State of Idaho
Department of Environmental Quality
Air Quality Division

AIR QUALITY PERMIT
STATEMENT OF BASIS

Permit to Construct No. P-2009.0112

Final EC

Handy Truck Line, Inc.

Heyburn Terminal

Meridian, Idaho

Facility ID No. 067-00025

November 20, 2009

Eric Clark

Permit Writer

The purpose of this Statement of Basis is to satisfy the requirements of IDAPA 58.01.01.et seq, Rules for the Control of Air Pollution in Idaho, for issuing air permits.

Table of Contents

Acronyms, Units, and Chemical Nomenclature

AAC	acceptable ambient concentration
AACC	acceptable ambient concentration for carcinogens
AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
EL	Emissions Limit for toxic air pollutants
EPA	U.S. Environmental Protection Agency
^{o}F	degrees Fahrenheit
Handy	Handy Truck Line, Inc.
HAP	Hazardous Air Pollutant
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
K	Degrees Kelvin
lb/hr	pounds per hour
lb/quarter	pounds per quarter
m	meter(s)
MACT	Maximum Achievable Control Technology
$\mu g/m^3$	micrograms per cubic meter
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO_2	nitrogen dioxide
NO_x	nitrogen oxides
NSPS	New Source Performance Standards
PC	permit condition
PM	particulate matter
PM_{10}	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
Rules	Rules for the Control of Air Pollution in Idaho
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SM	Synthetic Minor
SO_2	sulfur dioxide
SO_x	sulfur oxides
TAP	Toxic Air Pollutant
T/yr	tons per year
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. FACILITY INFORMATION

1.1 Facility Description

The Handy Truck Line, Inc. (Handy) Heyburn Terminal is a flyash transloading for commercial sales. Flyash is delivered to the facility by rail and transferred to one of two silos. A minimum of 80% is transferred to the transfer silo while the remaining 20% is placed in the storage silo. 14,800 T/yr flyash is the maximum throughput the facility handles. Each railcar carries 100 ton of flyash and three cars are used daily.

All flyash from the railcars is first gravity fed via air slide to the elevator. A boot acting as a sealant helps to limit the amount of potential fugitive dust. The control efficiency associated with this process is assumed to be 99.9%

Flyash is transferred by air slide to the elevator. The flyash that is not initially placed in the transfer silo is transferred from the storage silo to the other at some point. Each of these of these transfer processes are controlled by a Donaldson Torit Baghouse with 99.99% efficiency for PM_{10}. However, to build in some conservatism into the emission calculations only 99.9% efficiency was applied. The siloed flyash is the gravity-feed into delivery trucks. Again a sealing boot is applied to limit fugitive dust. The control efficiency of the truck load-out was determined by the controlled/uncontrolled ratio of AP-42 emission factors in Table 11.12-2. The resulting efficiency was 94.2%.

In the past, Handy has directly transferred flyash from the railcar to the trucks. Because of the potential for fugitive dust, this option is no longer practiced and Handy has stated that this will not be done in the future.

The facility operates from 7:00 a.m. to 6:00 p.m. Monday through Friday and from 8:00 a.m. to 12:00 p.m. Saturday mornings.

The Handy Heyburn facility is comprised of one storage building, two silos used for storing flyash, and a baghouse. The facility is generally located at UTM coordinates 273,750 meters (m) east and 4,715,130 m north, zone 12.

1.2 Permitting Action and Facility Permitting History

This permit is the initial PTC for this existing facility.

January 24, 2008	Effective date of Consent Order E-070018, which required submittal of a PTC application for the Meridian Terminal by April 23, 2008.

2. APPLICATION SCOPE AND APPLICATION CHRONOLOGY

2.1 Application Scope

Handy submitted an application for an initial PTC for the existing unpermitted facility described in Section 1.1 of this statement of basis.

2.2 Application Chronology

January 24, 2008	Effective date of Consent Order E-070018, which required submittal of a PTC application for the Meridian Terminal by April 23, 2008.
August 20, 2009	PTC application arrived and assigned project number P-2009.0112.
August 21, 2009	PTC $1,000 application fee arrived.
August 25, 2009	An electronic emissions inventory was submitted by Tetra Tech on behalf of Handy
September 3 through September 18, 2009	Opportunity for public comment held. No comments or requests for a comment period were received.
September 14, 2009	Application determined to be complete.
October 19, 2009	Draft permit and statement of basis issued for DEQ peer and regional review.
October 22, 2009	Draft permit and statement of basis issued for facility review.
October 29, 2009	DEQ received $1,000 processing fee.
November 5, 2009	Second draft permit and statement of basis issued to facility for review.
November 24, 2009	DEQ issued final permit.

3. TECHNICAL ANALYSIS

3.1 Heyburn Terminal and Control Device Information

Table 3.1 HEYBURN TERMINAL AND CONTROL DEVICE INFORMATION

Emission Unit / ID No.	Emissions Unit Description	Control Device Description	Emissions Discharge Point ID No. and/or Description
(Rail) Track Load-out System Storage Silos	Air slide transfer to silos	Baghouse Manufacturer: Donaldson Torit Model: 48RF10 Type: Pulse Jet Construction Date: Unknown Modification Date: 2009 Efficiency: PM/PM_{10}:99.9%	Baghouse Stacks: Stack Height: 34.5 ft (10.5 m) Exit Temperature: 77°F (298 K) Exit Flow Rate: 3,120 cfm Exit Velocity: 12.99 ft/s (3.96 m/s)
(Rail) Track Load-out System Truck Load-out	Fugitive flyash and truck load-out	Boot Enclosure Efficiency: PM/PM_{10}:94.2%[1]	Fugitive emissions

1. The boot enclosure control efficiency for the truck load-out was determined by the ratio of controlled to uncontrolled AP-42 emission factors. Within Table 11-12-2 the controlled EF of PM_{10} for truck load-out is 0.0160 lb/ton and the uncontrolled value is 0.278 lb/ton. 1-(.0160/.278) = 94.2%.

3.2 Emissions Inventory

Handy's application included an emissions inventory spreadsheet for controlled emissions of criteria pollutants for the sources described in Table 3.1. All of the baghouses at this facility are considered air pollution control equipment, so the uncontrolled emission rates do not include any control by the baghouses.

The uncontrolled annual emissions from this facility are summarized in Table 3.2, and the controlled emission rates are summarized in Table 3.3. Controlled emissions were based on operating the facility for 11 hours per day and limiting the throughput of flyash to 14,800 tons per year. Emissions from the material handling and baghouse were estimated based on the manufacturer documentation, AP-42 emission factors, and operating the facility for 11 hours per day. The lb/hr rates shown in Table 3.3 are one-hour averages. Detailed calculations are included in Appendix B to this statement of basis.

Table 3.2 UNCONTROLLED EMISSIONS ESTIMATES OF CRITERIA POLLUTANTS

Emissions Unit	PM_{10}		LEAD
	lb/hr	T/yr	lb/quarter
Point Sources Affected by this Permitting Action			
Air Slide to silo and silo to silo transfer (without baghouse)		289.08	33.76 lb/yr 8.44 lb/qtr
Total, Point Sources		**289.08**	33.76 lb/yr **8.44 lb/qtr**
Process Fugitive/Volume Sources Affected by this Permitting Action			
Railcar to railcar unloading pit		294.60	34.35 lb/yr 8.59 lb/qtr
Truck load-out		73.05	33.76 lb/yr 8.44 lb/qtr
Total, Volume/ Process Fugitives		**367.65**	68.124 lb/yr **17.03 lb/qtr**

Table 3.3 CONTROLLED EMISSIONS ESTIMATES OF CRITERIA POLLUTANTS

Emissions Unit	PM_{10}		LEAD
	lb/hr	T/yr	lb/quarter
Point Sources Affected by this Permitting Action			
Air Slide to silo and silo to silo transfer (with baghouse)	0.036	0.010	4.9E-06 lb/hr 1.3E-06 lb/qtr
Total, Point Sources	**0.036**	**0.010**	**1.3E-06 lb/qtr**
Process Fugitive/Volume Sources Affected by this Permitting Action			
Railcar to railcar unloading pit	0.008	0.002	7.9E-04
Truck load-out	0.44	0.119	
Total, Process Fugitives	**0.448**	**0.121**	**7.9E-04**

Handy's application included an emissions inventory spreadsheet for controlled emissions of toxic air pollutants (TAPs) for the sources described in Table 3.1.

