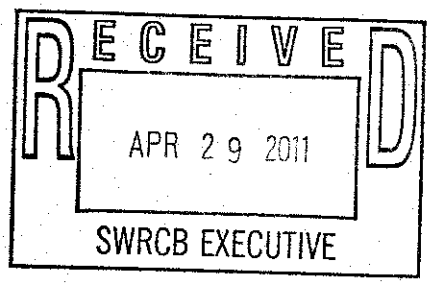
Public Comment
Draft IGP
Deadline: 4/29/11 by 12 noon

CALCIMA

California Construction and
Industrial Materials Association



April 29, 2011

Jeanine Townsend
Clerk to the Board
State Water Resources Control Board
1001 I Street
Sacramento, CA 95814

Re: Comment Letter – Draft Industrial General Permit

Dear Ms. Townsend:

These comments are offered on behalf of the California Construction and Industrial Materials Association (CalCIMA). CalCIMA is a statewide trade association representing the construction aggregate, ready mix concrete and industrial minerals industries in California. Our members operate over 500 facilities statewide providing the raw materials to fuel California's infrastructure needs as well as the needs of the construction, manufacturing and industrial sectors. We recognize the importance of protecting our waters but also need a regulatory structure that can be complied with and that achieves the objective of protecting our waters in an efficient manner.

We have numerous concerns with the current Draft permit that are both functional and policy related. Also, due to inconsistencies within the Draft permit and its incompleteness, we find ourselves in need of clarification on many items. We are appreciative that Board staff has taken the time to meet with us to provide further explanations. We recognize that improvements need to be made in the existing permit but believe the scope of change proposed by the current Draft goes further than is prudent or justified. Some of the issues that we are concerned with or need clarification on include:

- *NAL/NEL Process.* The utilization of the EPA benchmarks as Numeric Effluent Limits is inappropriate at this time, and does not seem to comport with Federal mandates on the development of NELs. The SWRCB's release of data indicates the adoption of NELs could have substantial impacts on our industry and may not be achievable.
- *Corrective Actions.* Many of the actions and timelines required are not practicable for all facilities and for all times of the year. Some corrective actions need to wait until the dry season, and this proposal does not provide that flexibility.
- *Natural constituents.* The proposal does not address situations where stormwater discharges may be impacted by background or naturally occurring constituents.

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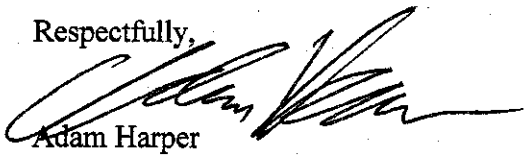
- *BMPs and Covered Materials*. Many of the required BMPs are impractical at aggregate and related facilities. For instance, covering material stockpiles would be unreasonable since they are constantly accessed by mechanized equipment such as loaders and dozers.
- *Dust Requirements*. The requirements to determine where dust will settle in a facility are impractical at a large aggregate or industrial setting.
- *Inspections*. As proposed, the permit would require over 400 inspections. This is simply untenable and is a significant increase from the existing inspection requirements.
- *The Board should suspend activity on this permit so as to enable a full stakeholder process which includes the opportunity for Board participation to resolve the significant issues and clarifications needed within this draft.*

These and other comments are presented in more detail in our attached analysis. We would look forward to discussing these in more detail as the process continues.

Respectfully,



Adam Harper
Director of Policy Analysis

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CalCIMA Comments Draft Industrial Stormwater Permits

On behalf of its members CalCIMA is pleased to provide comments on the Draft Industrial General Permit (Draft), issued by the State Water Resources Control Board for public comment. CalCIMA can support efforts to provide a clearer definition of a discharger's obligations and more clarity in reporting requirements. We are concerned, however, that these proposed changes would have significant negative impacts on our members without a corresponding benefit to water quality. The following is a discussion of some of the proposed changes and their potential impacts, particularly to mineral mining and processing operations, and specific revision suggestions for the Board's consideration:

Numeric Effluent Limitations

Section V.D provides that dischargers in corrective action level 3 (Section XVII.D) of the Draft are subject to numeric effluent limitation that is the same as the EPA Benchmark value for the applicable pollutant.

CalCIMA is in agreement with the comments CASQA is submitting on the legality and appropriateness of NELs within this permit. In addition, they did an outstanding job of discussing the negative consequences that result from such treatment by the Board at this time.

CALCIMA agrees with CASQA that;

- THE DRAFT PERMIT AND DRAFT FACT SHEET FAIL TO ESTABLISH THE LEGALLY REQUIRED BASIS FOR IMPOSING NUMERIC TECHNOLOGY-BASED EFFLUENT LIMITS.

- THE NELS INCLUDED IN THE DRAFT PERMIT WOULD CREATE UNINTENDED CONSEQUENCES AND ARE UNWORKABLE.

- THE NELS INCLUDED IN THE DRAFT PERMIT ARE INCONSISTENT WITH THE BLUE RIBBON PANEL'S REPORT AND WITH EPA'S PRIOR CONCLUSIONS THAT NUMERIC LIMITS ARE NOT FEASIBLE AND ARE NOT REQUIRED.

- THE EVIDENCE REQUIRED FOR THE DEVELOPMENT OF LEGALLY VALID NELS DOES NOT EXIST AT THIS TIME, AND CASQA and CalCIMA DO NOT SUPPORT THE INCLUSION OF NELS IN THE PERMIT.

- CALCIMA ALSO SUPPORTS THE CONTINUED USE OF NON-NUMERIC EFFLUENT LIMITATIONS

- ANY USE OF NUMERIC VALUES AS "BENCHMARKS" OR "ACTION LEVELS" FOR INDIVIDUAL POLLUTANTS MUST BE LIMITED; THEY CANNOT SERVE AS OR BE CONVERTED INTO NELS

- IF NUMERIC VALUES ARE USED AS "BENCHMARKS" OR "ACTION LEVELS" AS ONE METHOD FOR THE ASSESSMENT OF PROGRAM EFFECTIVENESS,

THE PERMIT MUST CONTAIN A CLEAR STATEMENT THAT COMPLIANCE WITH THE TRIGGERED REQUIREMENTS IS COMPLIANCE WITH THE PERMIT.

SWRCB Panel on the feasibility of Numeric Effluent Limits

The SWRCB convened an independent panel of experts to consider the feasibility of Numeric Effluent Limits. This Blue Ribbon Panel made the following recommendation to the Board about the feasibility of Numeric Effluent Limits for Industrial Activities.

"To establish Numeric Limits for industrial sites requires a reliable database, describing current emissions by industry types or categories, and performance of existing BMPs. The current industrial permit has not produced such a database for most industrial categories because of inconsistencies in monitoring or compliance with monitoring requirements. The Board needs to reexamine the existing data sources, collect new data as required and for additional water quality parameters (the current permit requires only pH, conductivity, total suspended solids, and either total organic carbon or oil and grease) to establish practical and achievable Numeric Limits."

The data released by Board staff for this Draft process are a compilation of data from annual reports up to February 16, 2005 and specifically mentions it did not undergo QA/QC nor include data on BMPs in effect at the monitoring locations. We do not believe the Board is being consistent with the recommendation of the Blue Ribbon Panel.

In the future, depending on how well the SMARTS database is designed and implemented and on the quality of the data, there may be a dataset that enables the development of sector appropriate Benchmarks. Currently we do not know of a dataset that enables this.

SWRCB Data Release

We are very appreciative that the Board made the compilation of data available on the website. As a result we were able to review the NALs and corrective action triggers as they related to the industries we represent. We have summarized that review in the table below.

Industry Segment	pH		TSS		EC		O&G	
	% > NAL	% > 2.5NAL	% > NAL	% > 2.5NAL	% > NAL	% > 2.5NAL	% > NAL	% > 2.5NAL
RMC	46.05%	22.57%	38.88%	19.78%	47.58%	21.02%	6.82%	1.70%
Industrial Minerals and S&G	7.04%	2.18%	54.07%	43.70%	68.29%	40.00%	10.53%	3.24%
Sand and Gravel	6.86%	0.00%	61.63%	45.35%	64.16%	36.99%	8.40%	3.36%
Asphalt	2.90%	0.00%	57.97%	46.38%	57.25%	42.03%	29.25%	8.49%
All SWRCB Data	11.32%	3.03%	30.21%	15.22%	37.61%	16.38%	15.65%	5.45%

The Board's own data strongly shows that the Benchmarks may not be suitable particularly to industries that occupy large areas of natural land across the diverse geology and weather conditions that exist within California. These industries are the ones typically represented by CalCIMA and include mineral mines, sand and aggregate mines, and ready mix concrete facilities.

This data shows that the data the board has for our industry sector shows a large proportion of discharges exceeds the values proposed for use as benchmarks and NEL's. That is the data

would not seem to support the transition of the EPA benchmarks to NEL's for this sector. Most importantly, the draft permit has offered no data to support the benchmarks as technology-based limits, and the existing data provides no indication that existing technology that is economically achievable would reduce constituents to the benchmark levels. In fact, it suggests that setting these levels precipitously as NELs would cause widespread compliance issues which are of grave concern to our members.

Corrective Actions

While corrective actions is a term used throughout the document for the purposes of this discussion we are focusing on its usage in the Level 1, Level 2 and Level 3 corrective action ladder in Draft permit section XVII. Some of our issues with this section deal with what appear to be inconsistencies between the Fact Sheet and the permit itself. We are also concerned that the specific fixed timelines may be impossible to meet, given the currently proposed strict requirements to use QSDs to write SWPPP revisions and the potential for late season storms bumping into the end of the reporting year.

Another issue is our concern over how the compliance triggers are applied. The SWRCB is proposing the averaging of sampling results by SWAMPS to a specific storm event for determination of whether a trigger has been met to reevaluate the SWPPP's functionality in controlling a pollutant.

We believe, considering testimony before the Board by CASQA on the potential for outlier sampling results on a specific sample that it may be more appropriate and administratively much easier on all parties involved to incorporate annual averaging as done in the Federal permit in order to determine if reevaluation of a SWPPP is appropriate.

Permit Language vs. Fact Sheet Description of Corrective Actions

The very structure of the multi-year stepped corrective action process a SWPPP undergoes should a facility meet a NAL trigger seems to anticipate the potential that year one source controls may not be sufficient to fully meet a NAL. Setting aside the very issue that the EPA benchmark values lack the technical underpinning to be used as Numeric Effluent Limits and therefore it is unknowable if a facility can meet them, the fact sheet for the rule assumes otherwise. It even seems to disagree with the permit's language on what an operator is required to achieve if in a Level 1 Corrective Action. That is the fact sheet states the operational controls will achieve full compliance with the NAL while the order implicitly recognizes that structural controls may be needed the following year should the NAL be exceeded again. The fact sheet may have intended to reference the NAL action level 1 steps.

> Page 31 of the Fact Sheet notes:
> *"b. Revise the SWPPP as appropriate to include additional operational source control BMPs to achieve* ***full compliance with the NALs****."*
>
> Pages 38 & 39 Section XVII (B)2(a) of the Draft notes:
> *a. Pollutant source(s) associated with industrial activity have been identified and additional operational source control BMPs and/or SWPPP implementation measures*

> *have been included in the SWPPP in compliance with BAT/BCT. The certification shall include a description of the pollutant source(s) causing the exceedance, a summary of the existing BMPs associated with the pollutant source(s), and a detailed description of the additional BMPs and SWPPP implementation measures necessary to comply with BAT/BCT; or However, a discharger that does not comply with specific corrective action requirements, is considered to be in violation of this General Permit. For incomplete Level 1 and Level 2 corrective actions, the minimum penalty that is automatically imposed is automatic Level 3 corrective actions.*

There is a disconnect here between the Fact Sheet that is clearly treating the NALs as inherently achievable through utilizing operational source controls and stating corrective actions require "full compliance" with the NALs, and the substance of the Draft which seems to recognize BAT/BCT evaluation and potentially a multi year process starting at operational controls and moving to structural and treatment controls if the NAL's were not met after the first year.

Background/Natural Occurrences and Corrective Actions

Both within the Fact Sheet and the corrective actions steps for the level specific actions within the permit there are references to NAL exceedences caused by natural occurrences or not related to industrial activities. These references are silent about any operational impact or resolution. That is, the discharger is allowed to characterize and note an exceedance was caused by natural occurrences but there is zero compliance benefit with this characterization.

> Page 31-32 of the fact sheet:
> *"If exceedances of NALs are not related to industrial activities conducted at the facility, so that additional operational source control BMPs would be ineffective in lowering pollutant concentrations, Dischargers shall provide a description of the non-industrial related sources, and provide a specific detailed evaluation supporting that the facility's industrial activities are unrelated to the exceedances."*

> Page 39 of the Draft permit;
> *"c. Pollutant source(s)causing the exceedance of the NAL are not related to the facility's industrial activities and no additional BMPs or SWPPP implementation measures are required to reduce or prevent pollutants in storm water discharges in compliance with BAT/BCT. The certification shall describe the non-industrial related source(s)."*

While section C of the Draft permit removes the obligation on the permittee to undertake SWPPP modifications and implementation of new source BMPs, it appears to provide no protection from rising up to a Level 2 or Level 3 compliance scenario. Facilities who have successfully demonstrated an exceedance was not caused by their industrial activities would still face additional compliance obligations in future years, including the potential additional monitoring. This section is clearly a place where an off-ramp to the levels of corrective action should be placed for facilities that have demonstrated the exceedance was not the result of their industrial activities. Further, such off ramps should provide protection for the life of the permit from incurring the unnecessary expense of repeating the analysis should an exceedance of the same trigger be detected.

As the permit is written we can prove we are not responsible for a water quality concern but have no reduction of obligations resulting from that proof. In addition to the off-ramp to the corrective actions ladder, the permit should allow for facilities to factor in naturally occurring or background concentrations of pollutants in the assessment of compliance with NALs. Operators may be prevented by zoning laws, property rights or even water rights from addressing an issue caused by background or run-on. The facility should be allowed to account for naturally occurring constituents in its sample results.

Level 3 Corrective Actions

As we have stated previously we believe the utilization of the EPA benchmark values as NELs is legally unsupportable. As such we believe this section should be removed. As currently written, for a facility to get to a Level 3 status its storm water effluent would have exceeded a particular threshold. This water quality exceedance would have triggered the formal review of the facility's SWPPP and BMPs by the QSD. The BMPs, operational controls, source controls and structural controls at the facility would have been modified twice already. Additionally, the RWQCBs would have reviewed those modifications. Should a facility remain unable to consistently achieve sampling results below the EPA benchmarks, it is more likely a result of the infeasibility of the benchmark for that facility than any other factor. As an alternative, the Draft could require the facility have a separate QSD conduct/repeat the analysis of Level 1 and Level 2 to possibly identify new BAT/BCT to address those issues as well as review that they were properly implemented at the facility. But we are unable to support the use of Level 3 corrective actions.

Need for Differentiation in Use of Corrective Actions Terminology

Throughout the Draft permit the term "corrective actions" is used in referencing disparate actions resulting in the modification of the SWPPP.

