will be required when operating any of this equipment.

These examples are listed here only to make you aware of the noise you may encounter. Contact your Region Safety Coordinator, if you want sound readings made on any of the equipment in use.

Safety Equipment:

Below is a list of Department furnished safety equipment.

- Apron, herbicide
- Apron, welding
- Boots or Boot Coverings, herbicide
- Ear Muffs
- Ear Plugs
- Face Shields
- Glasses, plastic frame
- Gloves, welding
- Gloves, herbicide
- Goggles
- Hard Hats
- Hearing Protectors
- Knee Pads
- Respirator Cartridge
- Safety Vests
- Toe Guards, steel
- Warning Flags

It is up to the individual to wear any of the personal protective equipment provided by the department at any time you feel it is necessary in addition to the time\area PPE is required as stated above. If you need additional equipment, talk with you supervisor.

## SECTION FIVE

### SHOPS, YARDS AND OFFICES

#### General:

All employees must observe good housekeeping practices at all times.

Containers for waste paper, scraps and other debris shall be provided and the contents disposed of regularly in a designated area.

Oily rags shall be placed in a metal container that has a self-closing lid. Never leave oily rags exposed to the air. Never mix oily rags with other trash.

Use only approved solvents for cleaning operations. Never use gasoline.

"EXIT" signs shall be placed above all walk-through doors on exterior walls. Exits shall not be blocked.

Shops must have ventilation for vehicle exhaust.

Vehicles and equipment shall be parked or stored in designated areas in a manner as not to create a hazard. Extreme caution shall be used while performing vehicle maneuvers in yard areas.

Security lights provided shall be used. Vehicles shall be parked in lighted areas, when possible. The keys shall be removed and the doors locked.

A First Aid kit shall be available in each shop. The minimum contents of a First Aid kit shall be as shown for vehicles in Section Five. First aid kits shall be inspected on a monthly basis to ensure they have adequate content.

#### Refueling Area:

No smoking or open flame will be allowed in this area. "No Smoking" signs will be mounted so they are readable from both sides of the island.

#### Work Area:

Handling drums and barrels can be hazardous, even when using utmost care. Special handling tools and equipment are available and should be used to make handling safe and efficient.

All materials stored in tiers shall be stacked, racked, blocked, interlocked, or otherwise secured to prevent the stacked material from sliding, falling or collapse.

Snow fence, culvert sections, posts, stock steel, etc. shall be safely stored in a manner to prevent shifting or tipping of piles or stacks, or a danger to personnel, when material is moved.

The faces of stockpiles shall not be left with overhanging ledges. Utilize piles in a manner to prevent slides or falling materials, which may endanger workers or other persons.

Stockpile sites that have been fenced should have the gates closed and locked during non-working hours, to discourage the use of the material by unauthorized personnel.



### Shops - Work Area:

Workbenches must be kept clean and free of clutter.

Use the proper tool for the job. Only tools that are in good condition shall be used. Some of the conditions that constitute a defective tool are:

- 1) burred or mushroomed heads on hammers, sledges, mauls, chisel heads;
- 2) splintered, broken, rough, or loose tool handles; sprung jaws;
- 3) dulled edges on cutting tools, etc.

Tools that are not in good condition should either be repaired or replaced with a new tool.

### Electrical:

Cords must be inspected prior to use.

Do not use electrically powered hand tools if they need repair or have had the cord or plug altered. Unless the tool is labeled double insulated, it must have a continuous ground.

Extension cords and tool power cords must not have the ground plug removed or have damaged insulation.

Extension cords are not to be used as permanent wiring or placed in such a way as to create a tripping hazard.

Extension cords shall be three wire type and designated for hard or extra-hard usage.

Never use extension cords where they will be lying in water.

Ground fault circuit interrupters (GFCI) should be used in wet locations.

### Fire Extinguishers:

Fire extinguishers shall be provided and maintained. The actual placement of fire extinguishers can best be accomplished through a physical survey of the area to be protected. In general, locations should be selected that will:

1. Provide uniform distribution.
2. Provide easy accessibility.
3. Be relatively free from blocking by storage and equipment.
4. Be near normal paths of travel.
5. Be near entrance and exit doors.
6. Be free from the potential of physical damage.
7. Be readily visible.