TAP emissions from the baghouse were calculated using AP-42 emission factors from Tables 11.12-1 and 11.12-8. Each TAP emission factor outlined in table 11.12-8 was divided by the controlled PM emission factor 0.0089 lb/ton to obtain a fractional percentage. The fraction was the percentage of arsenic and others that were present in PM.

Annual and hourly emissions of PM were determined (see Appendix B) and multiplied by the fraction of each TAP to obtain the maximum hourly emissions (lb/hr) for each toxic pollutant. For Handy to demonstrate compliance, the average hourly emissions was compared to the emissions screening level (EL) for each pollutant in IDAPA Table 585 and for carcinogenic pollutants the hourly annual average was compared to Table 586.

It was assumed that the average work day was eleven (11) hours. Therefore, the maximum hourly emissions were multiplied by the number of hours worked and divided by 24 hours/day. This calculation produced the hourly average emissions. Similarly, the annual emissions were multiplied by 2000 and divided by 8,760 hours to convert T/yr to lb/hr.

Fugitive TAP emissions were also determined. The emission factors from AP-42 Table 11.12-8 were implemented for the two material handling sources: railcar transfer of flyash to the silos and loading of flyash to the trucks. The maximum loading rate as defined by Handy (14,800 T/yr and 54,545 lb/hr) were multiplied by the emission factor and the control efficiency of each process. Transfer to silo has a 99.9% control efficiency while the truck loading's efficiency is 94.2%. Those two products were added together and divided by 2000 to convert to units of lb/hr for comparison purposes.

Finally, the baghouse or point source emissions were added to the fugitive emissions to determine the total TAPs emissions for Handy. The controlled emissions from this facility are summarized and compared to the applicable screening emission limit (EL) in Table 3.4. Detailed calculations are included in Appendix B. Please note: per DEQ guidance that 40% of the total chromium in the flyash were presumed to be present as hexavalent chromium. Hexavalent chromium exceeded the EL and modeling was conducted to demonstrate compliance. For further detail see section 3.3 and Appendix C.

Table 3.4 CONTROLLED TAP AND HAP EMISSIONS SUMMARY

TAPs	HAP?	24-hour Average[a] lb/hr	Annual Average[a] lb/hr	Screening EL lb/hr	Exceeds EL?
Inorganic Compounds					
Arsenic	Yes		1.02E-06	1.50E-06	No
Beryllium	Yes		8.90E-08	2.8E-05	No
Cadmium	Yes		3.55E-09	3.7E-06	No
Chromium (total)	Yes	1.49E-05		0.033	No
Chromium (VI)	Yes		8.04E-07	5.6E-07	**Yes**
Manganese	Yes	4.65E-05		0.333	No
Nickel	Yes		2.82E-06	2.7E-05	No
Phosphorus	Yes	4.71E-05		0.007	No
Selenium	Yes	2.32E-06		0.013	No

[a] 24-hour average only applies to non-carcinogenic TAPs. Annual average only applies to carcinogenic TAPs.

3.3 Ambient Air Quality Impact Analysis

The applicant submitted modeling results with a vertical, uncapped exhaust for the baghouse. However, based on photos taken by DEQ staff the release is horizontal. A verification run was performed by DEQ modeling staff with a horizontal release. Handy asserts that release is in fact vertical. Both results are discussed in detail in Appendix C and both demonstrate compliance with NAAQS and TAPs. The verification run results are shown in parentheses within Tables 3.5 and 3.6.

The facility also conducted a facility-wide analysis for each TAP with controlled emissions in excess of the applicable screening EL. Modeling for hexavalent chromium impacts was submitted with the application. Using an alternate calculation method for the emissions, DEQ conducted verification analyses for arsenic and hexavalent chromium. Again, the submitted analyses modeled the baghouse exhaust as vertical and uncapped, although the release is horizontal. DEQ's verification analyses used the non-regulatory beta option and modeled the baghouse exhaust as a horizontal release. In addition, DEQ's verification analyses for TAPs emissions corrected the 1-hour average emission to reflect proposed operations of 3,086 hours per year rather than 8,760 hours per year. The highest ambient impact for hexavalent chromium was 71% of the standard, with the maximum impact occurring near the rail loadout point. The results of the modeling are shown in Table 3.6, with DEQ verification analyses results shown in parentheses. For further detailed information refer to Appendix C.

It should be noted that there was an internal discussion as to the proper AP-42 emission factor to apply for truck loadout. The applicant submitted the factor as 0.278 lb/ton from Table 11.12-2, the uncontrolled emission factor for truck loading. However, because that factor assumes that both cement and cement supplement are included it was suggested that the actual impact from Handy was being underestimated as only approximately 12.6% of the cement mixture is considered supplement. Because Handy does not handle any cement it was suggested to apply the cement supplement unloading factor 1.10 lb/ton. It was concluded that the original factor of 0.278 is more appropriate in this case for the following reasons. First, the change in overall PM_{10} emissions is minimal (0.44 T/yr versus 0.47 T/yr) and the area of highest impact is on the west side of the property line along the rail spur and furthest away for any commercial or residential areas. Secondly, while the composition of the material is slightly different, the use of a truck loadout emission factor for the actual truck loadout process is more representative of the facility than would using a pneumatic transfer to an elevated silo factor for truck loadout.

Table 3.5 FULL IMPACT ANALYSIS RESULTS FOR CRITERIA POLLUTANTS

Pollutant	Averaging Period	Facility Ambient Impact (μg/m^3)	Background Concentration (μg/m^3)	Total Ambient Concentration (μg/m^3)	NAAQS (μg/m^3)	Percent of NAAQS
PM_{10}	24-hour	63.8 (66.6)	81	144.8 (147.6)	150	96.5% (98.4%)

μg/m^3 micrograms per cubic meter.

Table 3.6 FULL IMPACT ANALYSIS RESULTS FOR TAPS

Pollutant	Averaging Period	Concentration (μg/m^3)	Regulatory AACC (μg/m^3)	Percent of Limit
Arsenic	Annual	(6.86E-05)	2.3E-04	(30%)
Chromium VI	Annual	1.65E-05 (5.89E-05)	2.5E-02	19.9% (71%)

Note: AACCs are in units of micrograms per meter cubed., Also See the Modeling memo (Appendix C) for model assumptions and other details.

4. REGULATORY REVIEW

4.1 Attainment Designation (40 CFR 81.313)

The facility is located in northern Minidoka County which is designated as attainment or unclassifiable for PM_{10}, $PM_{2.5}$, CO, NO_2, SO_X, and Ozone. Reference 40 CFR 81.313.

4.2 Permit to Construct (IDAPA 58.01.01.201)

Handy's Heyburn Terminal operations do not meet the exemption criteria in IDAPA 58.01.01.220-223. A PTC is therefore required for this facility.

4.3 Tier II Operating Permit (IDAPA 58.01.01.401)

Handy's Heyburn Terminal has not requested a Tier II operating permit for this facility (IDAPA 58.01.01.401.01), is not required to obtain a Tier II operating permit under Sections 401.02 or 401.03 of the Rules, and has not requested a Tier II permit to establish a Facility Emissions Cap under Section 401.05 of the Rules. A Tier II permit is therefore not required for this facility.

4.4 Title V Classification (IDAPA 58.01.01.300, 40 CFR Part 70)

Handy's Heyburn Terminal is not a major (Title V) facility as defined in IDAPA 58.01.01.008 because it does not emit or have the potential to emit a regulated air pollutant(s) in amounts greater than or equal to major facility thresholds listed in Subsection 008. Refer to Section 3.2 of this statement of basis for a summary of the uncontrolled regulated pollutant emissions for this facility.