We would note that E.47 of the Draft permit states;

> *"47. If a discharger fails to take the **appropriate** corrective action, then the applicable NAL will become a Numeric Effluent Limitation that subjects the discharger to Mandatory Minimum Penalties (MMPs)."*

First, as stated previously, we disagree the Board has met the legal threshold to set NELs. Second we are concerned by the use of such a subjective word as "appropriate," particularly with the poorly defined use of corrective action within the Draft. A discharger that has retained a qualified QSD, followed the steps within the Corrective Action Levels, and followed the qualified professional's expert guidance should under no circumstance be subject to an arbitrary interpretation that the actions they took were inappropriate.

Corrective actions is a term used broadly within the document. We have included some examples below:

> Under H.1.h Visual Inspections, page 26:
> *"ii. Implement any **corrective actions** and/or SWPPP revisions **resulting from the inspection**;" and*

> *iii. Prepare a summary and status of the **corrective actions** and SWPPP revisions **resulting from the quarterly inspections**. This summary shall be reported in the Annual Report; and"*

This section makes it clear it is anticipating "corrective actions" as a result of the quarterly visual inspections. It is clear these are different from the "corrective actions" defined in XVII, however it is not clear they are not the same as the "corrective actions" referenced in E.47.

Under Section I.4. Annual Compliance Evaluation Report it notes:

> *c. Summary and implementation dates of all significant **corrective actions** and SWPPP revisions for the reporting year;*
> *d. Schedule for implementing any incomplete **corrective actions** and SWPPP revisions;*
> *e. Any incidents of non-compliance and the **corrective actions** taken;*

This section adds to the types of corrective actions. There are apparently significant (and thus also insignificant) corrective actions. It remains unclear if the reference in "d" refers to corrective actions as a result of activities under XVII, which are submitted as we read XVII.B.4 and XVII.C.5. in a separate report due by the same date as the annual report.

Finally as exceedences of NALs are not non-compliance (Findings I.E.43) with the permit it includes another level of "corrective action" which are apparently actions undertaken as the result of non-compliance.

In addition, "corrective action" is not defined within the glossary in Attachment K providing us with no way to ascertain its intended meaning. There is clearly a great deal of clarification that is needed for this specific term in the permit and we request a definition and more consistent usage.

NAL Corrective Action Time Schedule

Sections XVII.B 3-6 of the Draft permit sets a time schedule for corrective actions under the operational source controls. However there are no explicit definitions of compliance year or reporting year within the documents so we are unable to be certain whether these are feasible time frames. Based on the sampling quarters we believe the reporting year may be January through December with an annual report due the following July 15. We are unsure why the two terms "compliance year" and "reporting year" are used throughout the Draft in different sections; and this should be clarified and defined so dischargers properly understand their obligations under the permit.

In some sections of the Draft we believe there may be insufficient time to comply due to the strict nature of obligations and professional qualifications currently proposed by the Draft permit. For example in Section XVII.B.5:

> *"5. If the Regional Water Board provides written comments on the Level 1 NAL Exceedance Evaluation Report, the discharger shall, within 30 days of receipt of the*

Regional Water Board's comments, ***revise the NAL Exceedance Evaluation Report, SWPPP, and/or monitoring program to address the comments.*** *"*

Our understanding is that only the QSD can make such SWPPP changes for us. With the strict standards on QSD certification it is very unlikely most dischargers will have them on staff and will instead have to rely on consultants. As such, a 30-day turn around seems very challenging. This is especially true for complex sites since the QSD would have to develop a thorough and familiar understanding of the discharger's facility and activities. We request language enabling the request for an extension be incorporated.

In addition, there needs to be a defined time period for the Regional Water Quality Control Boards to return comments and suggestions for submitted evaluation reports. Since dischargers would be expending significant resources implementing the evaluation report recommendations, they cannot be expected to act without knowledge of whether the recommendations are acceptable. We recommend a time limit for the RWQCB's review, after which time dischargers can safely assume that their plans have not been disagreed with and their suggested responses are not going to be vetoed by the RWQCB. Dischargers are required to implement the activities they put forward in their report by October 1. It would be inherently unfair to dischargers to have them implement their changes and then have the plans be modified by the RWQCB without sufficient time ahead of the October 1 implementation period.

We are appreciative of the inclusion the 90 day period in the Section XVII.B.6. given to revise and implement the Regional Board's comments. However the Draft permit seems to provide no opportunity to dispute activities Regional Boards suggest. It is very feasible that highly regulated businesses could be placed into a situation where potential recommendations would create violations of other regulatory regimes or create workplace hazards. It would be unreasonable of us to expect RWQCB to understand the full complexity of the regulated environment our facilities operate in, or legitimate economic and operational impediments to implementing their proposed solutions. There needs to be a defined discussion that can occur between the QSD expert on the discharger's side and the regulators to ensure proposed solutions are correct and then an implementation timeline that is reasonable.

XVII.C Timeline Uncertainties

Section XVII.C.7 has an incomplete thought and clarification is needed:

"7. A schedule for completing required structural and/or treatment BMPs If prior to October 1 of the following reporting year."

BIER Extension request

This section is clearly needed and we appreciate its inclusion within any benchmark evaluation process. However, as Drafted it is completely unclear what remedy we may have and under what standards the RWQCB may deny such a request. Facilities that cannot legitimately meet the timeline need a certain method to obtain an extension. The mining industry is highly regulated and any major modifications or the creation of new structures at our facilities may trigger modifications to our reclamation plans, grading permits, and/or building permits, which

may also trigger a CEQA process. An operator that could not comply in timely fashion could be forced into non-compliance by an inappropriate denial. We also disagree that a civil engineer should be required to submit this report. There are many reasons a facility may need an extension of time in order to implement changes that are completely outside an engineer's area of expertise and does not require an engineer's review.

Natural Constituents/Background

We find no section of the Draft Permit that clearly addresses the issue of background and natural constituents. Provisions dealing with run-on seem to assume we will be able to divert water flows entering our properties, which is not always feasible and in most cases is illegal if they are waters of the US or State. The permit also does not factor in natural inputs such as groundwater seeps or natural springs; such uncontrollable sources frequently occur in mines but are difficult, if not impossible, to divert or prevent. For example, we have seen a mine with groundwater that is naturally high in salts and nitrates seeping from the walls into storm water collection areas. It would be impossible to divert such seeps, which often show up as mere dampness on the walls. It would also be impossible to prevent the comingled storm water and groundwater from discharging, since the seeps occur in the mine's primary storm water collection system. Such a facility would be unfairly penalized under the currently proposed Draft.

Clear language needs to be added to the permit that ensures facilities do not end up regulated for ambient background concentrations of constituents in storm water. There are provisions that seem to recognize the potential but no clear statements ensuring dischargers are held accountable only for their actions. We would suggest the following possible language addition:

"The contribution of natural background water quality conditions shall not be considered in determining exceedances of the requirements of Section III (Discharge Prohibitions), V (Effluent Limitations), VI (Receiving Water Limitations), IV (Non-Storm Water Discharges), and XVII.E NAL Corrective Action Triggers"

Mandatory BMP's, Covered Materials and Daily Cleaning

Section VIII.H.1 of the Draft permit requires minimum BMPs to be implemented "throughout" the facility. CalCIMA does not object to additional guidance on BMPs. However, because the listed BMPs cannot reasonably be implemented at all types of industrial facilities, CalCIMA requests that this section be revised as discussed below.

The language of the introduction to VIII.H.1 is overly restrictive as written, allowing a discharger to vary from a specific BMP only if it is "inapplicable." We see many BMPs that are needed for many facilities, but not for all facilities. We understand that if certain BMPs are omitted entirely from the permit it could seem to endorse a less than rigorous SWPPP. A rigorous SWPPP program can be achieved while still retaining some flexibility to allow the necessary application of appropriate BMP standards tailored to each industry and facility. In addition, clarification of language in VIII.H.1 is needed regarding "burden of proof" and the areas in which minimum BMPs apply.

To make BMPs truly mandatory would require findings by the State Board that the BMPs actually represent BCT for conventional pollutants and BAT for other pollutants. Each of these standards requires specific consideration, in varying respects, of costs and technological feasibility. Because the State Board has not performed or provided such a detailed analysis, leeway must be provided in the selection of BMPs to allow appropriate implementation of the BAT and BCT standards.[1]

In addition, the areas of the facility that do not produce (originate or carry) storm water associated with industrial activity that discharges to waters of the U.S. should be more clearly excluded from the mandatory minimum BMPs. Such areas include, areas where stormwater drains only to retention ponds, for evaporation, percolation and/or reuse, or is otherwise contained.

Finally, the Draft language inappropriately states that a discharger "has a burden of proving" certain judgments. The discharger's obligations should simply be clearly outlined in the permit, and in any enforcement action the burden of proof should be appropriately placed based on applicable principles of law. The permit can do so by simply requiring adequate justification for variance from the minimum BMPs.

Requested Revision to Minimum BMPs Introductory Paragraph:

CalCIMA therefore requests that the paragraph under the heading "Minimum BMPs" Section VIII.H.1 be revised to the following:

"Dischargers shall implement the BMPs identified by the QSD in the SWPPP in areas of the facility from which storm water associated with industrial activity is discharged to waters of the U.S unless inapplicable, infeasible, or otherwise clearly inappropriate for the facility. Determination of feasibility and appropriateness of a BMP may take into consideration operational, regulatory, and physical constraints."

In ensuring highly qualified and trained individuals develop SWPPPs and that those SWPPPs undergo review, it is completely appropriate to have the facilities' BMPs be the BMPs identified by that process within their SWPPP.

As noted above, if dischargers are allowed to provide justification of variance from BMPs under appropriate circumstances, there may be little need to debate the exact wording of individual BMPs. Since the Draft language in the introduction is so inflexible, however, CalCIMA must comment on particular minimum BMPs.

Request for Revision to Specific Minimum BMP requiring Cover, Section VIII.H.1.a.iv:

Section VIII.H.1.a.(iv) includes a minimum BMP that requires covering of all "stored industrial materials that can be readily mobilized by contact with storm water." CalCIMA requests the following revisions to VIII.H.1(iv):

[1] We also note that there is no legal requirement under the Clean Water Act that a zero pollutant load be achieved, and since some mandatory BMPs, such as covering storage areas, are designed to completely eliminate discharges from a particular area, it is impossible to state an alternative that provides strictly "equivalent reduction" of pollutants.

Insert the following at the end of this paragraph: "*This minimum BMP shall not apply to stockpiles of aggregate, ore, minerals, overburden, and/or rock dumps at aggregate, mining, and related construction material operations (i.e. concrete and asphalt production facilities).*"

Stockpiles of different types of aggregate, or rock material, are integral and ubiquitous to an aggregate plant. A typical aggregate plant might have two dozen stockpiles of such material. Usually conical in shape, the stockpiles are constantly in use throughout a business day. They are replenished by overhead belt conveyors or radial stackers, and then constantly being removed by loaders as the material is sold. The material is aggregate of varying diameters, ranging from sand, various sizes of asphalt and concrete aggregate, rail ballast, 3 to 4-inch rock for improved roadways on construction projects and rip rap of varying sizes. We would also note that these materials are often utilized in storm water controls, such as gravel and sand bags and filters.. It is typically wetted during the crushing and screening processes to prevent particulate matter (dust) emissions and is further wetted as needed to prevent dust emissions during loading and hauling. This effort all contributes to a facility's operational controls for air compliance as well as helping to control contribution of significant dust-derived pollutants to stormwater. Other BMPs are employed that direct and control drainage and the mobilization of material, appropriate to the site.

Because of the nature of the material, the proximity of heavy machinery, and the constant use of stockpiles, covering of the material would be unnecessary and impractical. Thus, we request that this provision not apply to aggregate and mining operations. In addition, we have attached an MSHA document that helps explain the hazards to our employees from working on or around the the piles. As that document notes, "No person shall be permitted to walk or stand immediately above a reclaiming area or in any other area at or near a surge or storage pile where the reclaiming operation may expose him to a hazard."[2] Covering stockpiles will put our workers in harm's way.

CalCIMA does support BMPs that would prevent these materials from discharging off property with the storm water discharges, with flexibility to allow tailoring of the BMPs to each specific facility. These BMPs could include grading the storage area to prevent run-on, treating run-off in silt retention ponds or devices, and placing berms or filtering devices around the piles (except for vehicle entry and exit points).

In addition, we would note the terms "significant materials" and "industrial materials" seem to be used interchangeably across the Draft permit. Attachment C contains a definition for "industrial materials" while "significant materials" seems to be defined in VIII.F. As Attachment C is a reference document for the Conditional Exclusion – No Exposure and Section VIII.F refers to the materials defined within the order and listed in the SWPPP, it would be advisable to change "industrial materials" to "significant materials" to be consistent with the definitions found inside the permit. This lack of consistency exists in multiple places within the Draft and can only promote confusion.

[2] Stockpiling Safety, SM 27, Revised 2001, US Department of Labor, Mine Safety and Health Administration, Page 49 citation of 30 CFR 77.209

Request for Revision to Minimum BMP Requiring Diversion of Run-On (Sections VIII.H.1.a.vii):

CalCIMA requests the following revisions of minimum BMP language concerning diversion of run-on to a facility:

Section VIII.H.1.a.vii:

> ~~*Divert*~~ *Minimize as practicable significant storm water or authorized non-storm water flows from non-industrial areas (such as employee parking) from contact with industrial areas of the facility. Significant f~~F~~lows from non-industrial areas that contact industrial areas of the facility are subject to this General Permit's requirements.*

Section VIII.H.1.g:

> *Erosion/Sediment Control typically includes practices to prevent erosion from occurring. This includes the planting and maintenance of vegetation to stabilize the ground, diversion of ~~run-on and~~ run-off away from areas subject to erosion, minimization of significant run-on as practicable, etc. Sediment control includes practices to reduce the discharge of sediment once erosion has occurred....*

Depending upon the source and configuration of the run-on, diversion may not be legally authorized or environmentally beneficial. For instance, the diversion or obstruction of the natural flow of a river, stream, or lake could require a Streambed Alteration Agreement under § 1602 of the California Fish & Game Code. The California Department of Fish & Game ("CDFG") conditions Streambed Alteration Agreements to avoid substantial adverse affects upon fish and wildlife resources. Depending upon the location and configuration of the run-on, CDFG could determine that diversion would substantially adversely affect such resources and would impose conditions limiting the diversion. Similarly, if diversion affects a wetland or other water body that is jurisdictional under § 404 of the Clean Water Act, the United States Army Corps of Engineers may condition authorization under § 404 to limit that diversion. In addition, diversion of a channelized surface flow may also require a water right permit. Keep in mind that diversion may not even be feasible. If a waterway bisects an entire property, it is impossible to divert it. If a property is adjacent to a major road or freeway, and run off from these roadways was designed to drain toward the property, the facility is not able to alter that construction and may not have alternatives to divert it. As discussed above, some facilities experience natural groundwater inputs in the form of "seeps" that occur along the entire mine walls. Such dampness on the walls is practically impossible to divert or prevent.

The potential conflict between diversion of run-on and other regulatory requirements highlights the fact that diversion is not necessarily the most effective or environmentally beneficial means of protecting water quality, particularly where an insignificant amount of run-on is at issue. Accordingly, CalCIMA requests that the Draft permit be revised to provide more flexibility regarding methods for minimizing water quality impacts associated with run-on.