Fire extinguishers locations must be marked and readily visible.

Each service or refueling area shall be provided with at least one fire extinguisher having a rating of not less than 20-B:C located so that it is within 75' of each pump, dispenser or service area.

Fire extinguishers shall be inspected and serviced, as shown below:

Monthly inspections shall be made by and the date shown on the inspection tag attached to the extinguisher. The following will be checked at each inspection:

1. Located in a designated place.
2. No obstruction to access or visibility.
3. Operating instructions on name plate legible and facing outward.
4. Seals and tamper indicators not broken or missing.
5. Determine fullness by weighing or "hefting".
6. Examine for obvious physical damage, corrosion, leakage, or clogged nozzle.
7. Pressure gage reading or indicator in the operable range or position.

Maintenance checks shall be done annually by a qualified service person.

Servicing (recharging) shall be done by a qualified service person, when the charge has been used or at the intervals required by the type of fire extinguisher.

#### Office - General:

It shall be the responsibility of the supervisor to see that all offices under their supervision are kept clean, orderly and in a safe condition.

Storage and supply rooms shall be in good order.

Windowsills, ledges, tops of cabinets, etc., shall be kept free of objects likely to fall.

Suitable containers shall be provided for scrap paper and other types of rubbish.

Aisles, halls and stairways shall be kept clear of objects that might cause an employee to fall or obstruct and evacuation.

Use the handrail on stairways.

Lifting heavy objects should be done with the legs, arms and shoulders, not with the back. Let your leg muscles do most of the work. Keep the back as near perpendicular as possible.

Chairs are not to be used to reach storage shelves or other high places. File or desk drawers are not to be used to stand on as a means of reaching higher objects. A ladder or step stool must be available.

Not more than one file drawer in the same file case shall be opened at one time. When emptying drawers in file cabinets, empty the top drawer first. Bottom drawers should hold the heaviest loads, whenever possible. Drawers shall be closed when not in use.

Razor blades and pins should be kept in containers and never left loose in desks or thrown in wastebaskets.

The use of spike files is prohibited.

Hazardous belts, gears, pulleys and all rotating parts on office machines shall be guarded.

Machines shall never be cleaned or adjusted when in motion. Only qualified personnel will make adjustments.

Electric fans and other hazardous equipment shall be placed where they will not endanger personnel or equipment.

Telephone and power cords should not be left loose on the floor or in any position where they could cause someone to trip. Arrange to have them shortened or anchored to a desk or wall.

Before using an extension cord, be sure there are not breaks in the insulation and that the plug and socket are in good condition.

Fluorescent tubes shall be disposed of intact. Extreme care must be exercised to prevent breakage, as material contained inside can be dangerous.

All hazards such as sharp file cabinet edges, splintered desk corners, broken chair casters, frayed electrical connections, loose floor coverings, or any other condition likely to do bodily harm, damage clothing or constitute a fire hazard shall be reported at once to the immediate supervisor.

First Aid kits should be available at convenient locations in each office. The minimum contents of a First Aid kit shall be as shown for vehicles in Section Six.

First Aid kits must be inspected monthly.

#### Office - Fire Extinguishers:

Fire extinguishers shall be provided and maintained in office buildings. The actual placement of fire extinguishers can best be accomplished through a physical survey of the area to be protected. In general, locations should be selected that will:

1. Provide uniform distribution.
2. Provide easy accessibility.
3. Be relatively free from blocking by storage and equipment.
4. Be near normal paths of travel.
5. Be near entrance and exit doors.
6. Be free from the potential of physical damage.
7. Be readily visible.

Fire extinguishers locations must be marked and readily visible.

Extinguishers shall be inspected monthly and recharged, as necessary. (See schedule in Shops & Yards - Fire Extinguishers)

#### Ergonomics:

Ergonomics is the science of fitting jobs to the people who do them. The goal of ergonomics is to reduce work-related musculoskeletal disorders (MSDs) that are caused when the worker's job requires repetitive

reaching, bending, lifting, using force, working with vibrating equipment, and doing other repetitive motions. By following some simple rules the risk of MSDs can be reduced.

Keep frequently used items (phones, 10 key machines) close at hand to reduce overreaching.