4.5 PSD Classification (40 CFR 52.21)

Handy's Heyburn Terminal is not subject to Prevention of Significant Deterioration (PSD) requirements because the facility is not a designated facility as defined in IDAPA 58.01.01.006, and as initially constructed does not emit or have the potential to emit a regulated pollutant(s) in amounts equal to or greater than 250 tons per year.

4.6 NSPS Applicability (40 CFR 60)

40 CFR 60 Subpart OOO ....Standards of Performance for Nonmetallic Mineral Processing Plants

60.670 Applicability and designation of affected facility

60.670(a)(2) The provisions of this subpart do not apply to the following operations: All facilities located in underground mines; and stand-alone screening operations at plants without crushers or grinding mills.

<u>The Handy Heyburn Terminal</u> operations include flyash transfer, but do not include a crusher or grinding mill. Therefore, this NSPS does not apply.

4.7 NESHAP Applicability (40 CFR 61)

Handy's Heyburn Terminal is not in any of the source categories subject to regulation under 40 CFR 61.

4.8 MACT Applicability (40 CFR 63)

Handy's Heyburn Terminal does not emit 10 tons per year of any HAP or 25 tons per year of all HAPs, and is not in any of the area source categories subject to regulation under 40 CFR 63.

4.9 CAM Applicability (40 CFR 64)

Handy's Heyburn Terminal does not meet the first criterion to be subject to Compliance Assurance Monitoring; this is not a major (Title V) facility.

4.10 Permit Conditions Review

Initial Permit Condition 1.2

This condition provides a table of all the regulated sources for Handy Truck Line, Heyburn Terminal.

Initial Permit Condition 2.3

This condition limits the amount of PM_{10} emissions allowed at the Heyburn Terminal in both lb/hr and T/yr. This was done to demonstrate compliance with both the 24-hr PM_{10} NAAQS standard.

Initial Permit Condition 2.4

The opacity limit is defined in the condition to maintain compliance with IDAPA rule 625.

Initial Permit Condition 2.5

The throughput limits of flyash delivery and transfer were defined as 14,800 T/yr to demonstrate compliance with the PM_{10} emission limits. Also, the 14,800 T/yr was the throughput used by Handy to demonstrate modeling compliance with arsenic and hexavalent chromium acceptable ambient concentrations for carcinogens.

Initial Permit Condition 2.6

This condition limited the daily hours of operation to eleven hours per day. Again, this was used by the facility to demonstrate compliance with NAAQS 24-hour PM_{10} standard.

Initial Permit Condition 2.7

No direct transfer of flyash from a railcar to a waiting delivery truck is allowed to limit potential fugitive dust emissions. Direct transfer was used in the past by Handy and it caused fugitive dust problems and complaints by nearby neighbors. To eliminate that problem, Handy has requested that direct transfer not be allowed at the Heyburn terminal. This request was stated in the application to DEQ.

Initial Permit Condition 2.8

The permittee shall install, maintain, and operate baghouse/cartridge filter systems and air tight boot enclosures to control PM_{10} emissions:

- Produced by material transfer, storage, and handling from the:
  - Railcar to elevator transfer
  - Elevator to Storage Silos transfer
  - Silo to silo transfer
  - Transfer silo to delivery truck load-out

This condition states further operational measures that need to be taken to limit PM_{10} emissions. Installation of a baghouse is necessary to keep the facility from emitting greater than 650 Ton/yr PM_{10}.

Initial Permit Condition 2.9

This is a monitoring condition verifying that the control equipment is being operated and maintained properly. It is also requires the permittee to develop a procedures document and submit it to the appropriate DEQ regional office.

Initial Permit Condition 2.10

This condition requires the permittee to monitor and record the delivery of flyash to demonstrate compliance with the throughput limit of 14,800 T/yr. The flyash is to be recorded in tons and totaled over any consecutive 12-calendar month time period.

Initial Permit Condition 2.11

This condition requires the permittee to monitor and record their daily hours of operation to demonstrate compliance with the 11 hr/day limit. Only the days when the facility is operating do the hours need to be recorded.

Initial Permit Condition 2.12

This condition requires the permittee to monitor fugitive dust emissions in accordance with IDAPA 58.01.01.650-651 so that if actions must be taken appropriate methods are implemented. Also if corrective actions are undertaken, records are required of the event and what was done to remedy the problem.

Initial Permit Condition 2.13

Monthly inspections must be made to verify visible emissions do not exceed 20% opacity. It also requires that corrective needs to be taken immediately or Method 9 testing be performed.

Permit Condition 2.14

This requires the permittee to keep records of activities at the facility.

5. PERMIT FEES

Table 5.1 lists the processing fee associated with this permitting action. The facility is subject to a processing fee of $1,000 because its permitted emissions are less than 1 ton per year. Refer to the chronology for fee receipt dates.

Table 5.1 PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	**Annual Emissions Increase (T/yr)**	**Annual Emissions Reduction (T/yr)**	**Annual Emissions Change (T/yr)**
NO_X	0	0	0
SO_2	0	0	0
CO	0	0	0
PM_{10}	0.01	0	0.01
VOC	0	0	0
HAPS	5.81E-05	0	5.81E-05
Total:	0.01	0	**0.01**
Fee Due	**$ 1,000.00**		

6. PUBLIC COMMENT

An opportunity for public comment period on the PTC application was provided from September 3 through September 18, 2009, in accordance with IDAPA 58.01.01.209.01.c. During this time, there were no comments on the application and there was no request for a public comment period on DEQ's proposed action.

Appendix A – AIRS Information

AIRS/AFS Facility-wide Classification – Data Form

Facility Name: Handy Truck Line - Heyburn Terminal

Facility Location: Near the intersection of J Street and Shoshone St. Heyburn, ID 83336

Facility ID: 067-00025 **Date:** October 5, 2009

Project/Permit No.: P-2009.0112 **Completed By:** Eric Clark

☐ Check if there are no changes to the facility-wide classification resulting from this action. (compare to form with last permit)
Comments:

☐ Yes, this facility is an SM80 source.

Identify the facility's area classification as A (attainment), N (nonattainment), or U (unclassified) for the following pollutants:

	SO2	PM10	VOC
Area Classification:	U	U	U

DO NOT LEAVE ANY BLANK

Check one of the following:

☒ **SIP** [0] - Yes, this facility is subject to SIP requirements. (do not use if facility is Title V)
OR
☐ **Title V** [V] - Yes, this facility is subject to Title V requirements. (If yes, do not also use SIP listed above.)

For SIP or TV, identify the classification (A, SM, B, C, or ND) for the pollutants listed below. Leave box blank if pollutant is not applicable to facility.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	**B**	**B**	**B**	**SM**	**SM**	**B**	**B**

☐ **PSD** [6] - Yes, this facility has a PSD permit.

If yes, identify the pollutant(s) listed below that apply to PSD. Leave box blank if pollutant does not apply to PSD.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	☐	☐	☐	☐	☐	☐	☐

☐ **NSR - NAA** [7] - Yes, this facility is subject to NSR nonattainment area (IDAPA 58.01.01.204) requirements.

Note: As of 9/12/08, Idaho has no facility in this category.

If yes, identify the pollutant(s) listed below that apply to NSR-NAA. Leave box blank if pollutant does not apply to NSR - NAA.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	☐	☐	☐	☐	☐	☐	☐

☐ **NESHAP** [8] - Yes, this facility is subject to NESHAP (Part 61) requirements. (THAP only)

If yes, what CFR Subpart(s) is applicable?

☐ **NSPS** [9] - Yes, this facility is subject to NSPS (Part 60) requirements.

If yes, what CFR Subpart(s) is applicable?

If yes, identify the pollutant(s) regulated by the subpart(s) listed above. Leave box blank if pollutant does not apply to the NSPS.