Request for Revision to Specific Minimum BMP requiring Minimizing of Material Handling and Spill Response (Sections VIII.H.1.d and) :

Section VIII.H.1.d (Material Handling/Waste Management) and related provisions of Section VIII.H1.c (Spill Response), make many references to the handling or spilling of "materials." Above we noted the inconsistencies in the use of either significant materials or industrial materials. Again there is a need for a thorough review of key terminology and definitions to ensure consistency and clarity throughout the Draft. We certainly understand the difficulty in reviewing such a document and the seeming interchangeability of these terms. However, the Draft needs to be clear on what meaning specifically is intended so we can properly analyze and comply with the permit.

Request for Deletion of Daily Inspections and Cleaning VIII.H.1.d.v

> *"Inspect and clean daily any outdoor material/waste handling equipment or containers that can be contaminated by contact with industrial materials or wastes."*

Our members operate equipment and processing facilities that by their very nature are outside. California Air Resources Board (CARB) has estimated that up to 11% of the state's mobile off road equipment fleet is in operation in the mining industry[3]. In addition CARB estimated there were approximately 180,000 vehicles[4] subject to their off-road regulation. This means there are on the order of 18,000 vehicles that the mining industry would need to inspect and clean daily. If we assume it takes only 20 minutes to inspect and clean this equipment (a likely underestimate), this translates to about 187,500 8-hour workdays of labor each year to meet this BMP requirement alone. This works out to about 750 personnel years of labor over the same 250 day work year, to implement this BMP on off road equipment at mines. Our conveyor systems and plants would require even more time.

The conveyor systems at some facilities are extensive and serve to eliminate the need for diesel powered haul trucks. CARB recognized the benefits of such stationary systems in the adoption of their Off Road Diesel Air Toxic Control Measure for off road equipment where they allowed credits for facilities switching from diesel powered equipment to such stationary electric powered material handling equipment. The Mine Safety and Health Administration has strict guidance on working around these structures due to the hazards associated with pulleys. As many of these systems connecting the area of extraction to mineral processing can cover long distances and are a single conveyor, shutting down these systems to clean them daily may prevent the use of these structures to reduce air pollutants. Operators need other BMP options for such beneficial infrastructure.

Equipment used to move earth-derived materials should not have to be "inspected and cleaned daily" simply on the basis that the equipment "can be contaminated by contact with industrial materials or wastes." Loaders and other mining equipment are periodically cleaned, but cleaning the equipment daily actually would increase the disturbance of mud and rock material on them and produce additional wastewater and waste material to be separately managed.

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[3] http://www.arb.ca.gov/regact/2007/ordiesl07/isor.pdf page 15
[4] http://www.arb.ca.gov/regact/2007/ordiesl07/isor.pdf page 17

We agree that proper maintenance and inspection of our equipment is necessary, but this goal is captured under other housekeeping activities that a qualified QSD would develop for our facilities. This particular BMP is particularly burdensome and should be deleted.

Description of Potential Dust and Particulate Generating Activities (Section VIII.G.3)

Section VIII.G.3 requires that dischargers identify the sources of dust generating activities including where the dust will be deposited and the quantity of dust deposited. CalCIMA members do generally support the identification of types of dust sources and their locations at a facility. Knowing the sources and location of dust generating sources will help the discharger to control dust at the source and implement proper housekeeping activities. However, the requirement to "estimate the quantity of dust and particulate pollutants that may be deposited within the facility's boundaries" is too onerous, as would be any requirement that every source be mapped. Identifying where dust would settle and quantifying the amount would require much time, effort, and money and would not help in the reduction of storm water pollutants. There is no guidance as to how to perform these items and what size fraction of the dust to consider. A high degree of air modeling would be necessary to determine the locations and quantity of dust deposited. The air modeling would entail a site-specific meteorological study and a study of dust particle size, among other things.

Therefore, we request that the requirement to estimate the quantity of dust and particulate pollutants that may be deposited within facility boundaries be deleted. In addition, because the number of separate sources can be considerable and most are closely regulated by air permits, we request the following language be added at the end of the section: "*The description need not provide detailed descriptions of the locations of [*add only if estimation of quantity is retained*: 'and estimated quantities of pollutants from,'] any source covered by an air pollution control permit.*"

Facilities have air permits that restrict the amount of dust the equipment can generate, and there are maintenance and monitoring programs that target dust reduction. These source controls, along with BMPs that target sediment, are sufficient to treat for potential impacts of dust. The added burden of quantifying every source of dust is unnecessary.

Inspections

The proposed permit requires far too many inspections. We appreciate the efforts CASQA undertook in developing a complete list of requirements, which makes it clear that facilities end up being required to conduct over 400 inspections each year under the proposed Draft. The 2004 Draft permit had similar issues and our industry suggested many modifications, which reduced the total inspection without compromising needed evaluation and review. We have addressed the inappropriate nature of the daily cleaning and inspection of equipment previously. However, the burdens of the inspection program go beyond that.. We believe the Board should go back to the drawing board on these inspection requirements. They can be significantly reduced and still ensure proper monitoring of facilities and their SWPPP controls.

Visual Monitoring and Sample Collection

XII.D.1

1. Dischargers are not required to collect samples or conduct visual monitoring under the following conditions:

a. During dangerous weather conditions such as flooding and electrical storms;

b. Outside of scheduled operating hours

Currently the exceptions to this section are too limited. Mines exist in extremely rural locations and some also can operate as an aggregate processing/manufacturing center overnight. The geography as well as wildlife hazards of some facilities simply make it unsafe for employees to undertake sampling in some scenarios, such as at night. Likewise these facilities are typically not in lighted industrial parks, making visual observations at night infeasible. The Board should add a safety and nighttime provision for operations that may have these scenarios at certain outfalls on their facilities. We believe it would be fair to allow such facilities to designate such discharge locations within their SWPPP along with safety hazards, which make monitoring that outfall during nighttime hours too hazardous. We would appreciate the Board's consideration of this request.

X.F

***F.** A discharger shall collect samples from all storm water drainage areas within four hours after a qualified storm event has been determined3. This only applies during scheduled facility operating hours.*

This section does not provide enough time to collect samples. Particularly in this economy our members have sites which are unstaffed and operational for which SWPPPs are still maintained. These sites contain stockpiled materials ready for employee load out, are maintained in accordance with their SWPPP's and would seem to still require sample collection. A time period of between 6-8 hours would be more appropriate as a result of these realities. This would enable appropriately trained personnel the time to reach the facilities. It is also important to note our industry is required to analyze all days of a storm event.

QSD/QSP & Team Clarifications

We have several questions and clarifications which are needed within this section. These revolve around the acceptable duties, number of QSPs needed at a facility, training requirements and qualifications.

QSD/QSP Qualifications:

We believe the qualifications to be a QSD need consideration for expansion, perhaps even on a sector specific basis. A professional in stormwater and erosion control should be qualified to act as a QSD; especially for facilities like a mine site, such professionals would be more than qualified to develop BMP improvements. A professional in storm water and erosion control is not limited in knowledge to just erosion and sediment controls; they often have significant

experience and knowledge in other types of BMP and treatment controls that should qualify them as QSDs.

Likewise, while we understand how a civil engineer's certification may in some cases be mandatory for a treatment system, we are uncertain why a California registered PE, who can develop similar systems for other regulations, isn't eligible. We also would like to echo the comments raised during the Hearing regarding the importance of grandfathering those individuals who are currently working on, developing and implementing SWPPPs at facilities. The Board should work with stakeholders to develop appropriate "educational and work experience" backgrounds that would qualify QSDs.

These individuals have invaluable real world experience of what does and does not work at the facilities they serve. The operation of a test program to certify and test their knowledge should be adequate, along with verified work experience and educational background, to enable these individuals to develop SWPPPs. The fact that a civil engineer may be needed for certain calculations should not prevent other qualified and experienced individuals from continuing to earn a living.

In addition, we do not believe it is necessary to maintain two distinct QSD/QSP general permit training standards within the State. While a small minority of industries may have highly specialized constituent issues, this is not universally the case. If you look across the general industries in the State you find mining, landfills, ready mix facilities, vineyards, and construction. They fall under different general permits but deal with the same common storm water pollutants: sediment/TSS, pH from processes or concrete, metals (typically suspended/totals) due to the TSS and geology, nitrates, and other general minerals. A QSD experienced in the field of storm water should be capable of dealing with these pollutants and their sources at both construction and industrial operations.

Appropriate reminders that certain professional activities within the State already require specific certifications would be useful in the Draft. But limiting broader activities outside those areas of specialization would be detrimental. Excluding experienced professionals who have worked for years in the storm water field would deny them of their livelihoods. This can be avoided by developing objective criteria for non-engineering professionals to follow in continuing their work.

QSD/QSP Training Time Limitations

VII.B.2

> *2. The discharger shall ensure that the QSD successfully completes the State Water Board-sponsored or approved QSD training course* ***within one year after the effective date of this General Permit.***

VII.B.3

> *3. Qualified SWPPP Practitioner:*
> *The discharger shall ensure that the SWPPP's BMPs and monitoring requirements are implemented by a Qualified SWPPP Practitioner (QSP). The discharger shall ensure that the QSP successfully completes the State Water Board-sponsored or approved QSP training course* ***within one year from the effective date of this General Permit.***

As written the order seems to limit QSDs and QSPs to getting their certifications only within the first twelve months of the permit. We believe this is an unintentional error. We can of course understand the need to have QSDs and QSPs who need to immediately implement storm water programs be trained and certified within a brief time period. There is, however, no justifiable reason to prevent companies from hiring and training new graduates or to prevent individuals from receiving training and gaining experience to eventually obtain QSD certification. Indeed it would seem desirable to ensure training is available continuously to both provide replacement workers and to encourage highly educated and certified professionals to develop lifetime professional expertise in developing SWPPPs. Likewise the Board would not want to create a scenario where a scarcity of QSDs limits new facility job creation or investment from out-of state.

These sections should be clearly differentiated between training requirements for implementation of the permit after adoption without preventing new training and certifications from occurring over the life of the permit.

If staff holds to their statement that each facility should have a QSP, which we will comment on a bit later, it is highly unlikely the state could provide enough training and certifications in a twelve month period to provide an adequate supply of QSPs over the life of the permit for the up to 20,000 facilities staff stated in presentations might end up regulated with the changes to this permit.

We would also note depending on exactly how the Board decides training and certification for the development of SWPPPs will operate, as well as if there is any leeway on QSD or QSP certification for initial development, these decisions will have a great deal of impact on the effective date of the order. If people need a trained QSP on site day one, the implementation date will not be able to occur until after enough classes and graduates have been created to actually enable industry to comply. Similar issues arise in ensuring an adequate pool of qualified QSDs.

Adding the following to the end of these sections should address the ongoing training issues, *",or if more than one year from the effective date of this General Permit prior to undertaking work or consulting activities as a QSP."* Substitute QSD in the appropriate section.

However, with QSPs we believe it would be advisable to allow dischargers an emergency scenario upon the loss of a QSP, where a trained team member could step in and fill those obligations for a limited period of time. Employees are always free to seek other employment and tragedies in life do occur. An operation should not face shutdown by losing their only QSP. Instead, they should be provided a window of time under which to get an existing team member certified through the approved course or hire a replacement. Thus the appropriate timeline would be the frequency of QSP training courses anticipated. Such a provision will always be important for single facility businesses. If it is clarified for multi facility businesses that one QSP can oversee multiple facilities much as trained environmental people do for other issues today, it would be less of an issue for those operators.

QSP Requirements

In meetings with Board staff it was clarified for us that their current intent was to have a designated QSP for each facility under the permit. While we understand that each facility under permit needs a QSP that understands the facility and the SWPPP at the facility, we do not necessarily believe that this requires a QSP at each and every site. Our industry manages many complex environmental and regulatory issues by having professionals who oversee such activities work along with trained team members at the site. We believe the Draft permit's training structure still enables such practices. As such we believe the Board should consider clarifying QSP and team roles to enable such operations for employers with multiple facilities. We would note the current Draft permit is somewhat unclear on what actions under the permit a QSP provides as well as what the trained team is allowed to do.

Section VII.B.3 Qualified SWPPP Practitioner:

> *The discharger shall ensure that the SWPPP's BMPs and monitoring requirements are implemented by a Qualified SWPPP Practitioner (QSP)....*

Section VII.D.2 Pollution Prevention Team

> *Dischargers shall include the following items in the SWPPP:*
> *a. The names and titles of "specific individuals or the positions within the facility organization" (team members) that assist the QSD/QSP to implement the SWPPP and conducting all monitoring requirements required in Section IX.*
> *b. The responsibilities, duties, and activities of each of the team members.*
> *c. The procedures that shall be implemented to identify alternate team members to implement the SWPPP and monitoring requirements when the regularly assigned team members are temporarily unavailable (due to vacation, illness, out of town business, etc.).*

In addition, Section VIII.H.1.e provides requirements for the training and documentation of the team under BMPs.

It is clear the permit as written contemplates an on-site multi-employee approach that may be implemented by employers. This enables some delegation of SWPPP duties to trained team members, including potential monitoring activities. This of course leads to questions of who can be trained to do what by the QSP in the implementation of the permit, but also supports the need for a well developed plan overseen by a QSP that may have responsibility for multiple sites in a geographic region.

We believe it would be possible to enable QSP designation under a permit, so one QSP could potentially oversee and train teams at multiple facilities. We believe this is a desirable approach in many instances as, rather than training someone at the site as a QSP, companies tend to hire professionals with educational backgrounds in environmental and other technical degrees to perform this level of oversight and support of the personnel in the field. Likewise, the permit already provides for a defined plan including a division of responsibilities.

Erosion and Sediment Controls

Section VIII.C.3:
3. Erosion and sediment BMPs to control the discharge of sediment shall be designed for no less than a 10-year, 24-hour (expressed in inches of rainfall)Compliance Storm Event. In addition, all treatment BMPs for any other pollutants shall be designed for no less than a 10-year, 24-hour storm event.

The section above seems to disagree with Section VIII.H.1.g.iv, which seems to apply the 10-year, 24-hour storm event standard to sediment basins:

> *"g. Erosion and Sediment Controls*
> *Typically includes practices to prevent erosion from occurring. This includes the planting and maintenance of vegetation to stabilize the ground, diversion of run-on and runoff away from areas subject to erosion, etc. Sediment control includes practices to reduce the discharge of sediment once erosion has occurred. Such practices can include sedimentation ponds, silt screens, etc. For each facility location identified in Section XIII.G.6, dischargers shall:*
>
> ...
> ***iv. At sites where sediment basins are used, dischargers shall, at a minimum, design sediment basins according to the method provided in CASQA's Industrial and Commercial BMP Guidance Handbook and satisfy the 10 year, 24-hour compliance storm event requirement."***

A strict reading of Section VIII.C.3. would seem to limit each and every BMP to being engineered to handle the discharge associated with a 10-year, 24-hour storm event. We believe applying that definition would be harmful to the utilization of BMPs known to be effective but whose benefit could not be quantified to that level of engineering rigor. We do not believe this interpretation was staff's intent, however the section should be clarified.