For every 30 minutes of continuous keyboarding get up out of your chair for a short micro-break.

Keep wrist straight when typing, not resting on them. Only use wrist rests for resting your wrists when taking breaks from typing.

Sit upright or in a slightly reclined posture to maintain the natural curves in your back.

Avoid tilting your head and neck while talking on the phone. Use hands-free extensions or speaker phones if you need to take notes or type while talking on the phone.

For setting up a computer workstation keep in mind these guidelines:

Position your keyboard flat or at a slightly negative angle. The mouse should be next to your keyboard on the same level.

Adjust your chair so that your feet rest flat on the floor or footrest. Your knees should be bent at right angles with your thighs horizontal to the floor.

The top of the screen should be slightly lower than eye level. Viewing distance should be approximately an arm's length away.

The monitor and keyboard should be in a straight line.

## SECTION SIX

### VEHICLES AND EQUIPMENT

#### General:

Department vehicles and equipment must be properly maintained and operated in accordance with all applicable laws, regulations and Department policies. The fact that a piece of equipment or a motor vehicle is owned by the Department of Transportation does not grant extra privileges to the operator.

Operators of Department vehicles and equipment must check their vehicles before starting operations each day. It is the responsibility of an operator to see that it is kept in safe operating condition. Any vehicle or piece of equipment believed to be unsafe shall be called to the attention of the supervisor and shall not be used until it is determined to be safe.

All Department vehicles and equipment shall be operated according to the manufacturer's recommendations. Shields, guards and all safety devices provided shall be used.

Seat belts are required to be worn by the operator and all passengers in the vehicle.

#### Slow Moving Vehicle (SMV):

The purpose of the SMV emblem is to give advance notice to traffic approaching from the rear of vehicles moving at a speed of 25 mph or less.

The SMV emblem shall be mounted on the rear of a slow-moving vehicle in such a position and condition as to be clearly visible. The mounting shall be such that the emblem can be removed or covered during transportation or when speeds exceed 25 mph.

SMV emblems do not need to be displayed while actually engaged in work on the surface of the highway, if the work area is signed according to Department standards. SMV emblems shall be displayed when traveling to and from or while "Dead Heading" between work areas, if the speed is 25 mph or less.

#### Driver License Requirement:

No employee shall operate any motor vehicle belonging to the South Dakota Department of Transportation, unless they have a valid driver's license.

Job descriptions that require the operations of commercial motor vehicles will also require the employee to have a South Dakota Commercial Drivers License.

#### Backing Maneuvers:

Backing maneuvers shall not be made until they can be made safely. Conditions in the rear shall be checked before starting to back. Whenever possible, backing maneuvers of vehicles, with limited rear visibility, should be directed by a person on the ground. The operator should warn personnel that are working in the area near the vehicle before backing.

All backup alarms that have been installed on vehicles, either by the factory or by the Department, must be maintained in a working condition.

"Check Rear" decals shall be placed on all trucks and pickups.

Hydraulic and Hoisting Equipment:

Vehicles and equipment with hydraulic lifts shall not be left unattended in the raised position without proper blocking. Vehicles and equipment which require hydraulic pressure to operate, such as front-end loaders, blades, dump boxes, etc., shall not be left unattended with pressure to the system. Lower all buckets, blades and dump boxes when not in use.

Trucks with dump bodies shall be equipped with a positive means of support, permanently attached to prevent accidental lowering of the body while servicing, maintenance or inspection work is being done. No employee will be permitted to do work under a raised dump body until the safety attachment is in place. Suspended equipment or suspended parts of equipment must be well blocked or cribbed before employees are allowed to work under such equipment.

Mounting and Dismounting Equipment:

In mounting and dismounting equipment, always face the equipment and use the designated ladders, steps and handrails. Ladders, steps and handrails shall be checked periodically for loose bolts and broken welds. They shall be kept free of mud, grease, oil, etc., to assure firm footing. You must maintain three points of contact while mounting and dismounting. Never jump from a piece of equipment.

Refueling Vehicles and Equipment:

During refueling operations all engines shall be shut off. No smoking or open flames shall be allowed. To eliminate the possibility of explosion from a "static electricity" spark, make sure the filler nozzle is kept in contact with the fill spout.