	SO2	NOx	CO	PM10	PT (PM)	VOC	THAP
Classification:	☐	☐	☐	☐	☐	☐	☐

☐ **MACT** [M] - Yes, this facility is subject to MACT (Part 63) requirements. (THAP only)

If yes, what CFR Subpart(s) is applicable?

Appendix B – Emissions Inventory

UNCONTROLLED EMISSIONS – DEQ-DEVELOPED

Flyash Railcar Delivery to Silos and transfer to Trucks for shipment offsite

The total amount of material that can be received by rail and trucked offsite is limited by the number of trucks that could be loaded each year:

30 T per truck/(0.25 hr/load + 0.25 hr disconnect and connect fill spout to another truck) = 60 T/hr

60 T/hr x 8,760 hr/yr = 525,600 T/yr.

The silo baghouses are considered air pollution control equipment, so the uncontrolled emission rates do not include any control by the baghouses. Flyash handling will typically produce greater particulate emissions than transferring cement, so uncontrolled emissions were based on receiving only flyash. Flyash emissions for railcar transfers to the elevator and for truck load-out were estimated using AP-42 Table 11.26-1 (1/95) for PM emissions from ground talc storage bin loading with a fabric filter (0.0016 lb PM /1000 lb). The uncontrolled emission factor was calculated by presuming 99.9% capture efficiency for the fabric filter, and that the ratio of PM_{10}/PM of 1.10/3.14 was the same as for the uncontrolled transfer of cement supplement (i.e., flyash) to silos listed in AP-42 Table 11.2-2 (6/06).

Table B.1 UNCONTROLLED FLYASH HANDLING EMISSIONS

Emission Point	PM_{10} Emission Factor (lb/ton of material)	Amount of Flyash Transloaded (T/yr)	PM_{10} Emissions (T/yr)
Railcar transfer to elevator	(2000 lb/T)x(1.10/3.14)x(0.0016 lb/1000 lb)/ (1-0.999) = 1.12	525,600	294
Elevator transfer to silos	1.10	525,600	289
Transfer from silos to trucks	0.278	525,600	73
TOTAL			**656**

HTL Throughput

14,800	**tons/yr**	**total fly ash received (based on 2007 numbers from S. Carrol's teleconference record of 9/25/08)**
Railcar unloading		
100	tons/car	fly ash amount per railcar
3	railcars/day	maximum number of cars per 24 hour period
300	tons/day	maximum weight per day
27	tons/hr	maximum weight per day (assumes 11 hour day)
54,545	**lbs/hr**	**maximum average unloading rate (assumes 11 hour day)**
0%	percent	percentage of fly ash unloaded to trucks at direct truck loadout
0	lbs/hr	fly ash unloaded directly to trucks at direct truck loadout
54,545	lbs/hr	fly ash unloaded to the transfer silo at Railcar Tx to Elevator
14,800	**tons/yr**	**all fly ash received is offloaded from railcars**
0%	percent	percentage of fly ash unloaded to trucks at direct truck loadout
0	tons/yr	fly ash unloaded directly to trucks at direct truck loadout
14,800	tons/yr	fly ash unloaded to the transfer silo at Railcar Tx to Elevator
Truck loading		
30	tons/truck	fly ash per truck
10	trucks/day	time to load each truck
300	tons/day	
27	tons/hr	maximum average unloading rate (assumes 11 hour day)
54,545	**lbs/hr**	**maximum 24-hour average unloading rate**
436,364	lbs/day	maximum weight per day (assumes 8 hour day)
218	tons/day	maximum weight per day
14,800	**tons/yr**	**all fly ash received is loaded into trucks**
Transfers to Transfer Silo or Storage Silo		
100%	percent	percentage of fly ash transferred from railcar to transfer silo or storage silo
14,800	tons/yr	fly ash transferred to transfer silo or storage silo
Transfers to Transfer Silo		
20%	percent	percentage of fly ash transferred to the storage silo, eventually requiring transfer back from storage silo to transfer silo
2,960	tons/yr	fly ash transferred to storage silo and later back into the transfer silo.
10,909	lbs/hr	fly ash transferred to storage silo and later back into the transfer silo.

Figure B.1 – Throughput that all emissions factors are based on. 14,800 T/yr of flyash is assumed.

TABLE 2-1
HANDY TRUCK LINE - HEYBURN TERMINAL, IDAHO
PROJECTED FACILITY-WIDE ANNUAL CRITERIA POLLUTANT AND HAP EMISSIONS (TONS PER YEAR)[1]

POLLUTANT	Baghouse Emissions	*TOTAL POINT SOURCE EMISSIONS*	Material Handling Source Emissions[2]	*TOTAL FUGITIVE EMISSIONS*	TOTAL EMISSIONS
Criteria Pollutants					
CO	--	*0.00*	--	*--*	**0.00**
NOx	--	*0.00*	--	*--*	**0.00**
PM_{10}	0.010	*0.010*	0.1	*0.1*	**0.1**
PM	0.028	*0.028*	0.4	*0.4*	**0.5**
VOC	--	*0.00*	--	*--*	**0.00**
SO_2	--	*0.00*	--	*--*	**0.00**
Pb	1.63E-06	*1.63E-06*	1.58E-06	*1.58E-06*	**3.21E-06**
HAPs					
Arsenic	3.13E-06	*3.13E-06*	1.33E-06	*1.33E-06*	**4.46E-06**
Beryllium	2.83E-07	*2.83E-07*	1.07E-07	*1.07E-07*	**3.90E-07**
Cadmium	6.20E-10	*6.20E-10*	1.49E-08	*1.49E-08*	**1.56E-08**
Chromium	3.82E-06	*3.82E-06*	4.98E-06	*4.98E-06*	**8.80E-06**
Lead	1.63E-06	*1.63E-06*	1.58E-06	*1.58E-06*	**3.21E-06**
Manganese	8.02E-07	*8.02E-07*	2.67E-05	*2.67E-05*	**2.75E-05**
Nickel	7.14E-06	*7.14E-06*	5.20E-06	*5.20E-06*	**1.23E-05**
Selenium	2.27E-07	*2.27E-07*	1.14E-06	*1.14E-06*	**1.37E-06**
Total HAPs	**1.70E-05**	***1.70E-05***	**4.11E-05**	***4.11E-05***	**5.81E-05**

1 '--' Emissions of compound are either not present or were not reported in the literature reviewed.
2 Material handling sources include railcar unloading and truck loading.

Figure B.2 - Criteria and HAP (T/yr) controlled estimates using a baghouse, boot enclosures and only operating 11 hr/day and limiting the throughput of flyash to 14,800 tons per year.

TABLE 2-2

HANDY TRUCK LINE - HEYBURN TERMINAL, IDAHO

PROJECTED FACILITY-WIDE HOURLY CRITERIA POLLUTANT AND HAP EMISSIONS (POUNDS PER HOUR)[1]

POLLUTANT	Baghouse Emissions	*TOTAL POINT SOURCE EMISSIONS*	Material Handling Source Emissions[2]	*TOTAL FUGITIVE EMISSIONS*	TOTAL EMISSIONS
Criteria Pollutants					
CO	--	*0.00*	--	*--*	**0.00**
NOx	--	*0.00*	--	*--*	**0.00**
PM_{10}	0.036	*0.04*	0.4	*0.4*	**0.5**
PM	0.10	*0.10*	1.6	*1.6*	**2**
VOC	--	*0.00*	--	*--*	**0.00**
SO_2	--	*0.00*	--	*--*	**0.00**
Pb	6.00E-06	*6.00E-06*	5.82E-06	*5.82E-06*	**1.18E-05**
HAPs					
Arsenic	1.15E-05	*1.15E-05*	4.89E-06	*4.89E-06*	**1.64E-05**
Beryllium	1.04E-06	*1.04E-06*	3.93E-07	*3.93E-07*	**1.44E-06**
Cadmium	2.29E-09	*2.29E-09*	5.50E-08	*5.50E-08*	**5.73E-08**
Chromium	1.41E-05	*1.41E-05*	1.83E-05	*1.83E-05*	**3.24E-05**
Lead	6.00E-06	*6.00E-06*	5.82E-06	*5.82E-06*	**1.18E-05**
Manganese	2.96E-06	*2.96E-06*	9.85E-05	*9.85E-05*	**1.01E-04**
Nickel	2.63E-05	*2.63E-05*	1.91E-05	*1.91E-05*	**4.55E-05**
Selenium	8.36E-07	*8.36E-07*	4.22E-06	*4.22E-06*	**5.05E-06**
Total HAPs	**6.28E-05**	*6.28E-05*	**1.51E-04**	*1.51E-04*	**2.14E-04**

1 '--' Emissions of compound are either not present or were not reported in the literature reviewed.