In addition, we believe for existing facilities there should be grandfathering provisions that protect existing structures and space constrained facilities. The Board should include provisions that enable construction of such BMPs to a different standard if the QSD certifies an inability due to space constraints to meet the set standard. Otherwise a small facility needing to create treatment controls may not be able to comply with the permit.

Compliance Storm Event

First we do find the concept of a compliance storm event helpful and appreciate its inclusion. However we believe the 10-year event is too large to be utilized in this capacity. Our understanding, based on conversations with Board staff, is that the intent was to use the 10-year event as the threshold to exempt NAL exceedances from triggering corrective actions. However, we are unclear on where this concept is explicitly contained within the Draft permit. We would appreciate being directed to where that concept is included within the Draft or perhaps corrected if that was not staff's intent and it was simply an engineering design standard. Recognizing the definition is appropriately conditioned to not limit the Federal Subpart N requirements we believe the compliance storm event as defined is too large.

The recent storms provided us a good opportunity to put the size of a 10-year 24-hour storm in relative context. Utilizing the preliminary weather data available from weather.gov we would note that the two largest days of rain in Sacramento occurred on February 25, 2011 at 1.06 inches and February 16, 2011 at 0.86 inches of precipitation. However, a 10 year 24 hour storm event for Sacramento would fall on the isometric map at 30 tenths of an inch of rain or at 3 inches. A 10 year 24 hour storm is therefore three times the precipitation experienced during what were very significant recent storms.

Protection of Trade Secrets

The document does not seem to provide provisions for facilities to protect trade secrets. Some of CalCIMA's members are vertically integrated mining and manufacturing facilities, which compete in a highly competitive environment. Often their competitive advantage is within their formulations or even processing techniques. The Board needs to work with industries on developing a reasoned approach whereby facilities can keep specified components of their processes secret while still implementing proper controls. California industry shoulders many costs our foreign competitors do not; it is simply not appropriate to place their competitive advantages on a document accessible on the Internet.

Other Issues

Group Monitoring Program Removal

CalCIMA has several members that participate in the current permit group monitoring program. We encourage the Board to carefully review CASQA's comments against the removal of this program. We agree with CASQA's comments on the permit and encourage its continuation for the benefit of the State. We strongly agree the Board should convene a stakeholder meeting with the participants and managers of the existing program.

Natural Disasters

During flooding events our industry provides the basic raw materials used in sand bagging, maintaining and strengthening levees and other emergency responses. The overall benefits to water quality and society itself from preventing flood waters and destruction of homes, business and property certainly warrant an exclusion from compliance violations during such periods. In order to provide sand, rip rap or other necessary materials our members facilities will need to operate when they otherwise would be shut down.

Likewise, much of our State is subject to earthquakes and other natural disasters. Natural disasters which occur during the rainy season and disrupts, disables or otherwise incapacitates storm water controls should not be held against the discharger. With the permit's extensive monitoring requirements and strict benchmarking processes, the Board needs to develop off ramps to deal with such unpredictable occurrences.

We would appreciate the opportunity to work with the Board and staff on this issue.

Definitions/Clarifications/Incomplete Sections

Reviewing this Draft permit was a particular challenge due to incomplete sections and analyses, lack of definitions, and the inherent uncertainties those create in attempting to analyze such a complex proposal.

Definition/Clarity Issues

We have already covered several sections where a lack of definitions or potential uncertainty in how staff intended sections to operate needed clarification. In addition to these issues already discussed we would note the following:

When Does a Storm Event End?

Large area facilities are required to monitor all days of a storm event but it is completely unclear when a storm event ends. Once we understand where that point is we will be able to more fully comment on sampling measures as well as differentiation of sampling results between storm events.

Conflicting Definitions of Qualified Storm Event in Attachment K.

Attachment K, differs from other definitions throughout the rule as follows;

> *"3. Is a storm event that was preceded by **five** consecutive days of dry weather. Dry weather shall be defined as **five consecutive days** of combined rainfall of less than ¼ inch as measured by an on-site rainfall measurement device."*

When is a Storm Anticipated?

The Draft permit requires pre-storm inspections, yet does not give clear guidance on when a storm should be considered predicted and when such inspection should be conducted. We suggest utilizing a percent chance of rain to trigger pre-rain inspections.

G-SIRT

G-SIRT sounds like a potentially promising concept, however, until we have been able to review the proposal it will be impossible to consider how it may impact our operations.

Missing Rationales

On page one of the Fact Sheet there is a missing citation to an analysis of the Board's consideration of the factors required by 40 CFR Section 125.3. We found no further analysis citing that section within the document.

On page eight of the Fact Sheet it is noted;
"[The State Water Board must consider a number of factors including the cost of achieving effluent reductions in relation to the effluent reduction benefits, the age of the equipment and facilities, the processes employed and any required process changes, engineering aspects of the control technologies, non-water quality environmental impacts (including energy requirements), and other such other factors as the State Water Board deems appropriate (CWA 304(b)(1)(B)). ***This analysis and rationale is still under development at this time and will be completed prior to adoption.****]"*

CalCIMA would greatly appreciate the ability to review and comment on this missing analysis. Understanding the benefits and costs of the permit is critical to ensuring it creates a successful and sustainable structure for California.

In order to properly respond and comment on the Draft the public needs a complete document that can be analyzed in full with references. It is very difficult to respond to actions where the Board's own justification cannot be examined. As we requested at the Hearing, we will need an opportunity to comment on the full Draft permit again when it comes before the Board. The incompleteness and lack of clarity in the current version would make the more limited response to errata utilized during the Construction Permit process inappropriate.

Structural Controls Definition:

Attachment K of the Draft includes this definition of structural controls;

> *"Any structural facility designed and constructed to mitigate the adverse impacts of storm water and urban runoff pollution."*

With the permit's reliance on civil engineers we wanted to clarify that non permanent BMPs such as berming, mounding, check dams, and wattles/silt fences have been traditionally considered structural BMPs; structural BMPs do not necessarily mean only hard structures designed by a civil engineer. It would be unnecessary to require temporary structural BMPs like check dams be designed by certified civil engineers.

In addition, the definition of structural control defines it as a structural facility, which seems to be a circular definition. Under this definition, BMPs that have been traditionally considered structural (such as check dams) will be excluded. We request the permit clarify the definition of structural control.

Recommendation

We believe it would be advisable for the Board to engage in a substantial rewrite and revision to this Draft permit. Unfortunately this Draft seems to have been rushed to press without the normal diligence and outreach applied by the Board in scoping activities. Several workshops where stakeholders could have interacted with staff would have undoubtedly created a better Draft document.

Board member Doduc raised some outstanding questions. These questions are precisely the types of issues that could have been worked through by stakeholders with Board staff if

workshops were held instead of rushing through this process. We understand the desire to modify this permit and remain committed to working with the Board and its staff to create a permit that both benefits water quality and can be complied with by industry. It would be advisable for the Board in considering a direction forward to convene stakeholder meetings and conduct a thorough review and revision of this Draft prior to returning it for Board consideration. In addition, the Board should suspend activity on this permit so as to enable a full stakeholder process which includes the opportunity for Board participation to resolve the significant issues and clarifications needed within this draft.

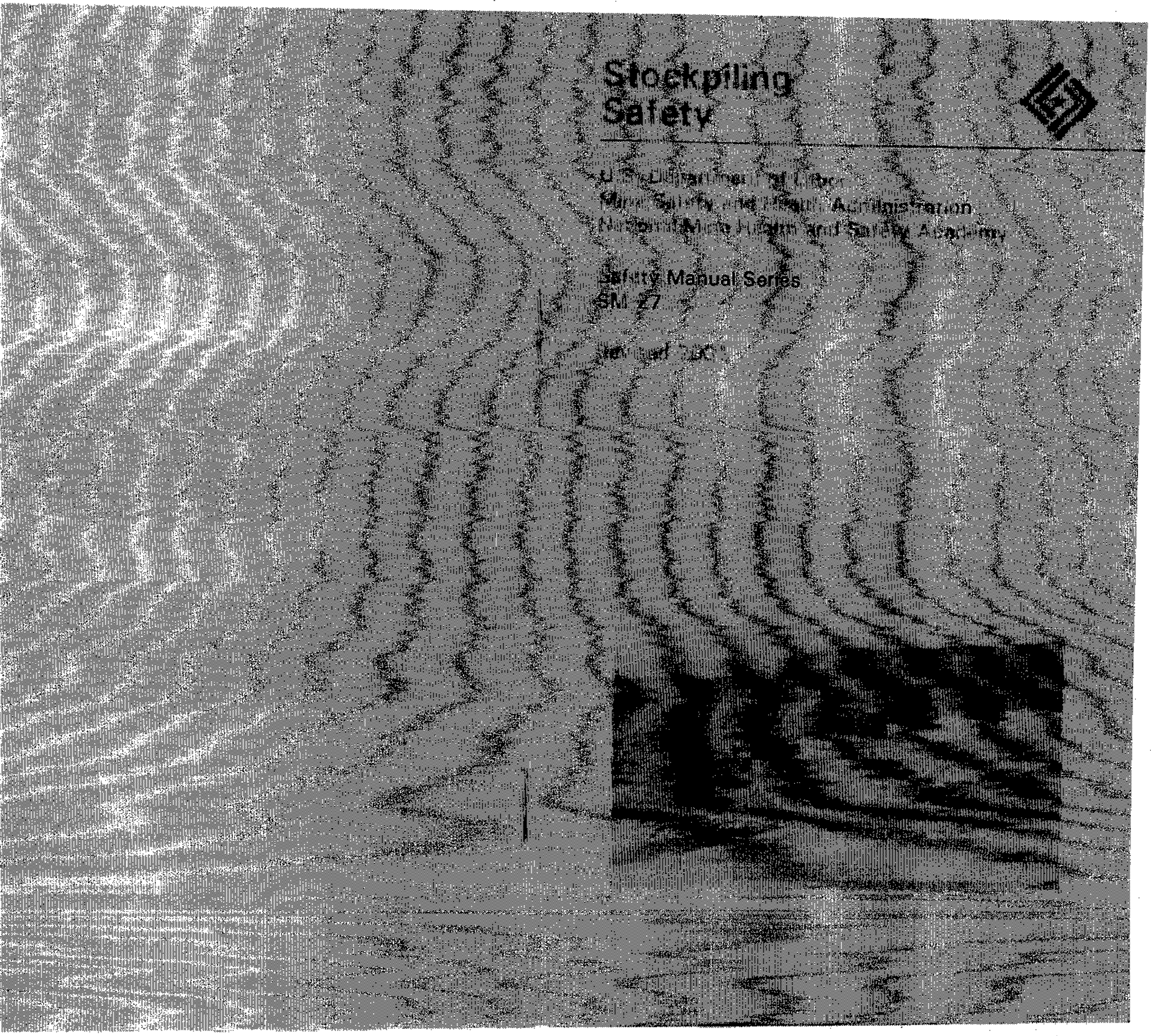
Attachments

WFO Monthly/Daily Climate Data

000
CXUS55 KSTO 151730
CF6STO
PRELIMINARY LOCAL CLIMATOLOGICAL DATA (WS FORM: F-6)

STATION: SACRAMENTO CITY
MONTH: FEBRUARY
YEAR: 2011
LATITUDE: 38 36 N
LONGITUDE: 121 23 W

TEMPERATURE IN F:							:PCPN:	SNOW:	WIND				:SUNSHINE:		SKY		:PK WND	
1	2	3	4	5	6A	6B	7	8	9	10	11	12	13	14	15	16	17	18
									12Z	AVG	MX	2MIN						
DY	MAX	MIN	AVG	DEP	HDD	CDD	WTR	SNW	DPTH	SPD	SPD	DIR	MIN	PSBL	S-S	WX	SPD	DR
1	63	37	50	-1	15	0	0.00	M	M	M	M	M	M	M	M		M	M
2	62	36	49	-2	16	0	0.00	M	M	M	M	M	M	M	M		M	M
3	61	37	49	-2	16	0	0.00	M	M	M	M	M	M	M	M		M	M
4	63	38	51	-1	14	0	0.00	M	M	M	M	M	M	M	M		M	M
5	74	41	58	6	7	0	0.00	M	M	M	M	M	M	M	M		M	M
6	74	51	63	11	2	0	0.00	M	M	M	M	M	M	M	M		M	M
7	71	45	58	6	7	0	0.00	M	M	M	M	M	M	M	M		M	M
8	61	46	54	1	11	0	0.00	M	M	M	M	M	M	M	M		M	M
9	61	36	49	-4	16	0	0.00	M	M	M	M	M	M	M	M		M	M
10	64	35	50	-3	15	0	0.00	M	M	M	M	M	M	M	M		M	M
11	66	37	52	-1	13	0	0.00	M	M	M	M	M	M	M	M		M	M
12	71	38	55	2	10	0	0.00	M	M	M	M	M	M	M	M		M	M
13	69	38	54	1	11	0	0.00	M	M	M	M	M	M	M	M		M	M
14	60	46	53	-1	12	0	0.06	M	M	M	M	M	M	M	M		M	M
15	63	52	58	4	7	0	0.01	M	M	M	M	M	M	M	M		M	M
16	55	42	49	-5	16	**0**	**0.89**	M	M	M	M	M	M	M	M		M	M
17	48	42	45	-9	20	0	0.68	M	M	M	M	M	M	M	M		M	M
18	47	41	44	-10	21	0	0.59	M	M	M	M	M	M	M	M		M	M
19	52	38	45	-9	20	0	0.21	M	M	M	M	M	M	M	M		M	M
20	55	32	44	-11	21	0	0.00	M	M	M	M	M	M	M	M		M	M
21	56	39	48	-7	17	0	0.00	M	M	M	M	M	M	M	M		M	M
22	61	36	49	-6	16	0	0.00	M	M	M	M	M	M	M	M		M	M
23	59	35	47	-8	18	0	0.00	M	M	M	M	M	M	M	M		M	M
24	52	39	46	-9	19	0	0.38	M	M	M	M	M	M	M	M		M	M
25	53	36	45	-10	20	0	**1.06**	M	M	M	M	M	M	M	M		M	M
26	52	31	42	-13	23	0	0.00	M	M	M	M	M	M	M	M		M	M
27	57	31	44	-11	21	0	0.00	M	M	M	M	M	M	M	M		M	M
28	60	37	49	-6	16	0	0.00	M	M	M	M	M	M	M	M		M	M
SM	1690	1092			420	0	3.88	M		M			M		M			