Vehicles and Equipment Repair:

A mechanic shall routinely inspect vehicles and equipment, which are in shops for repairs or maintenance, before they are released for use. No vehicle or piece of equipment shall be allowed to return to service with known defects, which could make it unsafe to operate.

Passengers:

Employees shall be prohibited from riding on running boards, fenders, tailgates, pickup or truck boxes, or loader buckets and shall never leave or board a vehicle in motion.

No one except the operator is permitted to ride on equipment, unless safe accommodations are provided for the passenger.

Fire Extinguishers:

All Department vehicles and enclosed cab equipment shall contain a Department issued fire extinguisher. The extinguisher should be located so it is visible and immediately available to the driver/operator. Monthly and Annual inspections of the extinguishers (as outlined in section 3) shall be made to insure that the pressure is being retained. All extinguishers that show a low pressure shall be removed, re-serviced and replaced.

If the configuration of the driver compartment makes it impractical to mount the extinguisher in the cab, the extinguisher may be mounted in an enclosed compartment directly behind the driver,

provided the compartment is labeled to show the location of the extinguisher. All other items in the compartment must be stored so they do not interfere with access to the extinguisher.

#### Inspection of Tires, Wheels & Rims:

Reject a tire if it has a cut in the fabric, or worn so that the fabric is visible, or has knots and bulges in the sidewalls or tread, or any bolts, nuts, lugs or spokes are bent, loose, missing or stripped. If rims or wheels are bent, cracked or damaged do not use.

Never use a tire if the tread wear indicators are worn off or if there is less than 1/16" tread depth in any two adjacent tread grooves, at three equally spaced intervals around the circumference of the tire, except those tires mounted on dual wheel axles of vehicles used for transporting property.

Never use radial and bias ply tires together.

A tire is also unsafe if there is less than 3/32" of tread depth in any two adjacent tread grooves, at three equally spaced intervals around the circumference of the tire on wheels of the steering axle of trucks which will gross 26,000 lbs. or more. Steering axle tires shall not be recapped tires.

If any tire is marked "Not for Highway Use, Farm Implement Only" or any other marking that would indicate the tire is not meant for normal highway use, it should not be used.

#### Conveyors & Materials Traps:

No one shall ride on conveyors. Personnel working in the vicinity of conveyors shall be warned of conveyor "start-up".

Material traps and hoppers shall be guarded to prevent employees from falling into traps or hoppers.

#### Front End Loaders:

Loaders used for work platforms shall have a positive lock to keep buckets from moving. An approved platform shall be secured to the loader and all employees working from the platform shall be wearing a full body harness with a lanyard.

Personnel shall be adequately protected or restricted from the work area of the loader operation.

Manufacturer's operating and safety recommendations shall be followed during operation.

The operator is responsible for inspecting the Loader before use to ensure it is safe to operate.

All glass, mirrors and lights must be in clean and in good shape.

#### Cranes, Backhoes & Lifting Equipment:

Loads lifted with this type of equipment shall not exceed the manufacturer's recommendations. Load capacity charts should be posted in a location visible to the operator.

Hand signals used shall be those prescribed by the American

National Standards Institute for the type of crane in use and posted so they are visible to the operator. Standard signals should be thoroughly understood by both the operator and the signal person. Only one person shall be designated as a signal person during operations. If a crane operator is in doubt as to the signal, or if more than one employee is giving signals, the crane operator should stop all movement until the signals become clear.

A minimum distance of 10' clearance in all directions shall be maintained from all overhead power and utility lines.

Any equipment that is supplied with outriggers shall have the outriggers set on firm footings prior to operation.

Safety Equipment Required:

	<u>VANS &amp; OTHER TRUCKS</u>	<u>PICKUPS</u>	<u>CARS</u>	<u>EQUIPMENT</u>
First Aid Kits	yes*	yes*	yes*	yes
Fire Extinguisher	yes	yes	yes	yes
Reflectors (Flares)	yes			
Tire Chains	yes	**		*
Seat Belts	yes	yes	yes	**
"Check Rear" Decals	yes	yes		**

\*\* Recommended.

\* Recommended contents of a vehicle First Aid Kit.