2 Material handling sources include railcar unloading and truck loading.

Figure B.3 – Criteria and HAP (lb/hr) controlled estimates using a baghouse, boot enclosures and only operating 11 hr/day.

Emission Equations:

Annual emissions (tons/yr) = $E_{UC} * F_A * (1 - C) / 2000$ lbs/ton
Maximum hourly emissions (lbs/hr) = $E_{UC} * F_H * (1 - C)$
Average hourly emissions (lbs/hr) = $E_{UC} * F_H * (1 - C) * H / 24$ hrs/day

Where:

E_{UC} = uncontrolled emission factor (lbs/ton)
F_A = annual loading rate (tons/yr)
F_H = hourly maximum loading rate (lbs/hr)
C = control efficiency
H = daily hours of operation (hrs/day)

Data:

H =	11 hrs/day	based on facility information
E_{UC} =	3.14 lbs/ton	emission factor for PM for cement supplement unloading (lbs PM / ton fly ash), AP-42, Section 11.12, Table 11.12-2
E_{UC} =	1.10 lbs/ton	emission factor for PM_{10} cement supplement unloading (lbs PM_{10} / ton fly ash), AP-42, Section 11.12, Table 11.12-2
E_{UC} =	0.995 lbs/ton	emission factor for PM for truck loading (lbs PM / ton fly ash), AP-42, Section 11.12, Table 11.12-2
E_{UC} =	0.278 lbs/ton	emission factor for PM_{10} truck loading (lbs PM_{10} / ton fly ash), AP-42, Section 11.12, Table 11.12-2
C =	99.9%	control efficiency for baghouse operations, from manufacturer specifications
C =	94.2%	control efficiency for PM emissions from truck loading, from AP-42, Section 11.12, Table 11.12-8

Emissions Estimate:

Material Handling	F_A (tons/yr)	F_H (lbs/hr)	PM_{10}					PM				
			E_{UC} (lbs/ton)	C (%)	Annual emissions (tons/yr)	Maximum Hourly Emissions (lbs/hr)	Average Hourly Emissions (lbs/hr)	E_{UC} (lbs/ton)	C (%)	Annual emissions (tons/yr)	Maximum Hourly Emissions (lbs/hr)	Average Hourly Emissions (lbs/hr)
Unloading from Railcar to Silos	14,800	54,545	0.278	99.9%	0.002	0.008	0.003	0.995	99.9%	0.007	0.03	0.012
Direct Loading from Railcar to Truck	0	0	0.278	99.9%	0	0	0	0.995	99.9%	0	0	0
Fly Ash Loading to Truck	14,800	54,545	0.278	94.2%	0.119	0.440	0.202	0.995	94.2%	0.427	1.57	0.721
Direct Loading to Truck from Railcar	0	0	0.278	94.2%	0	0	0	0.995	94.2%	0	0	0
Total Fugitive Emissions	**29,600**	**109,091**	**0.278**	**94.2%**	**0.121**	**0.447**	**0.205**	**0.995**	**94%**	**0.434**	**1.60**	**0.734**
Transfer from Railcar to Storage or Transfer Silo	14,800	54,545	1.10	99.9%	0.0081	0.030	0.014	3.14	99.9%	0.023	0.09	0.039
Transfer from Storage Silo to Transfer Silo	2,960	10,909	1.10	99.9%	0.0016	0.0060	0.0028	3.14	99.9%	0.0046	0.017	0.0079
Point Source Emissions	**17,760**	**65,455**	**1.10**	**99.9%**	**0.0098**	**0.036**	**0.017**	**3.14**	**99.9%**	**0.028**	**0.10**	**0.047**
Total Emissions	47,360	174,545	--	--	**0.1**	**0.5**	**0.2**	--	--	**0.5**	**2**	**0.8**

Figure B.4 – Material handling criteria pollutant emissions estimates. Estimates are based on 14,800 T/yr throughput limit.

Emission Equations:

Annual emissions (tons/yr) = $[E_{UC} * F_A * C] / 2000$ lbs/ton

Maximum hourly emissions (lbs/hr) = $[E_{UC} * F_H * C] / 2000$ lbs/ton

Average hourly emissions (lbs/hr) = Maximum hourly emissions (lbs/hr) * H / 24 hrs/day

Hourly emissions, annual average (lbs/hr) = Annual emissions (tons/yr) * (2000 lbs/ton) / (365 days/yr * 24 hrs/day)

Where:

E_{UC} = uncontrolled emission factor for toxic pollutant (lbs/ton)
F_A = annual loading rate (tons/yr)
F_H = hourly maximum loading rate (lbs/hr)
H = daily hours of operation (hrs/day)
C = control efficiency (%)

Data:

See worksheet for criteria pollutants for annual and hourly PM emissions

F_A =	29,600 tons/yr	From Table C-1
F_H =	109,091 lbs/hr	From Table C-1
H =	11 hrs/day	Based on facility information
C =	99.9%	control efficiency for baghouse operations, from manufacturer specifications
C =	94.2%	control efficiency for PM emissions from truck loading, from AP-42, Section 11.12, Table 11.12-8

Emissions Estimate:

Pollutant [1]	E_{UC}(TAP) (lbs/ton)	Source	Maximum Hourly Emissions (lbs/hr)	Average Hourly Emissions (lbs/hr)	Hourly Emissions, Annual Average (lbs/hr)	Annual Emissions (tons/yr)	Chemical Abstract Services (CAS) Number	HAP?	TAP?
Arsenic	3.04E-06	AP-42 (6/06) Table 11.12-8	4.89E-06	2.24E-06	**3.03E-07**	1.33E-06	7440-38-2	Yes	Yes
Beryllium	2.44E-07	AP-42 (6/06) Table 11.12-8	3.93E-07	1.80E-07	**2.43E-08**	1.07E-07	7440-41-7	Yes	Yes
Cadmium	3.42E-08	AP-42 (6/06) Table 11.12-8	5.50E-08	2.52E-08	**3.41E-09**	1.49E-08	7440-43-9	Yes	Yes
Chromium -24 hr	1.14E-05	AP-42 (6/06) Table 11.12-8	1.83E-05	**8.41E-06**	1.14E-06	4.98E-06	7440-47-3	Yes	Yes
Chromium-VI [2]	4.56E-06	IDEQ	7.34E-06	3.36E-06	**4.55E-07**	1.99E-06	7440-47-3	No	Yes
Lead - NAAQS	3.62E-06	AP-42 (6/06) Table 11.12-8	5.82E-06	2.67E-06	3.61E-07	1.58E-06	75-74-1	Yes	No
Manganese - 24 hr	6.12E-05	AP-42 (6/06) Table 11.12-8	9.85E-05	**4.51E-05**	6.10E-06	2.67E-05	7439-96-5	Yes	Yes
Nickel	1.19E-05	AP-42 (6/06) Table 11.12-8	1.91E-05	8.78E-06	**1.19E-06**	5.20E-06	7440-02-0	Yes	Yes
Phosphorus - 24 hr	3.84E-05	AP-42 (6/06) Table 11.12-8	6.18E-05	**2.83E-05**	3.83E-06	1.68E-05	7723-14-0	No	Yes
Selenium - 24 hr	2.62E-06	AP-42 (6/06) Table 11.12-8	4.22E-06	**1.93E-06**	2.61E-07	1.14E-06	7782-49-2	Yes	Yes
TOTAL HAPs	--	--	**1.51E-04**	**6.94E-05**	**9.38E-06**	**4.11E-05**	--	--	--
TOTAL TAPs	--	--	**2.15E-04**	**9.84E-05**	**1.33E-05**	**5.82E-05**	--	--	--

1 **Pollutants listed in bold** are classified as carcinogenic TAPs by IDEQ.
2 Chromium-VI makes up 40% of total chromium in fly ash, per IDEQ.