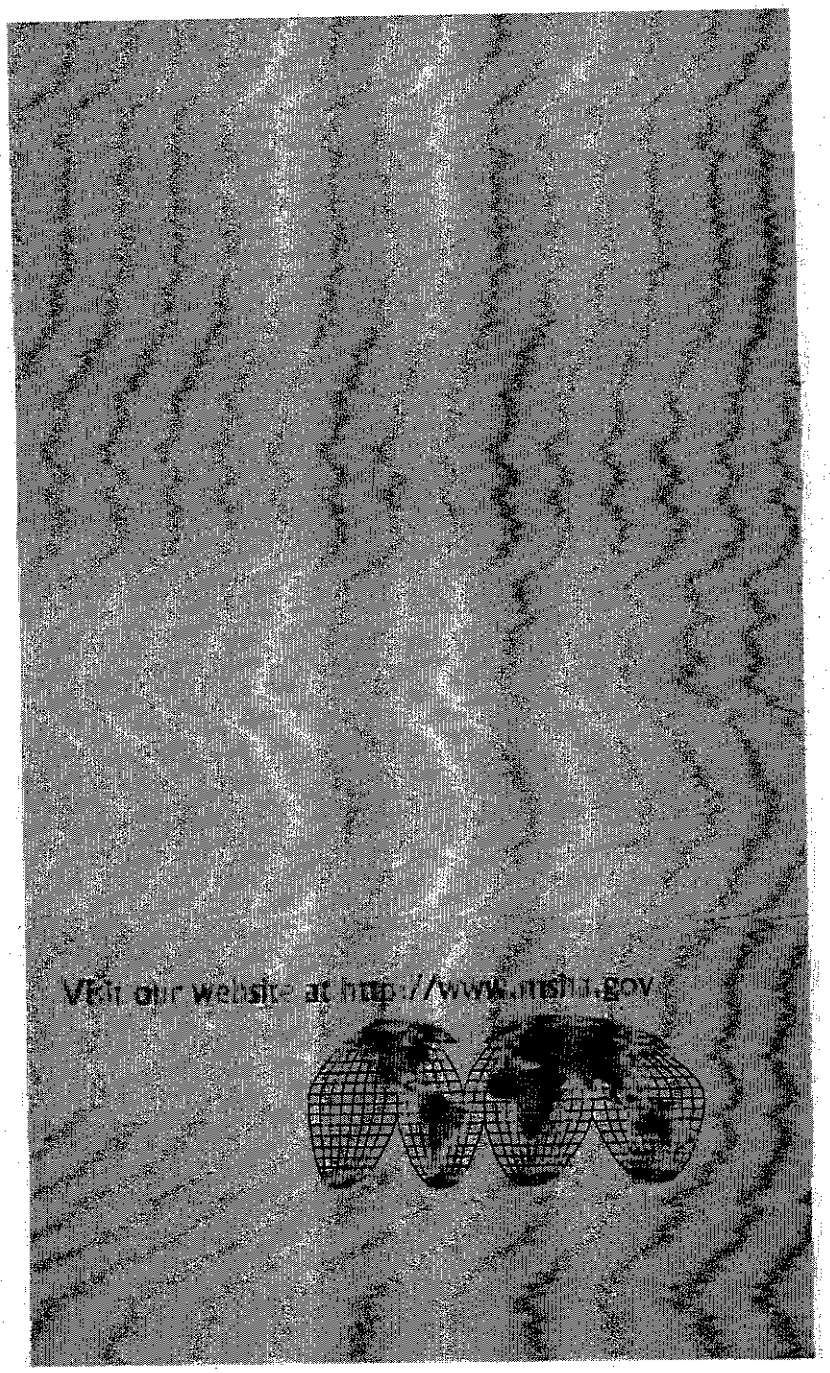


Stockpiling Safety

U.S. Department of Labor
Mine Safety and Health Administration
National Mine Health and Safety Academy

Safety Manual Series
SM 27

Revised [illegible]



Stockpiling Safety

U.S. Department of Labor
Elaine L. Chao
Secretary

Mine Safety and Health Administration
Dave D. Lauriski
Assistant Secretary

Safety Manual Series
SM 27

Revised 2001

PREFACE

This is one of a series of manuals prepared by the Mine Safety and Health Administration (MSHA) to acquaint the reader with a specific area of mining. This manual deals with the safe operation of mobile equipment on and around stockpiles. It discusses the hazards associated with stockpiles and reviews the procedures that can be used to minimize the occurrence of accidents.

Other manuals available in this series are listed on the inside back cover. Multiple copies may be ordered for $2.00 each. Single copies of safety manuals may be obtained free of charge from:

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Introduction

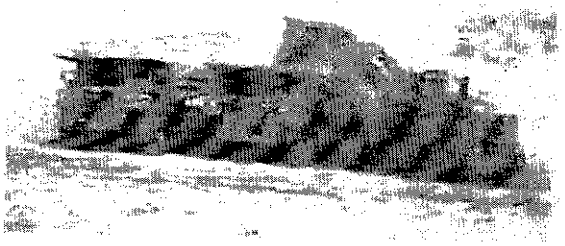
Stockpiles provide temporary storage for material awaiting shipping or processing. They are constantly changing in size and shape depending upon production levels or shipping schedules, and often involve a great deal of equipment activity. Mobile equipment involved in stockpiling activities include haulage trucks, front-end loaders, dozers, scrapers, an occasional maintenance vehicle, and a supervisor's pickup. Highway trucks and other non-mining vehicles can also be found near stockpiles contributing to the congestion. All of these vehicles, whether mining or private, are subject to hazards associated with stockpiling operations.

Stockpiles are designed for temporary storage and ease of material flowability, and often exhibit only marginal strength. When the heights of the piles, their continually changing shape, and the amount of vehicle activity are considered, it is easy to understand why stockpile accidents occur and why they are so prevalent within the mining industry.

The safe operation of mobile equipment on and around stockpiles can only be accomplished when equipment operators and their supervisors are aware of the potential hazards. This manual discusses the hazards associated with stockpiles and reviews the procedures that can be used to minimize accidents.

Mobile Equipment Accidents

A mobile equipment operator has a greater chance of being injured in an accident than the average surface miner. This can be attributed to the size, speed, and complexity of mobile equipment and the ever-changing mine environment. The mine environment is continually changing due to the natural progression of the production areas and the effects of the weather.



Mobile equipment accidents are more severe than the average surface mining accident.

In addition, many of the older mining operations, which were originally designed for small equipment, have updated to larger equipment without corresponding changes in mine layout and facilities.

THE SAFE OPERATION OF MOBILE EQUIPMENT IS EXTREMELY DEPENDENT UPON THE CAPABILITIES OF THE EQUIPMENT OPERATOR. The equipment operator's ability to correctly identify and quickly react to a potential hazard is more critical than for most mining tasks. The dynamic nature of the job provides more opportunity for a hazardous situation to develop, and a serious injury to occur.

IT IS VERY IMPORTANT TO BE TRAINED ON EACH PIECE OF EQUIPMENT BEING OPERATED. Controls will vary on different pieces of equipment. The controls may be located in different positions or they may operate differently. This can lead to momentary confusion and incorrect reactions when operating an unfamiliar piece of equipment. Successfully avoiding an accident often depends on the operator making the correct split-second decision.

Seat Belts

The chance of surviving an accident is greater when a seat belt is worn. In fact, the safest place to be during an accident is in the cab with a seat belt fastened. Nearly one-half of all mobile mining equipment fatalities occur to operators who are not wearing seat belts, or who take them off in a futile attempt to jump clear of the equipment. Staying with the machine is almost always better than attempting to jump out. A number of needless fatalities can be prevented by the simple act of wearing a seat belt and remaining within the cab.

Federal regulations mandate (with a few exceptions) that seat belts be provided on dozers, scrapers, front-end loaders, haulage trucks, etc., and that they be maintained in working condition. More importantly, the regulations state that they must be worn.

Seat belts save lives.

Stockpile Accidents

Stockpiles by their nature have a high amount of vehicle activity. This activity occurs at the top of the pile where dumping takes place and at the toe of the pile where loading takes place. Stockpile accidents usually involve haulage trucks, front-end loaders and dozers, but highway trucks, utility trucks, scrapers, and pedestrians can also be involved. (The construction of stockpiles with conveyors is also widely practiced, presenting a unique set of hazards. However, a discussion of these hazards is not within the scope of this manual.)

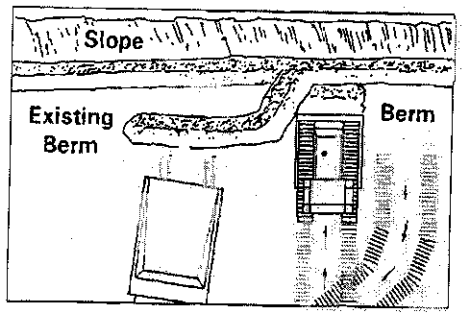
Stockpile accidents occur in all of the mineral industries including coal, metal, nonmetal, crushed stone, and sand and gravel. The accidents occur on stockpiles of mine run rock (blasted stone), screened stone, waste rock, fines, and sand and gravel. The same types of accidents also occur during the dumping of overburden, which is normally associated with permanent to semi-permanent structures such as waste dumps and spoil piles.

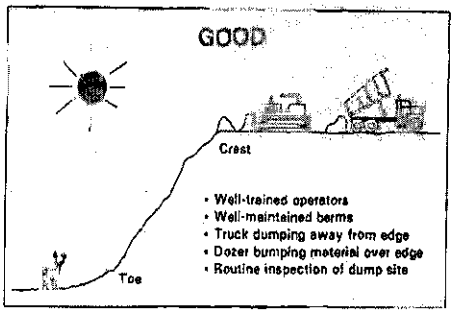
Stockpiling Techniques

Stockpiling techniques vary depending upon the size of the mine, the type of material handled, and type of equipment available. Some techniques are safer than others and should be used when applicable.

A "Good" Method of Stockpiling. A "good" method of stockpiling involves the haulage truck dumping its load

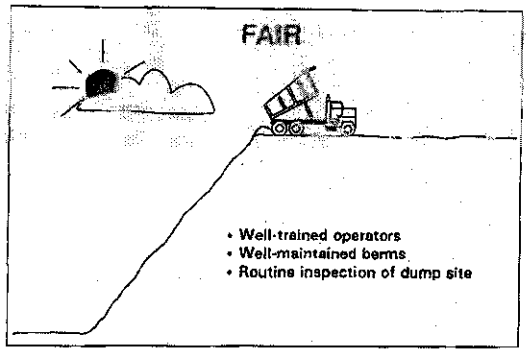
back from the crest of the pile. The material is then bumped over the edge by a dozer or front-end loader using other material. This method allows for the easy construction and maintenance of berms. This method also keeps mobile equipment away from the edge of the pile where the equipment has the highest chance of being involved in an accident. When combined with well-trained operators and routine inspections for signs of slope instability, this method drastically reduces the chance for an accident.





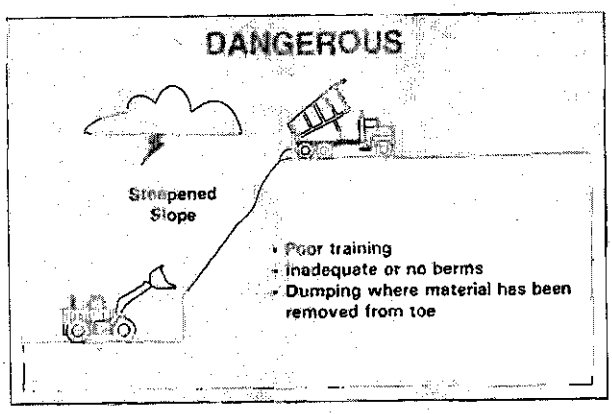
"Good" stockpiling method (top and side view).

A "Fair" Method of Stockpiling. A "fair" method of stockpiling involves the haulage truck dumping its load directly over the crest of the pile. For this method to be performed safely, adequate berms must be maintained and the equipment operators well trained regarding stockpile hazards. Other factors including the type of material, condition of the material, weather, and type and size of haulage truck need to be considered. It is also important to routinely inspect the dump area for signs of slope instability. When using this method it is important to ensure that material is not removed from the toe of the pile where dumping is taking place.



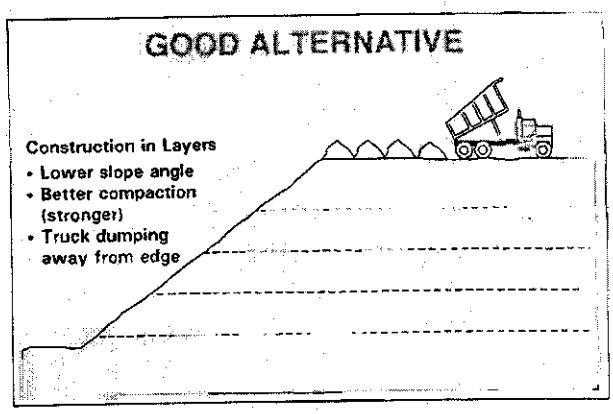
"Fair" stockpiling method (side view).

A "Dangerous" Method of Stockpiling. A "dangerous" method of stockpiling involves the haulage truck dumping its load directly over the crest of a pile where material has been removed from the toe. Removing material from the base of a pile generally results in a steepened slope. A steepened slope is less stable and cannot support as much weight. This creates a hazard for equipment operating near the crest of the pile, which is in danger of being involved in a slope failure. The mine supervisor, loader operator, and haulage truck driver must ensure that dumping does not occur where the slope has been steepened by reclaiming activities. The practice of dumping over the edge of a stockpile, in an area where the slope has been loaded out at the toe, should be prohibited.



"Dangerous" stockpiling method (side view).

Good "Alternative" Method of Stockpiling. A very good "alternative" method of stockpiling involves the construction of stockpiles in layers. In this method, haulage trucks dump their loads as piles on a single level. After a level is complete it is then smoothed over by a dozer and dumping continues on the next layer. The operation of the mobile equipment compacting the previous layer results in greater pile strength. The method also permits the slope angle to be maintained lower than the angle of repose, resulting in greater slope stability. Haulage trucks are also kept away from the edge of the pile. From a quality control standpoint, this method also avoids undesirable size separation of material.

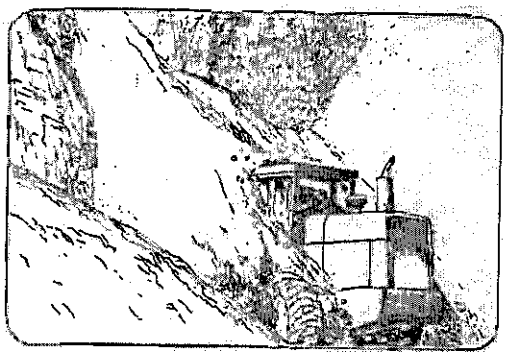


Good "alternative" method of stockpiling.

Loading Out at the Toe

"Loading out at the toe" refers to removal of material from the base or toe of the stockpile. This is usually done by front-end loaders. The material is loaded into trucks for shipping or is fed directly into crushers or feeders for further processing.

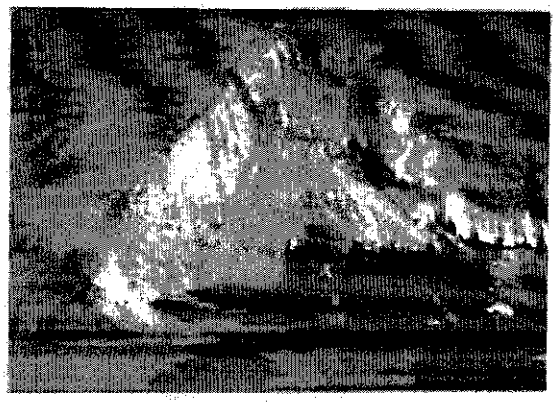
This method often results in a steepened slope with reduced stability. This presents a hazard to the loader operator at the base of the pile who needs to continuously watch for collapse of the steepened face.