- 1 - Eye Dressing Kit
- 1 - Pack (10) Iodine Swabs
- 1 - CPR Clear Mouth Barrier
- 1 - Pack 40" Triangular Bandage
- 1 - Pack (16) 1" x 3" Band Aids
- 4 - Latex Exam Gloves (Medium/Large Size)
- 1 - Pack 2" x 6 yds. Kling Gauze
- 1 - Pack (4) 3" x 3" Gauze
- 1 - Pack 8 Ea. Elastic Knuckle Coverlets



## SECTION SEVEN

### HAZARDOUS MATERIALS TRANSPORTATION, HANDLING & STORAGE

#### Identification:

Hazardous material containers should have identification labels stating the contents and precautions one should take during use. Check these labels before the containers are opened.

Follow the manufacturer's recommendations in the use, handling and PPE of all hazardous materials.

Each shipment of hazardous material or materials containing hazardous ingredients shall contain a "Material Safety Data Sheet" (MSDS) which will cover the precautions to be taken in handling and storing, etc.

#### Paint Products:

All opened oil based paints, thinners, and lacquers shall be stored in a fireproof metal cabinet.

For additional information, See Policy No. 10, "Hazardous Wastes Generated from Paint Striping Operations" in the department's Foreman's Manual.

#### Bituminous Materials:

Vapors that are released into the atmosphere from the heating of bituminous materials can be dangerous and can cause undetectable hazards in breathing and skin exposure. The storage and loading area should be kept clean and free from weeds and tall grass. All spills should be cleaned up and blotted out with a layer of non-combustible material such as sand or fine gravel.

Any form of ignition or open flame in an atmosphere rich with cut back vapors (gasoline, naphtha, fuel oil, etc.) will result in an explosion and/or fire. All other types of remedies must be tried prior to using an open flame in thawing out frozen or stuck valves. Serious accidents and injuries have occurred due to these causes in the past in highway operations. The oil level must be well above the valve and/or heating flues so as not to heat a vapor rich atmosphere within the storage tank or equipment.

#### Distributor Precautions:

Always have a dry chemical type extinguisher available and in operable condition.

Sparks from engine exhaust can be a source of ignition to volatile gases.

Remain clear of rotating drives, when the unit is in operation. All factory or Department installed guards must remain in place and functional.

Use gloves or insulated material when handling the spray bar, sections or hoses.

Open the manhole slowly, to relieve pressure that may exist in the tank.

All pipe and hose connections must be secure before operating valves, to eliminate leaks that may spray hot bitumen on other personnel.

Keep the unit clean for safety and operation.

Do not stand in a location where accidental opening of the spray bar valves could cause contact with bitumen spray.

If moisture is present in the tank, do not load with material having a temperature over 200F. When filling the unit in which moisture may be present in the spray bar or circulating system, allow a small portion of the hot material to circulate in the bar before filling the tank to prevent foaming.

If moisture is present, the use of a de-foaming agent may be necessary.

When heating the material, position the unit broadside to the wind, if possible. Allow sufficient space in the tank for expansion of the material.

Do not leave the distributor unattended while heating.

To prevent explosion, insure the flues are covered at least 6" with bitumen before heating the material.

Do not remove the material from the tank when the burners are in operation or automatic burner controls are set to operate.

Never leave the burners on when transporting the distributor.

Avoid heating the material in a leaking tank.

Ignite the inside burner first. Do not reach across a lit burner to re-ignite the inside burner.

When burners go out, allow the flues to ventilate before re-ignition.

Do not heat the material beyond the manufacturer's recommended temperature.

When hand spraying, maintain the gun in proper position and be aware of other personnel.

#### Pesticides:

##### General:

No employee may use, mix or load pesticides unless properly training and wearing appropriate Personal Protective Equipment.

All pesticides stored in containers must bear the registered product label at all times.

Pesticides shall be stored in an area that will prevent freezing. Store pesticides according to the product label.

All pesticide containers in transit should be secured, to prevent significant movement. Pesticides shall never be transported in the same compartment of a vehicle with clothes, food, feed or other material intended for use and consumption by humans or animals.

##### Disposal:

Pesticides may be disposed of by using them for the legal purpose originally intended, at the prescribed dosage, or returning to the manufacturer.