$\% Cr\text{-}VI_{fly\ ash}$ = 40% [from IDEQ]

Figure B.5 – Material handling fugitive TAP emissions estimates. Estimates are based on 14,800 T/yr throughput limit.

Emission Equations:

$F = E_C(TAP) / E_C(PM)$

Annual emissions (tons/yr) = $F * R_A(PM)$

Maximum hourly emissions (lbs/hr) = $F * R_H(PM)$

Average hourly emissions (lbs/hr) = Maximum hourly emissions (lbs/hr) * H / 24 hrs/day

Hourly emissions, annual average (lbs/hr) = Annual emissions (tons/yr) * (2000 lbs/ton) / (365 days/yr * 24 hrs/day)

Where:

F = fraction of TAP emissions / PM emissions

$E_C(PM)$ = controlled emission factor for PM (lbs/ton)

$E_C(TAP)$ = controlled emission factor for toxic pollutant (lbs/ton)

$R_A(PM)$ = annual PM emissions (tons/yr)

$R_H(PM)$ = maximum hourly PM emissions (lbs/hr)

H = daily hours of operation (hrs/day)

Data:

See worksheet for criteria pollutants for annual and hourly PM emissions

$E_C(PM)$ =	0.0089 lbs/ton	From AP-42, Section 11.12, Table 11.12-2
$R_A(PM)$ =	0.028 tons/yr	From Table C-1
$R_H(PM)$ =	0.10 lbs/hr	From Table C-1
H =	11 hrs/day	Based on facility information

Emissions Estimate:

Pollutant[1]	$E_C(TAP)$ (lbs/ton)	Source	F	Maximum Hourly Emissions (lbs/hr)	Average Hourly Emissions (lbs/hr)	Hourly Emissions, Annual Average (lbs/hr)	Annual Emissions (tons/yr)	Chemical Abstract Services (CAS) Number	HAP?	TAP?
Arsenic	1.00E-06	AP-42 (6/06) Table 11.12-8	1.12E-04	1.15E-05	5.29E-06	7.15E-07	3.13E-06	7440-38-2	Yes	Yes
Beryllium	9.04E-08	AP-42 (6/06) Table 11.12-8	1.02E-05	1.04E-06	4.78E-07	6.47E-08	2.83E-07	7440-41-7	Yes	Yes
Cadmium	1.98E-10	AP-42 (6/06) Table 11.12-8	2.22E-08	2.29E-09	1.05E-09	1.42E-10	6.20E-10	7440-43-9	Yes	Yes
Chromium -24 hr	1.22E-06	AP-42 (6/06) Table 11.12-8	1.37E-04	1.41E-05	6.46E-06	8.73E-07	3.82E-06	7440-47-3	Yes	Yes
Chromium-VI[2]	4.88E-07	IDEQ	5.48E-05	5.63E-06	2.58E-06	3.49E-07	1.53E-06	7440-47-3	No	Yes
Lead - NAAQS	5.20E-07	AP-42 (6/06) Table 11.12-8	5.84E-05	6.00E-06	2.75E-06	3.72E-07	1.63E-06	75-74-1	Yes	No
Manganese - 24 hr	2.56E-07	AP-42 (6/06) Table 11.12-8	2.88E-05	2.96E-06	1.35E-06	1.83E-07	8.02E-07	7439-96-5	Yes	Yes
Nickel	2.28E-06	AP-42 (6/06) Table 11.12-8	2.56E-04	2.63E-05	1.21E-05	1.63E-06	7.14E-06	7440-02-0	Yes	Yes
Phosphorus - 24 hr	3.54E-06	AP-42 (6/06) Table 11.12-8	3.98E-04	4.09E-05	1.87E-05	2.53E-06	1.11E-05	7723-14-0	No	Yes
Selenium - 24 hr	7.24E-08	AP-42 (6/06) Table 11.12-8	8.13E-06	8.36E-07	3.83E-07	5.18E-08	2.27E-07	7782-49-2	Yes	Yes
TOTAL HAPs	--	--	--	6.28E-05	2.88E-05	3.89E-06	1.70E-05	--	--	--
TOTAL TAPs	--	--	--	1.03E-04	4.73E-05	6.40E-06	2.80E-05	--	--	--

1 Pollutants listed in bold are classified as carcinogenic TAPs by IDEQ.

2 Chromium-VI makes up 40% of total chromium in fly ash, per IDEQ.

% $Cr\text{-}VI_{fly\ ash}$ = 40% [from IDEQ]

Figure B.6 – Material handling Point Source TAP emissions estimates. Estimates are based on 14,800 T/yr throughput limit.

Appendix C – Ambient Air Quality Impact Analysis

MEMORANDUM

DATE: October 16, 2009

TO: Eric Clark, Permit Engineer, Air Quality Division

FROM: Cheryl Robinson, P.E., Air Quality Engineer/Modeling Analyst, Air Quality Division

PROJECT NUMBER: P-2009.0112

SUBJECT: **Modeling Review for Handy Truck Line, Heyburn, Facility ID 067-00025**
Project: Initial PTC for an Existing Flyash Transloading Facility

1.0 Summary

Handy Truck Line, Inc., (Handy) submitted an application on for an initial Permit to Construct (PTC) for this existing flyash transloading facility located in Heyburn, Idaho. Air quality analyses involving atmospheric dispersion modeling of emissions associated with the facility were performed to demonstrate the facility would not cause or significantly contribute to a violation of any ambient air quality standard (IDAPA 58.01.01.203.02 [Idaho Air Rules Section 203.02]) or Toxic Air Pollutant (TAP) increment (Idaho Air Rules Section 203.03). Tetra Tech Inc., (Tetra Tech), Handy's consultant, performed the site-specific ambient air quality impact analyses. DEQ conducted verification analyses for near-field 24-hour PM_{10} impacts, and for arsenic and hexavalent chromium impacts based on operating 3,068 hours per year.

A technical review of the submitted analyses was conducted by DEQ. The submitted analyses, combined with DEQ's verification analyses: 1) utilized appropriate methods and models; 2) were conducted using reasonably accurate or conservative model parameters and input data; 3) adhered to established DEQ guidelines for new source review dispersion modeling; 4) showed either a) that predicted pollutant concentrations from emissions associated with the facility were below significant contribution levels (SCLs) or other applicable regulatory thresholds; or b) that predicted pollutant concentrations from emissions associated with the facility, when appropriately combined with background concentrations, were below applicable air quality standards at all locations outside of the facility's property boundary. Key assumptions used in the modeling analyses and the impact of these assumptions on the compliance demonstration are shown in Table 1.

Table 1. KEY ASSUMPTIONS USED IN MODELING ANALYSES

Criteria/Assumption/Result	Explanation/Consideration
Hours of Operation 7 a.m. to 6 p.m.	Short-term PM_{10} impacts operating during daylight hours are at 98.4% of the 24-hr PM_{10} NAAQS.
Maximum Throughput Flyash delivery by railcar: 300 tons per day, 14,800 T/yr Flyash loadout to trucks: 300 tons per day, 14,800 T/yr	Compliance with 24-hour PM_{10} and annual arsenic and hexavalent chromium ambient standards was demonstrated based on operating the facility during daylight hours (7:00 a.m. to 6:00 p.m.) at these daily and annual throughput rates. **Compliance has not been demonstrated for operations during evening or nighttime hours**, when cooler temperatures and calmer winds typically result in less dispersion and higher ambient impacts.
Emission Controls Baghouse control for elevator and silo, 99.9% capture for PM_{10}. Tight-fitting boot or equivalent for railcar unloading to auger pit, 99.9% capture for PM_{10}. Tight-fitting boot, shroud, or equivalent for flyash loading to trucks, 94.2% capture for PM_{10}.	Compliance with 24-hour PM_{10} NAAQS cannot be assured unless these controls are in place and maintained. This is especially true for controls at the railcar and truck loadout transfer points.