Use extra caution when material is being removed from the base of a pile.

Equipment operators and others at the top edge of the pile are also in danger of being involved in slope failure. The weight of a haulage truck, in particular, can cause a weakened slope to fail. When this happens, the truck often falls down the slope with disastrous results. Loading out at the toe also presents a hazard to pedestrians at the base of the pile, particularly highway truck drivers, who may be engulfed by falling material while walking between their truck and the pile.

THE PRESENCE OF A BERM DOES NOT NECESSARILY SIGNIFY THAT IT IS SAFE TO DUMP. Loading out at the toe can result in slopes so weakened that the slope, including the berm, will fail when a truck backs up to dump. Berms in these instances give a false sense of security to the haulage truck operator who assumes the berm signifies a stable slope. Removing material from the base of the pile can also result in the collapse of the berm. This can allow haulage truck drivers to simply back over the edge of a pile when, unexpectedly, a berm is no longer there.



Dumping on top of a pile that has been loaded out at the toe can result in disaster.

When loading out at the toe:

- The loader operator should be alert to material sloughing down the pile, and the fall of frozen or consolidated chunks.
- The loader operator should ensure that haulage trucks don't dump at the top of a pile where the toe has been removed.
- Highway truck drivers should not walk around the base of the pile or between equipment and the pile.
- Haulage truck drivers should routinely observe the base of the pile where they are dumping to ensure the pile has not been oversteepened by the removal of material.
- Haulage truck drivers should dump only in a designated area that has been prepared by the construction of berms, and after a supervisory inspection for signs of slope instability.
- When the slope is oversteepened, the haulage truck should dump a safe distance from the crest. The material can then be bumped over the edge by a dozer or front-end loader, using other material.
- When the slope is oversteepened, the haulage truck can also dump at the base of the pile, adjacent to where the loader is operating.
- If the pile is oversteepened, then dumping over the crest should not be allowed until: material bumped over the crest of the pile reaches its original shape; berms are constructed; and an inspection for slope stability is completed.

Slope Instability

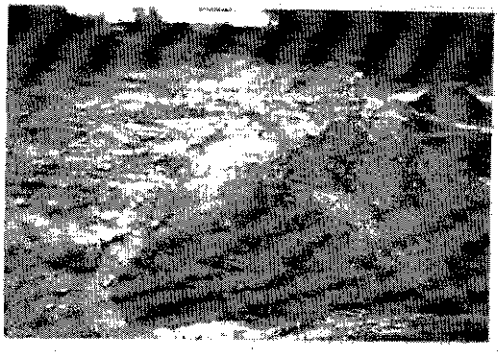
Stockpiles by their nature are only marginally stable. As material is dumped over the edge of a pile it slides down the slope coming to rest at the angle of repose. At the angle of repose the pile is just strong enough to support its own weight. The strength of the stockpile will often increase a certain amount from the compaction and vibration of mobile equipment operating on it. (This may be apparent by the steeper slopes formed when material is removed from the base of the pile.) This additional strength can be misleading, however, as an oversteepened slope may not support the weight of mobile equipment.

Moisture within the stockpile will also allow the slope to stand at a steeper angle. This indication of increased slope strength is known as "apparent cohesion." This strength may disappear quickly with an increase or decrease in moisture levels. Apparent cohesion is also vulnerable to collapse induced by equipment vibration. Freezing can also result in a temporary increase in strength. This increase in strength is highly variable and can quickly disappear with a change in the weather. In general, moisture or freezing will give a temporary indication of strength that cannot be relied upon.

DUE TO THE MARGINAL STRENGTH OF STOCKPILES, IT IS IMPORTANT TO STAY ALERT TO ANY SIGNS OF SLOPE INSTABILITY. If one of the following warning signs appears, the slope edge may not be safe for equipment operation: 1) cracks along the crest, 2) slumping on the slope, or 3) bulging at the toe.

Cracks Along the Crest

Cracks along the edge of a slope signify that the slope is having trouble supporting its own weight. The additional weight of mobile equipment would likely be sufficient to cause a slope failure. **WHEN CRACKS ARE OBSERVED THE AREA SHOULD BE MARKED OFF BY A BERM OR CONES UNTIL THE CONDITION IS CORRECTED.** A crack is an important warning sign and shouldn't be covered up. Dumping can continue at a safe distance from the cracks with the material being bumped over the edge, preferably by a tracked dozer. The dozer should not operate past the cracks.

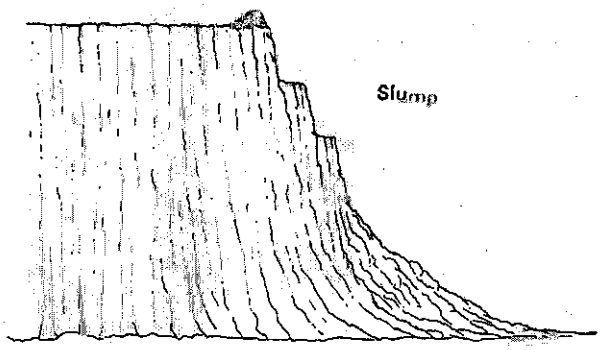


Cracks along crest of pile.

f the weakened slope resulted from loading out at the oe, then material should be bumped over the edge until he slope is at the original angle of repose. Pushing naterial over the edge until the original angle of repose s achieved should strengthen the pile sufficiently to ermit further end dumping over the edge. Dumping material at the base of the pile will add additional strength. If slope stability is still uncertain, dumping should continue at the base of the pile rather than at the top edge.

Slumping on the Slope

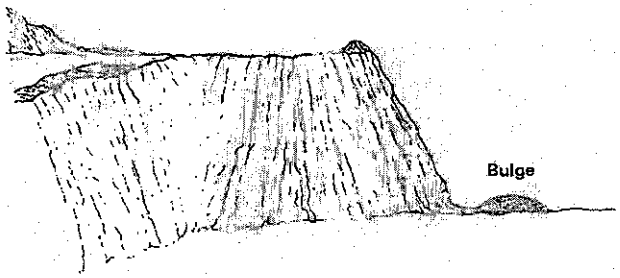
Slumping on the face of a pile is evidence that the slope cannot support its own weight and is failing. It normally occurs on waste dumps consisting of overburden and results when the slope angle near the top of the pile is too steep (often caused by the tendency of the waste, particularly the fines, to temporarily hang up near the top). When slumping is observed, end dumping over the edge should be stopped. Haulage trucks should dump their load a safe distance back from the slope edge, and dozers should be used to push the material over the crest.



Slumping along face of pile.

Bulging at the Toe

Bulging at the base of a pile is evidence that the foundation cannot support the weight of the pile. This is rare and usually occurs on large, relatively high, waste dumps. Movement of the material is usually very slow. Bulging can indicate the potential for a slope failure that might involve material movement up to and including the crest of the pile. When a bulge is observed near the base of a pile, dumping operations should be closely monitored, frequent inspections performed for signs of an impending failure (cracks at the top of pile, etc.), and a slope stability evaluation completed.



Bulging at the toe.

Signs of slope instability may be difficult to see when operating mobile equipment. For this reason a supervisory inspection on foot should supplement the equipment operator's constant vigilance. In general, MSHA regulations state that:

30 CFR 56/57.9304 Unstable ground.

(a) Dumping locations shall be visually inspected prior to work commencing and as ground conditions warrant.

(b) Where there is evidence that the ground at a dumping location may fail to support the mobile equipment, loads shall be dumped a safe distance back from the edge of the unstable area of the bank.

30 CFR 77.1713 Daily inspection of surface coal mine; certified person; reports of inspection.

(a) At least once during each working shift, or more often if necessary for safety, each active working area and each active surface installation shall be examined by a certified person designated by the operator to conduct such examinations for hazardous conditions and any hazardous conditions noted during such examinations shall be reported to the operator and shall be corrected by the operator.

Haulage Trucks

Backing Over the Edge

Operators must **STAY ALERT** when operating their haulage trucks near the crest of a stockpile. They must know where their rear tires are in relation to the slope edge. A surprising number of stockpile accidents occur when a haulage truck is simply backed over the edge of a pile. When operators are end dumping over the crest of a stockpile, they must make sure that they are in a designated area with adequate berms or other impeding devices.

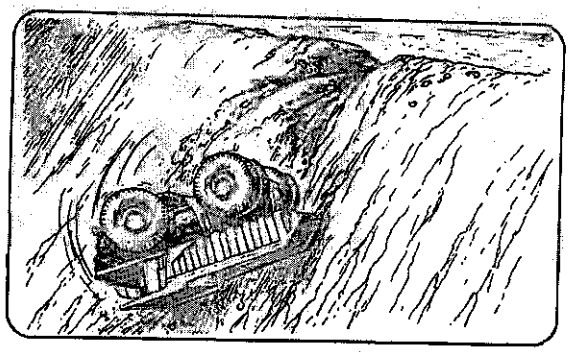
Know where your rear tires are.

Mirrors must be clean and properly adjusted. If dumping at night there should be adequate lighting to see the edge. Brakes must be tested to ensure they are working properly.

Operators should back slowly to ensure there is adequate time to react and stop before contacting the berm. **BERMS CANNOT BE RELIED ON TO STOP A TRUCK.** When a spotter is used, the spotter should stand where his/her signal can be clearly recognized. Spotters should use signal lights at night and when visibility is limited.

Berms

Backing through or over a berm is a common cause of stockpile accidents. A normal rule of thumb is that berm height should be equal to mid-axle height of the largest truck using the dump site. For roadways, this is mandatory under 30 CFR 56/57.9300. The MSHA Program Policy Manual, Volume V, PART 77, Subpart Q, page 202, also requires that berms be equal to axle height of the largest truck at the work site. The berms should be constructed strong enough to survive a moderate impact. However, they should not be used to stop a truck. Berms should be used as a visual indicator of where the truck should be stopped, or to provide a "feeling" of the berm as the rear tires contact it. **A BERM SHOULD BE USED FOR SPOTTING ONLY!**



Don't rely on a berm to stop a truck.

If a berm is present it should not be assumed that it is safe to dump. The haulage truck driver should verify that material has not been removed from the toe of the pile. Routine supervisory inspections should also be performed to ensure that the slope is stable. Federal regulations state that:

30 CFR 56/57.9301 Dump site restraints.

Berms, bumper blocks, safety hooks, or similar impeding devices shall be provided at dumping locations where there is a hazard of overtravel or overturning.

30 CFR 77.1605 Loading and haulage equipment; installations.

(l) Berms, bumper blocks, safety hooks, or similar means shall be provided to prevent overtravel and overturning at dumping locations.

Therefore, depending upon the specific mine, an impeding device other than a berm may be used. **TRUCK DRIVERS MUST MAKE SURE THAT THEY ONLY DUMP WHERE A BERM OR IMPEDING DEVICE IS PROVIDED.**

Dumping in Designated Area

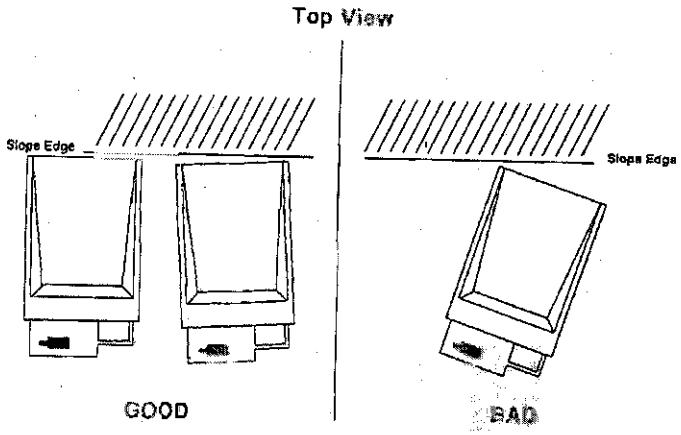
Drivers must dump only at a location designated by the supervisor. **IF A DRIVER IS UNSURE WHERE TO DUMP, THEN HE/SHE SHOULDN'T DUMP.** Drivers should contact their supervisor and determine the correct dumping location rather than to take a chance and dump at a potentially unsafe area. A supervisor may designate dump locations based not only on production requirements, but also on safety considerations that drivers are unaware of. When drivers are assigned to a dump location, they should stay alert for potential hazards and notify the supervisor immediately if a problem is spotted.

Dump at the designated location.

If dumping is done in an area where dozers are being used to push material over the edge of the pile, they should be permitted to do their job. Drivers should dump their loads back from the slope edge as directed. Accidents routinely occur when a truck dumps over the edge where a dozer has been assigned to push material over. In many of these cases, the crest of the pile is not strong enough to support the weight of the truck or the berms are inadequate.

Backing Orientation

When backing at an angle to the slope edge one set of rear duals will reach the edge before the other. If the rear tires on the side of the truck opposite the operator's compartment reach the slope edge first, the chance for an accident increases. This happens when the operator is watching his/her side of the truck and unexpectedly contacts the berm with the other side. The far-side tires contact the berm too hard and the truck either goes through or over the berm. If the berms are inadequate or other impeding devices are not provided, then the operator may simply back the far-side duals over the edge.



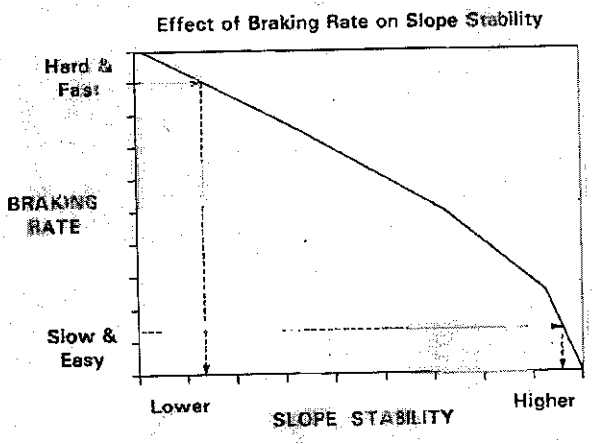
Back square to the slope edge.

It is important for drivers to back their trucks square to the edge of the slope or at a slight angle that places the operator's side closer to the slope edge. Drivers should primarily use the mirrors on the operator's side of the truck when backing. It is much easier to judge backing distance when using these mirrors. They are closer and provide a larger image than the mirrors located on the far side of the truck.

In summary, **DRIVERS SHOULD BACK SQUARE TO THE EDGE USING THE CLOSEST MIRROR, OCCASIONALLY GLANCING AT THE FAR MIRRORS TO CHECK FOR CORRECT ORIENTATION AND POTENTIAL OBSTACLES.**

Backing Speed

Drivers should approach the slope edge at a moderate to slow speed when backing to dump, and apply the brakes gradually while stopping. Braking hard at the last moment imposes a large horizontal force in addition to the normal vertical force imposed by the weight of the truck. This additional horizontal force substantially increases the chance of a slope failure. Even when backing to the slope edge slowly, it is important to brake gradually.