Containers shall be triple rinsed and the rinse reused as a dilutaent. A triple rinsed container is considered non-hazardous and may be sold for reconditioning or may be crushed and sold for scrap or disposed of in a sanitary landfill.

No person may dispose of any pesticide by open dumping, open burning, or storing next to food for consumption by humans or animals.

Spills:

Any significant spill of any pesticide shall be reported to your supervisor immediately. Your supervisor will assist you in reporting the spill to the Department of Agriculture or the Division of Emergency and Disastrous Services, as soon as possible.

In the case of commercial carrier, this shall be within 12 hours after a spill of more than 5 gallons of liquid or 50 pounds of dry pesticides, which occurs during transportation. Written notice shall follow within 72 hours.

In the case of bulk storage facilities, this shall be within 3 hours after a spill of more than 25 gallons of liquid or 500 pounds of dry pesticides outside the secondary containment area.

Minor spills occurring in secondary containment shall be disposed of as provided on the label.

All materials stored in tiers shall be stacked, racked, blocked, interlocked, or otherwise secured to prevent the stacked material from sliding, falling or collapse.

Regulation for DOT Nuclear Equipment Users:

The department has issued the following Policy letter, OC-01-93, "Policy on the Responsibility for Nuclear Gauge Use and Radiological Monitoring". Included in this policy are Standard Operating Procedures for Transportation, Use, Storage and Emergency Response Procedures. If you have any questions, please contact the Region Radiological Safety Officer/Radiological Safety Officer.

## SECTION EIGHT

### HAZARDOUS MATERIALS ACCIDENTS

When traveling the highways, you may witness or discover a Hazardous Material accident. This section lists your duties, as an employee of the Department of Transportation, if this should happen.

#### Emergency Response Guidebook, Hazardous Materials:

This guidebook provides a means of identifying the hazardous material, the potential dangers, and emergency action that should be taken when a hazardous material accident has occurred.

All DOT personnel should be familiar with the use of this guidebook. Each construction and maintenance field unit should have a guidebook available at all times.

It must be noted that this is a guide only and the actions you may take are set forth here. Do not take all actions shown in the guidebook.

#### DOT Personnel Actions:

The following are steps you should take, if you come upon an accident.

1. Isolate the area. Do not allow the public to travel into smoke, mist or touch the material. The recommended distance for isolation is approximately 2500 feet or one-half mile.
2. Do not approach the accident site.
3. Do not go into smoke or mist or in any way touch the material.
4. While maintaining at least 500' from the upwind side and 2500' from the downwind side of the accident, attempt to identify the hazardous material from the placard or from questioning the driver.
5. Render aid, if you can do so without jeopardizing your own safety.
6. Report the incident, if you are radio equipped, to the State Police Radio and to your supervisor. (See Reporting Procedure)
7. Do not fight fires. You should be aware that there are some materials that when mixed with water may react violently or even explode. There are some materials that only water should be used to extinguish a fire.
8. Relinquish control of the area to the first law officer on the scene.

The law officer may request your assistance until more help arrives.

#### Reporting Procedures and Information:

The hazardous material accident must be reported, as soon as possible. If you have a 2-way radio or cell phone, it should be reported to the State Police Radio and to your supervisor or the Area Office.

If there is no radio available, you may have to send someone to the nearest phone to report the accident.

If you are unable to contact the State Police Radio or your supervisor/Area, report to the nearest law enforcement or fire service officer.

The following items should be noted for the report.

1. What has happened. (Spill, roll over, collision)
2. Where. (Highway number, mile post number)
3. When. (Date and time)
4. Materials involved. (Name or placard number if known)
5. Type and condition of containers. (Semi trailer, barrels)
6. Shipper and shipping point. (If known)
7. Carrier.
8. Consignee and destination. (If known)
9. Nature and extent of injuries to people.
10. Nature and extent of property damage.
11. Prevailing weather. (Wind direction and speed, precipitation, temperature)
12. Composition of surrounding area. (Open field, waterway or lake)
13. Identification and location of the person submitting the report.
14. How and where contact can be re-established with caller or another responsible party at the scene.