2.0 Background Information

2.1 Applicable Air Quality Impact Limits and Modeling Requirements

This section identifies applicable ambient air quality limits and analyses used to demonstrate compliance for this facility located near the intersection of J Street and Shoshone Street in Heyburn, Idaho. Approximate UTM coordinates at the center of this parcel are 273.8 km Easting and 4715.1 km Northing, in UTM Zone 12 (Datum WGS84).

2.1.1 Area Classification

The Handy Heyburn facility is located in Minidoka County, just north of the Snake River which defines the boundary between Minidoka and Cassia counties. Minidoka and Cassia counties are each designated as an attainment or unclassifiable area for carbon monoxide (CO), lead (Pb), nitrogen dioxide (NO_2), ozone, particulate matter with an aerodynamic diameter less than or equal to 10 micrometers (PM_{10}) and 2.5 micrometers ($PM_{2.5}$), and sulfur oxides (SO_x). There are no Class I areas within 10 kilometers of this location.

2.1.2 Significant and Cumulative NAAQS Impact Analyses

If estimated maximum pollutant impacts to ambient air from the emissions sources associated with the existing unpermitted facility exceed the significant contribution levels (SCLs) of Section 006.102 of IDAPA 58.01.01, Rules for the Control of Air Pollution in Idaho (Idaho Air Rules), then a cumulative impact analysis is necessary to demonstrate compliance with National Ambient Air Quality Standards (NAAQS) and Idaho Air Rules Section 203.02. A cumulative NAAQS impact analysis for attainment area pollutants involves adding ambient impacts from facility-wide emissions, and emissions from any nearby co-contributing sources, to DEQ-approved background concentration values that are appropriate for the criteria pollutant/averaging-time at the facility location and the area of significant impact. The resulting maximum pollutant concentrations in ambient air are then compared to the NAAQS listed in Table 2. The SCLs and the modeled value that must be used for comparison to the NAAQS are also listed in Table 2.

Table 2. APPLICABLE REGULATORY LIMITS

Pollutant	Averaging Period	Significant Contribution Levels[a] ($\mu g/m^3$)[b]	Regulatory Limit[c] ($\mu g/m^3$)	Modeled Value Used[d]
PM_{10}[e]	Annual[f]	1.0	50[g]	Maximum 1st highest[h]
	24-hour	5.0	150[i]	Maximum 6th highest[j]
$PM_{2.5}$[k]	Annual	Not established	15	Use PM_{10} as surrogate
	24-hour	Not established	35	Use PM_{10} as surrogate
Carbon monoxide (CO)	8-hour	500	10,000[i]	Maximum 2nd highest[h]
	1-hour	2,000	40,000[i]	Maximum 2nd highest[h]
Sulfur Dioxides (SO_x)	Annual	1.0	80[g]	Maximum 1st highest[h]
	24-hour	5	365[i]	Maximum 2nd highest[h]
	3-hour	25	1,300[i]	Maximum 2nd highest[h]
Nitrogen Dioxide (NO_2)	Annual	1.0	100[g]	Maximum 1st highest[h]
Lead (Pb)	Quarterly	NA	0.15[i]	Maximum 1st highest[h]

[a] Idaho Air Rules Section 006.102
[b] Micrograms per cubic meter
[c] Idaho Air Rules Section 577 for criteria pollutants
[d] The maximum 1st highest modeled value is always used for significant impact analysis
[e] Particulate matter with an aerodynamic diameter less than or equal to a nominal ten micrometers
[f] The annual PM_{10} standard was revoked in 2006. The standard is still listed because compliance with the annual $PM_{2.5}$ standard is demonstrated by a PM_{10} analysis that demonstrates compliance with the revoked PM_{10} standard.

Table 2. APPLICABLE REGULATORY LIMITS				
Pollutant	Averaging Period	Significant Contribution Levels[a] ($\mu g/m^3$)[b]	Regulatory Limit[c] ($\mu g/m^3$)	Modeled Value Used[d]
[g] Never expected to be exceeded in any calendar year [h] Concentration at any modeled receptor [i] Never expected to be exceeded more than once in any calendar year [j] Concentration at any modeled receptor when using five years of meteorological data [k] Particulate matter with an aerodynamic diameter less than or equal to a nominal 2.5 micrometers [l] Not to be exceeded more than once per year.				

New source review requirements for assuring compliance with $PM_{2.5}$ standards have not yet been completed and promulgated into regulation. EPA has asserted through a policy memorandum that compliance with $PM_{2.5}$ standards will be assured through an air quality analysis for the corresponding PM_{10} standard. Although the PM_{10} annual standard was revoked in 2006, compliance with the revoked PM_{10} annual standard must be demonstrated as a surrogate to the annual $PM_{2.5}$ standard.

2.1.3 Toxic Air Pollutant Analyses

Emissions of toxic substances are generally addressed by Idaho Air Rules Section 161:

> *Any contaminant which is by its nature toxic to human or animal life or vegetation shall not be emitted in such quantities or concentrations as to alone, or in combination with other contaminants, injure or unreasonably affect human or animal life or vegetation.*

Permit requirements for toxic air pollutants (TAPs) from new or modified sources are specifically addressed by Idaho Air Rules Section 203.03 and require the applicant to demonstrate to the satisfaction of DEQ the following:

> *Using the methods provided in Section 210, the emissions of toxic air pollutants from the stationary source or modification would not injure or unreasonably affect human or animal life or vegetation as required by Section 161. Compliance with all applicable toxic air pollutant carcinogenic increments and toxic air pollutant non-carcinogenic increments will also demonstrate preconstruction compliance with Section 161 with regards to the pollutants listed in Sections 585 and 586.*

Per Section 210, if the emissions increase associated with a new source or modification exceeds screening emission levels (ELs) of Idaho Air Rules Section 585 or 586, then the ambient impact of the emissions increase must be estimated. If ambient impacts are less than applicable Acceptable Ambient Concentrations (AACs) for non-carcinogens of Idaho Air Rules Section 585 and Acceptable Ambient Concentrations for Carcinogens (AACCs) of Idaho Air Rules Section 586, then compliance with TAP requirements has been demonstrated.

2.2 Background Concentrations

Background concentrations are used in the cumulative NAAQS impact analyses to account for impacts from sources not explicitly modeled. Background concentrations were revised for all areas of Idaho by DEQ in March 2003[1]. Background concentrations in areas where no monitoring data are available were based on monitoring data from areas with similar population density, meteorology, and emissions sources.

[1] Hardy, Rick and Schilling, Kevin. *Background Concentrations for Use in New Source Review Dispersion Modeling*. Memorandum to Mary Anderson, March 14, 2003.

DEQ recommended using default PM_{10} background concentrations as evaluated in the March 2003 DEQ memorandum for small town/suburban areas because of the proximity to other railroad loadout and silo storage facilities, in addition to the fact that the access area around the railroad tracks is dirt or gravel. Given that there are no significant combustion sources located near the Handy Heyburn facility, DEQ recommended using default background concentrations applicable to rural/agricultural areas for other criteria pollutants. These values are shown in Table 3.

Table 3. BACKGROUND CONCENTRATIONS		
Pollutant	**Averaging Period**	**Background Concentration ($\mu g/m^3$)[a]**
PM_{10}[b]	24-hour	81
	Annual	27
Carbon monoxide (CO)	1-hour	3,600
	8-hour	2,300
Sulfur dioxide (SO_2)	3-hour	34
	24-hour	26
	Annual	8
Nitrogen dioxide (NO_2)	Annual	17
Lead (Pb)	Quarterly	0.03

a. Micrograms per cubic meter.

b. Particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers.