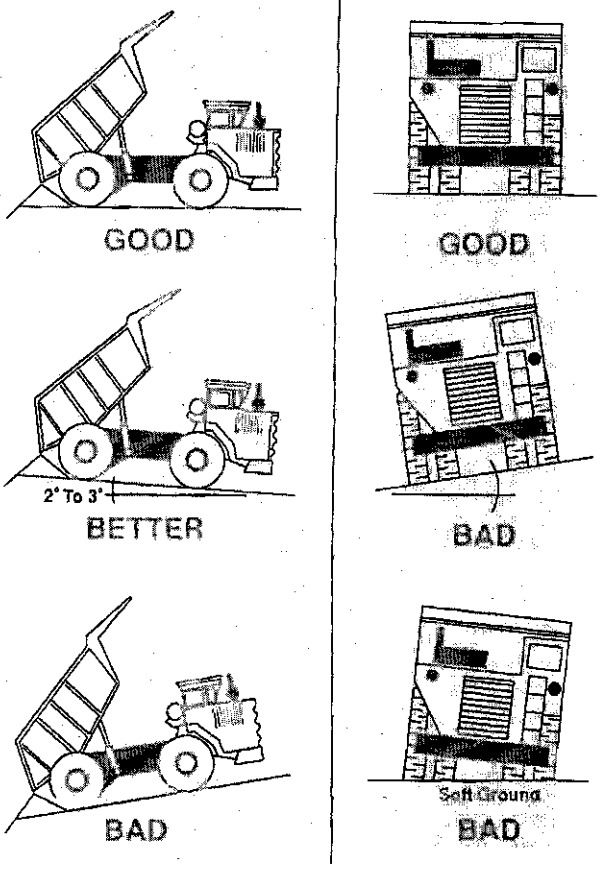
Back slowly and brake easy.

In addition to slope failures, there are other hazards associated with backing too fast. Backing too fast decreases the driver's reaction time to hazards that may develop at the dump point or problems that may develop with the truck. It also increases the risk that the driver will contact the berm too fast, going over or through it.

Dumping on Unlevel Ground

The vehicle center of gravity rises as the truckbed is raised into the dump position. If the truck is parked on a slight downhill grade toward the berm or if it is leaning sideways, it may be in danger of tipping. The potential for tipping increases when the load is hanging up in the truckbed or the material is not flowing out freely.

The dump point should **NEVER** be constructed so the truck is parked on a downward slope toward the berm. If the decline is too steep and material hangs up in the truckbed, then the truck is in danger of tipping over backwards. Sloping the dump point toward the berm also provides poor drainage, allowing water to accumulate at the berm. An accumulation of water at the berm (dump point) can result in decreased slope strength and a soft footing which may allow the rear tires to sink. In addition, stopping on a decline requires additional braking force. This places additional reliance upon the braking system and imposes greater forces on the slope, increasing the potential for a slope failure. **THE DUMP POINT SHOULD BE CONSTRUCTED LEVEL OR AT A SLIGHT UPWARD INCLINE.** Maintaining the dump point at a slight upward angle (1° to 3°) allows for drainage and decreases the amount of force required to stop the truck. It also decreases the chance of tipping over backwards should material hang up in the truckbed.

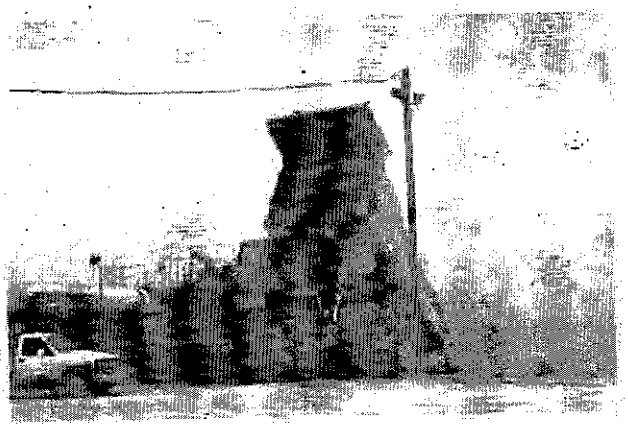


THE DUMP POINT SHOULD BE CONSTRUCTED SO THE HAULAGE TRUCK SITS FLAT, NOT LEANING TO THE SIDE. If the sideways angle is too steep or material hangs up in the truckbed, the truck is in danger of tipping on its side. This is also a problem when the dump point is soft. The rear tires may sink as the truckbed is raised into the dump position. If the tires do not sink evenly, the truck will lean to one side increasing the chance of tipping over. Soft material will also force the operator to apply more power to the drive wheels when approaching the berm, complicating control of the truck in this potentially hazardous area.

Use caution when dumping on unlevel or soft ground.

Truckbed Position

When you approach the dump site look for any overhead obstructions, such as power lines, which may be in the area. After backing to the dump point bring the truck to a complete stop and apply the parking or holding brake. Follow the procedures provided in the operators manual for the particular truck you are operating.

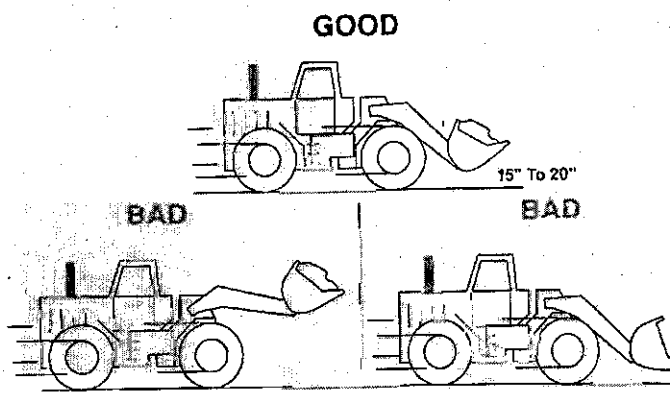


Make sure the truckbed is lowered before leaving dump site.

After dumping the load, pull out slowly. Engage the transmission before releasing the parking brake to prevent the truck from rolling backwards. Lower the truckbed as quickly as possible. If material is hanging up in the bed, moving the truck can increase the chance for tipping over. The truckbed should be fully lowered before leaving the dump site and entering the haul road.

Tramming

It is very important that the bucket be kept low while tramming. This maintains a low center of gravity and provides better stability. It also allows for a unobstructed view of the roadway. The bucket should be tilted back and kept 15 to 20 inches off the ground. When tramming with a full bucket, the bucket should be shaken slightly before starting to remove any loose material that may fall off. When tramming with an empty bucket, the bucket should not be tilted forward or carried too low. The bucket might unexpectedly catch on or hit an obstruction or rough spot in the roadway.



Keep the bucket low and maintain control.

tramming on a steep grade, the operator should go ow and keep the transmission in a low gear. This will low higher engine RPM and adequate hydraulic essure for braking and steering. A lower gear will also lp maintain a lower speed with less danger of stalling.

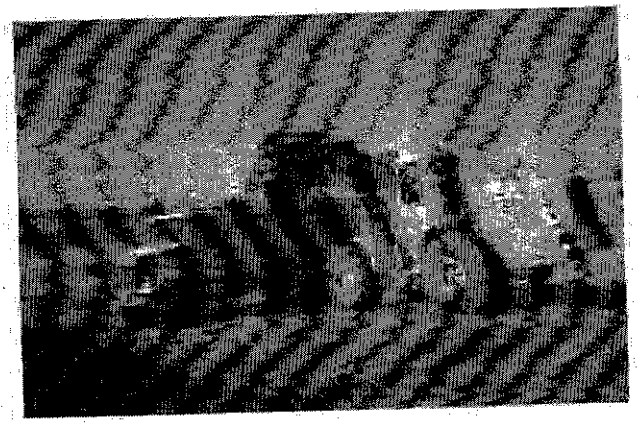
aving the bucket elevated (especially when full) gnificantly increases the chance of tipping sideways. is can occur when tramming along a slight grade or if operator inadvertently drives up along the bottom ge of a stockpile or berm. If a loader is trammed on a dway where a drop-off or danger of rollover exists, operator should make sure adequate berms are intained.

en a loader is trammed up an elevated ramp to a der, berms become especially important. The ramp pe should be maintained at 10 degrees or less with a el pad provided in front of the feeder. The pad should at least 1½ times the length of the loader. (The rator should be able to see the top edge of the ramp en starting to back away from the hopper.) Berms uld be provided and the sides of the ramp should be structed lower than the angle of repose to ensure quate stability.

Loading Trucks

When loading a truck, the impact of material into the truckbed should be minimized. This can be accomplished by loading fines prior to any large chunks, by tilting the bucket slowly to reduce the sudden drop of material, and, when possible, by breaking large consolidated chunks before loading. It is equally important not to strike the truck with the loader bucket or bucket arms. Any sudden impact can cause damage to the truck and injury to the truck driver.

Loader operators should watch for the truck drivers and make sure that they stay in the cab of the truck. If they must get out, have them stand a safe distance from the slope and out of the way of equipment operation. The loader operator should not swing the loader bucket over the cab of the truck or load while individuals are standing next to the truck. The loader operator should keep the load area clean, and when time permits clean up, level, and maintain berms at the top of the pile.



Use caution around other equipment.

Loader operators and truck drivers should stay alert to other equipment that may be operating in the area and the occasional unexpected pedestrian. Windows and mirrors should be clean and properly adjusted. If it is windy and dusty, the loader operator should keep the wind to his/her back while dumping so dust won't obscure vision. Finally, it is important that backup alarms be regularly checked to ensure that they are working properly.

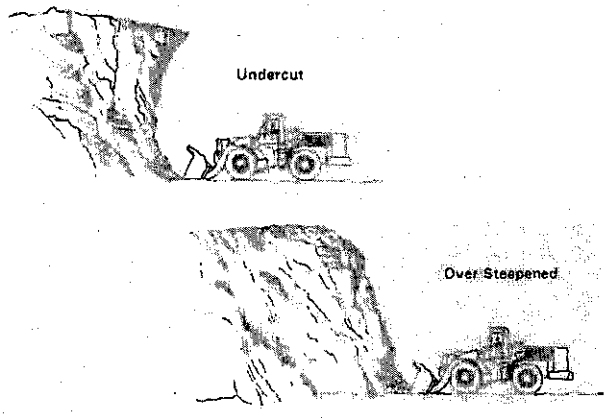
Operating at the Base of the Pile

In most cases when material is removed from the toe of a stockpile, material will collapse and flow down the face of the pile. This is good as the slope remains at the angle of repose maintaining stockpile stability. If the material does not flow easily due to moisture, freezing, or compaction, there is danger of oversteepening or undercutting the pile. This can result in the unexpected fall or collapse of the slope. The loader operating at the base of the pile is in danger of being engulfed by loose material or struck by large consolidated chunks.

The hazard becomes greater as stockpile height increases, especially when the pile becomes higher than the reach of the loader. Slopes not only become weaker with height (for material that does not easily flow), there is more material involved when the slope does fail. If a stockpile, significantly higher than the reach of the loader, begins to become oversteepened or undercut, immediate action is required. Material should be bumped over the crest and the pile worked down from above until the slope approaches the original angle of repose. When possible this should be accomplished with a dozer. (When available, specially equipped machinery such as a long arm backhoe may offer a safer alternative, without the inherent dangers associated with equipment operation on top of the pile.) **IT IS VERY IMPORTANT THAT THE CONDITION NOT BE ALLOWED TO GET SO BAD THAT IT CAN'T BE CORRECTED WITHOUT ENDANGERING WORKERS.** If oversteepening or undercutting routinely occurs, the height of the pile

should be reduced to a height only slightly greater than the reach of the loader.

When pile height decreases so does the danger. If a stockpile only slightly higher than the reach of the loader bucket becomes undercut or oversteepened, use the loader bucket to work the face of the pile from the top down. It is very important that conditions are not allowed to become unsafe before corrective action is taken.



Don't allow the stockpile to become oversteepened or undercut.

If portions of the pile are frozen, then large chunks can slide or fall. They can strike the loader, severely injuring the operator within the cab. They can also bounce into the cab striking the operator. Accidents have occurred where entire cabs have been crushed.

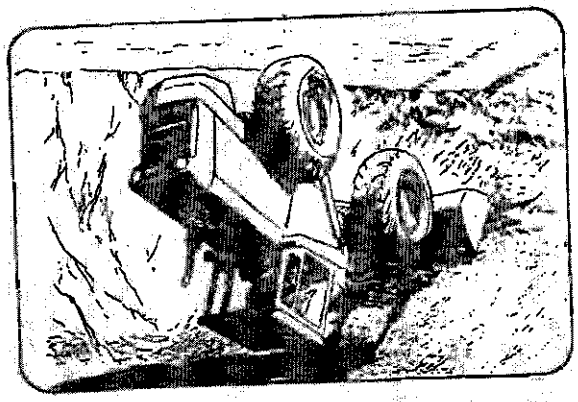
THE LOADER SHOULD ALWAYS BE OPERATED PERPENDICULAR RATHER THAN PARALLEL TO THE BASE OF THE PILE. This places the operator compartment further from the slope. It allows for quicker response in moving the loader should a slope failure occur. In addition, when operating both close to and parallel to the slope, less material is required to bury the cab, and the operator becomes more susceptible to falling or bouncing rocks.

THE LOADER OPERATOR IS IN THE BEST POSITION TO OBSERVE A STOCKPILE HAZARD. If a hazardous situation develops, the loader operator should take immediate action. Other equipment should be prevented from operating at the top or base of the pile until the situation is corrected.

Operating at the Top of the Pile

While operating at the top of the pile, front-end loaders are subject to many of the same hazards as haulage trucks. These hazards include driving over the edge, going through or over an inadequate berm, or being involved in a slope failure. As with haulage trucks, most of the slope failures occur as a result of material being removed from the base of the pile. In addition, when operating close to and parallel to the slope edge, material settlement or soft ground may be sufficient to tip the loader over or cause the operator to lose control.

THE BEST METHOD TO PREVENT LOADER ACCIDENTS AT THE TOP OF A PILE IS TO KEEP THE LOADER PERPENDICULAR TO AND FACING THE SLOPE EDGE. This keeps the weight of the loader further from the slope edge and lowers the chance of tipping or leaning sideways if the edge settles. It also allows you to quickly back the loader out of danger should a hazard develop.



Keep loader perpendicular to the slope edge.

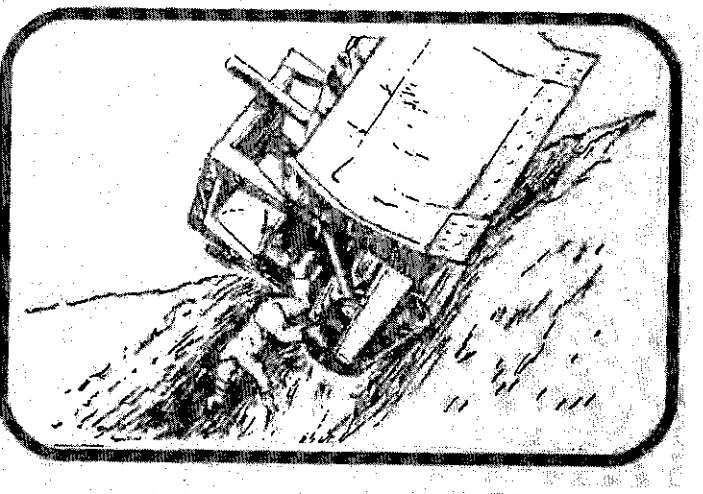
Dozers

Pushing Material

The power, stability, and traction of dozers can result in a false sense of security. Operators should never become overconfident in the capabilities of the dozer or in their capabilities of operating it. When pushing material over the crest of a stockpile or waste dump, the operator should stop a safe distance from the edge and use other material to bump it over.