Clean Up:

The State of South Dakota "Hazardous Materials Response Plan" sets the responsibilities for the various state agencies in a hazardous material incident.

**NO ACTION SHALL BE TAKEN, UNLESS YOU ARE SO DIRECTED BY YOUR SUPERVISOR.**

The DOT responsibility for the recovery period is to provide the following services:

1. Provide radio communication units to support "on-scene" personnel in the disposal of hazardous material.
2. Supply radiological monitoring equipment and personnel to detect the presence of radioactive material.
3. Provide personnel and equipment to assist in the containment of hazardous materials.

## SECTION NINE

### VEHICLE ACCIDENT, INCIDENT, UNSAFE CONDITION, PROPERTY DAMAGE OR LOSS REPORTING AND GENERAL LIABILITY

#### Definition of an Accident:

Accidents are caused by unsafe acts and unsafe conditions or a combination of both. Investigation, analysis and interpretation of the facts surrounding accidents are used to help prevent similar accidents from happening again.

All accidents or occurrences in connection with the Department of Transportation, organizations, operations or equipment will be categorized in one of the following ways:

1. Vehicle Accidents - Accidents occurring in which damage is caused to or by a Department of Transportation owned vehicle. Use the State Vehicle Accident Report form. The employee involved in the accident should sign and date as Reported By. The employee's supervisor should sign and date as Authorized Agency Signature.
  - A. The definition of a state vehicle is any motorized equipment owned by the State of South Dakota that can be ridden on or in.
  - B. State employees using rental vehicles on official State business are covered by PEPL (Public Entity Pool for Liability); however, this coverage is not in effect should the use of the rental car be extended for personal reasons.
2. Property Damage or Loss - Those accidents occurring in which damage to or by any Department owned piece of equipment (other than a vehicle as defined by the vehicle insurance policy), privately owned equipment, or tools rented or used for Department purposes as well as fires, and other mishaps which cause damage to Department owned property. Use DOT-307.
3. Personal Injuries - Personal injury accidents in which any bodily injury is inflicted on a Department of Transportation employee in the course of his employment. Use DOL-LM-101, Employer's First Report of Injury Form.
4. Public Entity Pool for Liability (PEPL) - Occurrences which may include an accident, injury or loss, to any person, in which there is a possibility that an employee of the Department of Transportation or a DOT operation may be connected in any way. Use Report of Accident, Incident, or Unsafe Condition (Non-Automobile) Form.

#### Involved in an Accident:

If you are behind the wheel of a vehicle that comes in contact with another vehicle, pedestrian or object, you are involved in an accident.

If you are driving a vehicle and cause or contribute to a crash by another vehicle you are involved in an accident, even though there is no physical contact with your vehicle. For example, if you pass a car and force it off the road, you are involved in an accident.

Being involved in an accident has nothing to do with your causing it. This type of an occurrence must be reported to alert our insurance company, Public Entity Pool for Liability (PEPL) to the fact a liability situation may exist. It is up to each individual to make sure the proper forms are filled out and submitted for each accident involved.

**Do not make any statement to anyone that you were at fault or liable for the accident.**

Reporting Accidents:

All vehicle accidents, personal injuries and liability occurrences, as previously defined, must be reported in writing. In addition to the need to report accidents and/or injuries for insurance coverage purposes, these reports are used to determine causes, eliminate the hazards and prevent accidents from reoccurring.

All reports must be filled out accurately, completely and promptly after the accident and/or injury. If exact damage loss or personal injuries cannot be determined soon after the accident, fill in the best estimate of this information that is available and submit the report. This information can be corrected later by memorandum.

All supervisors are responsible to see that employees working under their supervision understand the obligations and the reasons for filling out accident, injury and liability reports. Employees should be aware that there might not be insurance or compensation coverage on unreported accidents and/or injuries.

All accidents should be reported on the same shift as the accident occurred.

Employees, who fail to report accidents or other property damage or loss within the limits established, shall be subject to disciplinary action as provided by the Department or Bureau of Personnel Rules and Regulations.

Accident Investigations:

Supervisors will seek out the facts contributing to accidents and/or injuries occurring within their group, determine the underlying causes of these accidents, and take the actions necessary to prevent the occurrence of similar accidents and/or injuries. It is the supervisor's responsibility to ensure that the proper forms are completed and to conduct a thorough accident investigation in a timely manner. A copy of the accident investigation form is to be forwarded to the Region Safety Committee prior to the next scheduled Committee meeting.

Steps to performing an Accident Investigation.

All accidents should be investigated, regardless of severity of injury or amount of property damage. The extent of the investigation depends on the outcome or potential outcome of the accident. An accident involving only first aid or minor property damage does not have to be investigated as thoroughly as one resulting in death or extensive property damage, that is unless the potential outcome could have been disabling injury or death.

The individual with primary responsibility to complete the accident investigation is the immediate supervisor of the individual involved in the accident. Depending on the severity of the accident the supervisor may require assistance from other sources such as the Safety Committee, maintenance staff, Central Office staff, outside safety professionals, etc. The Safety Committee will act as an adviser and guide to the supervisor on accident investigations and should verify the supervisor's findings and the adequacy of his or her investigation. The Safety Committee should conduct accident investigations only in serious cases where a special committee may be set up.

Supervisors should follow a four-step process when completing an accident investigation. The detail each step is completed depends on the severity of the incident. Ideally the investigation should begin immediately.

5) Gather all information and determine the facts.

This is done in many ways depending on the situation. Employee interviews should be done. In all instances the employee involved should be interviewed. Other employee interviews may include witnesses, employees doing similar tasks, or maintenance personal. These interviews should be done separately. In many instances the supervisor should visit the accident scene. Photographs or sketches of the accident scene may be taken. Step back and look at the big picture. Record initial observations. Try not to record what you think may have happened; just record what you see. Rules, policies and procedures should be reviewed. This will indicate whether the accident was caused by improper or no rules policies and procedures, or whether the policies that are in place were ignored. If equipment is involved all maintenance and inspection records should be reviewed. Although there are many methods, the goal is the same: to determine the facts. During employee interviews it is important to separate fact from opinion on how the accident occurred. Immediate supervisors will be responsible for a majority of the fact gathering. Supervisors should review the accident with the employee to try to get a good idea on how the accident occurred. The accident report form should be completed by both the employee involved and the supervisor. Serious accidents may also draw upon the experience of others such as the safety committees, Central Office Staff, outside agencies, etc.

6) Determine all the contributing factors.

All accidents are composed of one or more contributing factors. These factors can be broken down into three basic areas – direct causes, indirect causes and basic causes. Direct causes are those that directly caused the accident or injury. An example may be a pick-up backing into a post. Indirect causes are those unsafe conditions that are present in the workplace and/or unsafe actions employees perform. Generally there are more than one or two indirect causes for every accident. An example of an indirect cause may be a cracked mirror causing poor visibility prior to backing into a post. Basic causes are poor management safety policy or procedures, personal factors, or environmental factors. An example of a basic cause may be the employee hurrying to park the pick-up and failing to check behind the vehicle for the presence of obstacles, such as the post. The more causes and contributing factors for each accident that can be determined the greater likely hood of preventing future accidents. Again, immediate supervisors will have primary responsibility for determining contributing factors but the all who review the investigation report will aid in determining contributing factors.

7) Suggest corrective actions.

After the causes and contributing factors have been determined each one should be analyzed to determine what, if any, corrective action should be taken. Everyone who is involved with the accident investigation can play a role in suggesting corrective actions. The Safety Committee will decide in most cases what corrective action should be taken.

8) Implementation of the corrective actions.

Perhaps the most critical step is implementing the suggested corrective actions. If an accident investigation has been done perfectly up to this point, then no corrective action is taken, then no implementation is done, the accident is doomed to be repeated. The Safety Committees will have primary responsibility in overseeing implementing the corrective actions for each accident

#### Inquiries About Insurance Claims:

Contact: Claims Associates, Inc.  
PO Box 488  
Sioux Falls, SD 57101-0488  
Phone: (605) 333-9810  
After Business Hours: 1-888-430-2249  
FAX: (605) 333-9835



Also, notify Operations Support - Safety Engineer 773-3704.

For complete information on required forms see "Vehicle Accident, Incident, Unsafe Condition, Property Damage or Loss Reporting, and General Liability" located in this section.