THERE SHOULD ALWAYS BE A BERM MAINTAINED AT THE CREST OF THE PILE to prevent equipment operators from inadvertently going over the edge. When working or leveling the top of the pile, operators must keep track of where the edge is. Many accidents occur when the dozer unexpectedly backs over the edge of a pile.

The dozer should always be perpendicular to and facing the slope edge. This will allow a quicker response in backing from the edge should a slope failure or settlement occur. An operator should NEVER run the dozer along the slope edge. The weight and vibration of the machine increase the chance that a slope failure and rollover will occur. When operating parallel to the slope edge, there is also less room and time to respond in case of operator error.



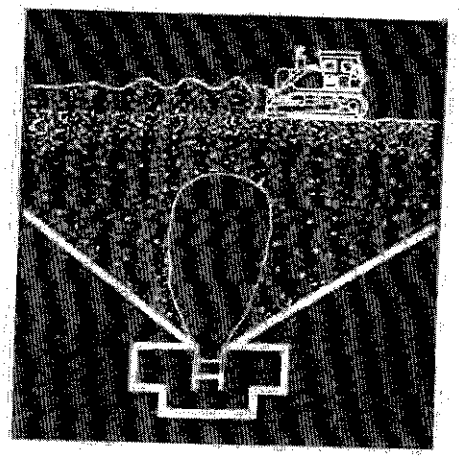
Never push a load completely over the edge. Use the next load to bump it over.

Dozer operators should always watch for signs of slope instability such as cracks along the crest or slumping on the slope. If there are visible signs of slope instability, operators should maintain a safe distance from the edge. They should be alert to the changes in ground conditions resulting from the weather (rain, sleet, snow, freezing and thawing). If material is removed from the base of the pile, they should inspect the slope for oversteepening, undercutting, and overhangs. Dozer operators should always keep the blade low and operate at a speed consistent with the type of work being performed and the current ground conditions.

If it is necessary to work on the face of a pile, dozer operators should work the slope vertically. They should keep the blade facing downhill and should back up the slope before beginning the next pass. This will reduce the chance of sliding sideways or rolling over.

Draw Points

Stockpiles and surge piles that have material being removed by underground feeders can be particularly dangerous. Two major hazards exist: the weak material around the draw hole and the possibility of hidden cavities (bridged material).

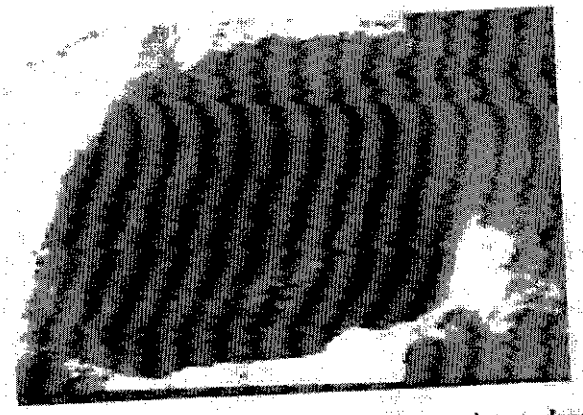


Never operate mobile equipment over a draw point.

As the underground feeder removes material, a draw hole is formed. The top edge of the draw hole is very unstable and always near collapse. When a dozer is operated close to the edge, it can induce a slope failure and slide down into the draw hole. Injuries and fatalities occur when material sloughs down on top of the dozer, either crushing or suffocating the operator. **OPERATORS SHOULD NEVER PUSH MATERIAL DIRECTLY INTO THE DRAW HOLE.** They should bump it in with other material, keeping the dozer a safe distance away from the edge.

When working near the draw hole, the dozer should always be operated perpendicular to the edge of the draw hole. Operators must stay alert to the location of the draw point and use caution not to back or slip into it. The location of each draw point should be clearly indicated by a marker, such as a brightly colored object suspended directly above it.

OPERATORS MUST NEVER GET OFF THEIR DOZER AND WALK TO THE EDGE OF THE DRAW HOLE. They could easily be drawn into the material flowing into the feeder.



Use extreme caution on surge piles located over draw points.

Occasionally the draw point may bridge over. This can be especially dangerous as it may be impossible to determine the exact size and location of the cavity under the bridged material. Material may continue to flow into the plant as the cavity forms. There may not be any indication of a problem to the plant personnel. The dozer operator should have a direct means of

communication, such as a two-way radio, with plant personnel to determine which feeders are being used and the amount of material being removed. Feeder locations should be clearly marked, by using large markers or lights suspended directly above the feeders. The dozer operator should also be provided with a means to shut down the feeder and stacker belt from the cab. With this information and an inspection of the surge pile, it may be possible to determine if a bridge has formed.

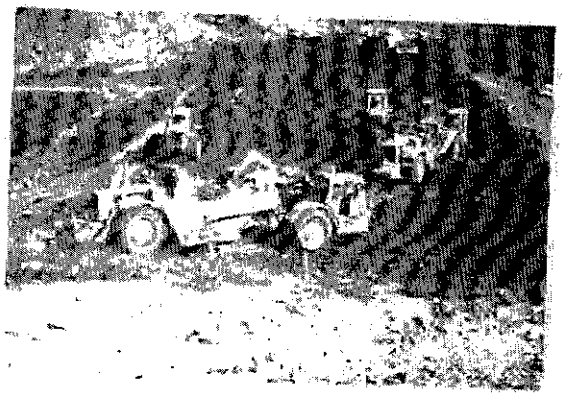
Injuries and fatalities occur when the bridged material fails under the weight of the dozer allowing it to fall into the cavity and become buried. **IF AN ACCIDENT DOES OCCUR IT IS EXTREMELY IMPORTANT THAT THE DOZER OPERATOR STAYS IN THE CAB.** If a cavity is known to exist, operators must use extreme caution keeping the dozer a safe distance from the draw point. It may become necessary to remove material from the pile in order to safely collapse the cavity. The material should be removed from the side of the pile carefully working toward the cavity.

It is recommended that equipment operating on surge piles be provided with **CABS STRONG ENOUGH TO RESIST BURIAL PRESSURE, OR USE REMOTE CONTROL EQUIPMENT.** The windows of dozers can be made to withstand burial pressure by a combination of installing supports and improving the edge support for the glass, and using high-strength (such as chemically-strengthened) glass. Self-rescuers, radio communication, and lighting should also be provided so that the operator can be rescued in the event of an accident.

Scrapers

Soft material along the crest of a pile can allow the tires to sink, pulling the scraper over the edge. On side slopes, scrapers become very unstable and can easily roll over. If a scraper goes over the edge, the operator should stay with the machine and ride it out. In some circumstances, the operator may be able to apply power to keep the scraper steered straight down the slope.

Operators should always slow down before turning and should never turn sharply when going uphill or downhill, especially downhill. If running along a hillside they should go slowly and turn very carefully. They should never get on a steep side grade.

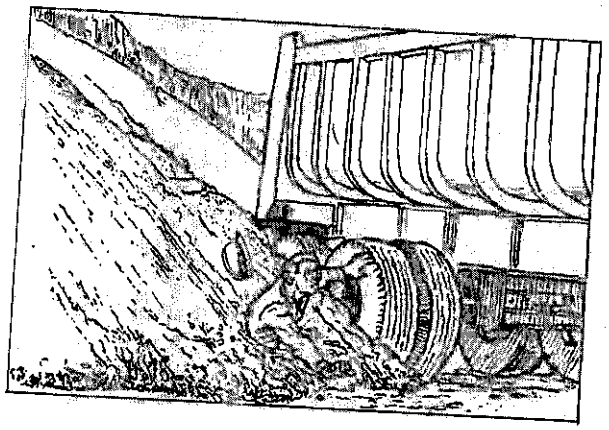


Maintain a safe speed and never turn sharply when operating on a hill.

Operators must know the traffic patterns and always give right-of-way to loaded machines. When tramming, the bowl should be kept as low as conditions permit to increase stability.

Highway Trucks

Highway truck drivers should be encouraged to stay in their trucks with their seat belts fastened. They may not be aware of the hazards around stockpiles and mining equipment. If truck drivers must get out of the truck, they must stand a safe distance from the stockpile and out of the way of equipment operation.



Truck drivers should stay in their truck.

Many accidents occur when truck drivers are engulfed by falling material while standing between their truck and the stockpile. In most cases they are unaware of the hazards associated with oversteepened slopes and the potential of material movement. **HIGHWAY TRUCK DRIVERS SHOULD NEVER BE ALLOWED TO STAND BETWEEN THEIR TRUCK AND THE STOCKPILE** (30 CFR 56/57.3430).

The truck driver is also in danger of being struck by material falling out of the loader bucket or spilling over the truck as it's being loaded. This can occur while the driver is walking behind or alongside the truck. In addition, the truck driver may not be aware of the large blind spots behind mining equipment, and may inadvertently place himself/herself in an unsafe position.

MATERIAL SHOULD NEVER BE LOADED OR SWUNG OVER THE CAB OF THE TRUCK. If this must be done then the driver must exit the truck and stand in a safe location. The driver could remain in the truck if it is equipped with falling object protection; however, this is very rare on highway trucks.

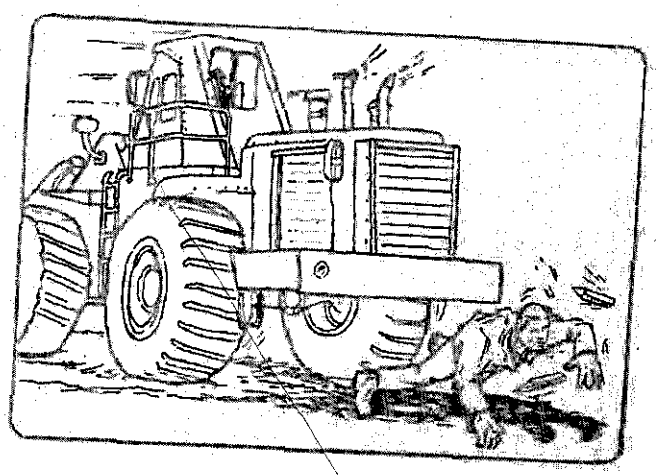
On Foot

Persons should only be on or around a stockpile if their work requires it. **IF WORKERS MUST BE ON FOOT AND WORK AROUND A STOCKPILE, THEY MUST NOTIFY THEIR SUPERVISOR AND ALL EQUIPMENT OPERATORS.** In most cases, and for good reasons, pedestrians are not allowed on or near stockpiles. The amount of equipment activity and unstable nature of the material presents too many hazards to persons on foot.

When working around a stockpile, workers should stay away from the toe. They could easily be engulfed or struck by falling material which has been dumped at the top of the pile or has fallen from a sudden collapse of an oversteepened or undercut slope.

Stay away from the toe of a stockpile.

Workers must make sure loader operators and truck drivers are aware of their presence. Equipment operators do not expect people on foot when working around the pile and they cannot be counted on to see someone on foot. In addition, most mobile mining equipment will have large blind areas where the operator is unable to see.

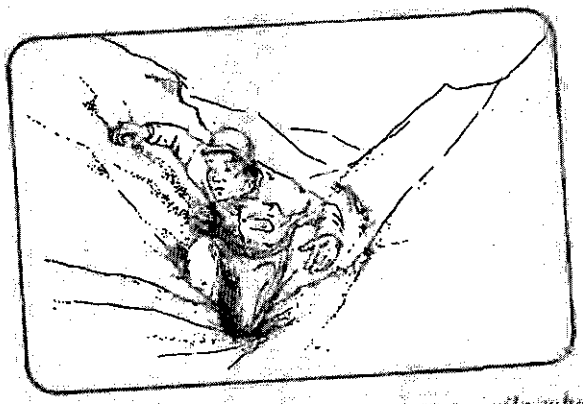


Workers on foot must stay alert to backup alarms and be ready to move in a hurry if necessary.

When working at the top of the pile, workers should stay way from the edge. The edge can unexpectedly fall way at any time, especially when material is being emoved from the toe. In addition, when walking along e top edge of the pile, the footing is usually bad and the orker could simply trip and fall. When the material they are standing on begins to move or collapse, it is very easy to get sucked in and trapped.

A person can become entrapped in material that is only knee deep and suffocate in material that is only chest deep. When buried to the chest, the material closes in as the person breathes in and out, packs tightly, and eventually makes breathing impossible.

Do not stand on the top edge of a stockpile.



Workers should never walk on a surge pile where material is being, or has been, removed by an underground feeder.

Workers can be caught and drawn into material that is gradually being worked down by the feeder, or they can suddenly fall into a cavity that is covered by bridged material. The weight of an individual is sufficient to cause bridged material to collapse. If workers must work on a surge pile, they should make sure that all feeders that supply or remove material from the pile are locked out. They should also make sure that enough material is removed from around the draw point to prevent an unexpected collapse. When working on a surge pile where hazardous conditions exist, workers should make sure that someone can see them and that they can maintain two-way communications. Because of the danger of encountering a bridged-over cavity, ladders, platforms, or some other form of support should be provided. The person involved should wear a safety belt or harness, with a lifeline, and a second person should keep the line taut.

In general, MSHA regulations state that:

30 CFR 77.209 Surge and storage piles.

No person shall be permitted to walk or stand immediately above a reclaiming area or in any other area at or near a surge or storage pile where the reclaiming operation may expose him to a hazard.

30 CFR 56/57.9312 Working around drawholes.

Unless platforms or safety lines are used, persons shall not position themselves over drawholes if there is danger that broken rock or material may be withdrawn or bridged.

30 CFR 56/57.16002 Bins, hoppers, silos, tanks, and surge piles.

(a) Bins, hoppers, silos, tanks, and surge piles, where loose unconsolidated materials are stored, handled or transferred shall be:

(1) Equipped with mechanical devices or other effective means of handling materials so that during normal operations persons are not required to enter or work where they are exposed to entrapment by the caving or sliding of materials; and

(2) Equipped with supply and discharge operating controls. The controls shall be located so that spills or overruns will not endanger persons.

(b) Where persons are required to move around or over any facility listed in this standard, suitable walkways or passageways shall be provided.

(c) Where persons are required to enter any facility listed in this standard for maintenance or inspection purposes, ladders, platforms, or staging shall be provided. No person shall enter the facility until the supply and discharge of materials have ceased and the supply and discharge equipment is locked out. Persons entering the facility shall wear a safety belt or harness equipped with a lifeline suitably fastened. A second person, similarly equipped, shall be stationed near where the lifeline is fastened and shall constantly adjust it or keep it tight as needed, with minimum slack.

Summary

Safety is the responsibility of everyone, from the equipment operator to the mine manager. Only through the active involvement of all employees can a safe work environment be ensured. A good safety attitude reflects well upon the professionalism of American miners, and can be used as a tool to enhance competitiveness. An active safety program can instill teamwork, improve communication, and reinforce to the employees their value to the mining operation.

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