3.0 Modeling Impact Assessment

3.1 Modeling Methodology

This section describes the modeling methods used by the applicant to demonstrate compliance with applicable air quality standards.

3.1.1 Overview of Analyses

Tetra Tech performed the air quality analyses in support of the submitted permit application. Baghouse emissions were modeled as a vertical uncapped source in the submitted modeling, although the emissions are released in a horizontal direction and are subject to downwash. DEQ's verification analyses for 24-hr PM_{10} impacts used the non-regulatory "beta" options available in AERMOD for point sources subject to building downwash but that are capped or exhausted as a horizontal release. A brief description of parameters used in the modeling analyses is provided in Table 4. Parameters used by DEQ that differed from Tetra Tech's analyses are shown in italics.

Table 4. MODELING PARAMETERS		
Parameter	**Description/Values**	**Documentation/Addition Description[a]**
Model	AERMOD	AERMOD with the PRIME downwash algorithm, version 07026
Meteorological data	Surface: Minidoka/Paul: Upper Air: Boise Years: 2000-2004	Surface data were collected by the Department of Energy's Idaho National Laboratory from a monitor located near Minidoka with National Weather Service upper air data from the Boise airport. The data were processed through AERMET (version 06341) by Geomatrix (now Environ) in May 2008. NWS surface data from the Burley Airport (Surface Station 25867) were used to fill data gaps. The processed met data set was provided to Tetra Tech by DEQ.
Terrain	Considered	Terrain elevations were assigned to buildings, emission sources, and receptors using U.S. Geological Survey 7.5-minute series digital elevation model (DEM) data in NAD27 coordinates and AERMAP (version 09040). Conversion of NAD27 coordinates to the NAD83 project coordinates is done automatically within this version of AERMAP. Default rural dispersion was used.

Table 4. MODELING PARAMETERS		
Parameter	**Description/Values**	**Documentation/Addition Description**[a]
Building downwash	Considered	Building and stack heights on the property and on adjacent properties were collected by the applicant and Tetra Tech. Building downwash parameters were calculated using the BPIP PRIME algorithm (version 04274). *DEQ Verification: AERMOD beta option for a horizontal stack was used to model the baghouse exhaust.*
Receptor Grid	Receptors	Receptor locations were defined in UTM coordinates (NAD83).
	Fenceline Grid	10-meter spacing along the property boundary, with 5-meter spacing for a 60-meter stretch near the rail loadout points.
	Grid 1	25-meter spacing out to 100 m in all directions from the approximate center of the Handy facility (the closest residence is within this grid.
	Grid 2	100-meter spacing out to 1 kilometer (km) in all directions from the approximate center of the facility.
	Grid 3	500-meter spacing between 1 km and 5 km from the approximate center of the facility.
	Grid 4	1,000-meter spacing between 5 km and 10 km from the approximate center of the facility.

3.1.2 Modeling Protocol and Methodology

A modeling protocol submitted to DEQ by Tetra Tech on January 20, 2009 was approved with comment by DEQ on February 19, 2009. Modeling was generally conducted using data described in the protocol and methods described in the *State of Idaho Air Quality Modeling Guideline.*

3.1.3 Model Selection

Idaho Air Rules Section 202.02 requires that estimates of ambient concentrations be based on air quality models specified in 40 CFR 51, Appendix W (Guideline on Air Quality Models). The refined, steady state, multiple source, Gaussian dispersion model AERMOD was promulgated as the replacement model for ISCST3 in December 2005. EPA provided a one-year transition period during which either ISCST3 or AERMOD could be used at the discretion of the permitting agency. AERMOD must be used for all air impact analyses, performed in support of air quality permitting, conducted after November 2006.

AERMOD retains the single straight line trajectory of ISCST3, but includes more advanced algorithms to assess turbulent mixing processes in the planetary boundary layer for both convective and stable stratified layers.

AERMOD offers the following improvements over ISCST3:

- Improved dispersion in the convective boundary layer and the stable boundary layer.
- Improved plume rise and buoyancy calculations.
- Improved treatment of terrain affects on dispersion.
- New vertical profiles of wind, turbulence, and temperature.

AERMOD was used for the submitted analyses and the DEQ verification analyses for this project.

3.1.4 Meteorological Data

The Handy Heyburn facility is located about 18.6 miles to the southwest of a meteorological tower operated near Minidoka/Paul by the Idaho National Laboratory, and about 1-1/4 miles to the northeast of the National Weather Service station at the Burley airport. NWS data from Burley were used to fill missing hours of data from the Minidoka station. DEQ determined that the Minidoka/Paul surface data and upper air meteorological data collected from 2000 through 2004 at the Boise airport were the best representative data readily available at this time. These meteorological data were previously processed through AERMET—the meteorological data preprocessor for AERMOD—by Geomatrix (now Environ) using AERMET version 06341. Surface characteristics were analyzed manually (AERSURFACE had not yet been issued).

3.1.5 Terrain Effects

Terrain effects on dispersion were considered in these site-specific analyses. Tetra Tech used AERMAP (version 09040) to determine the actual elevation of each receptor and the controlling hill height elevation from United States Geological Survey (USGS) digital elevation map (DEM) files for the area surrounding the facility. Elevations of emission sources, buildings, and receptors were developed based on surrounding terrain elevations as extracted from six 7.5-minute DEM files. The DEM files were not included with the application. DEQ's verification analyses used the elevation data included with the submitted modeling analyses.

3.1.6 Facility Layout

The facility layout submitted with the application is shown in Figure 3-2. The source locations, facility boundary, and facility building outlines shown in this figure were the same for the submitted and DEQ verification analyses. The offsite buildings included in the DEQ verification analyses are outlined in the figure.

3.1.7 Building Downwash

Plume downwash effects caused by structures present at the facility were accounted for in the submitted modeling analyses. Nearby buildings located on adjacent properties were also included in DEQ's verification analyses. The Building Profile Input Program with Plume RIse Model Enhancements (BPIP-PRIME) was used to calculate direction-specific building dimensions and Good Engineering Practice (GEP) stack height information from building dimensions/configurations and emission release parameters for input to AERMOD. The facility silos were the dominant structures for downwash effects, except for wind directions between 313° to 330°. For winds coming from the southeast, baghouse stack emissions were affected by downwash from the Western Seed grain silos, as shown in Figure 3-1.

Graphic by DEQ, using BREEZE® Downwash Analyst

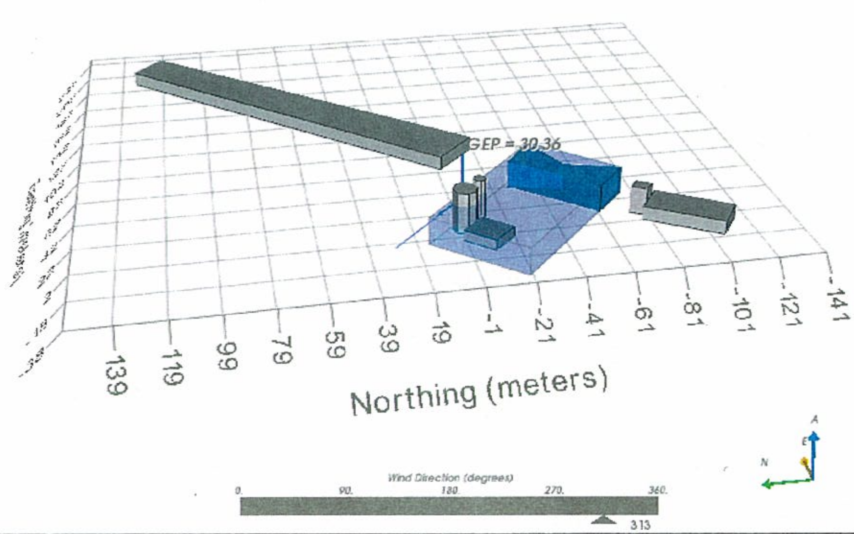

Figure 3-1. HANDY TRUCK LINES HEYBURN FACILITY BUILDING DOWNWASH

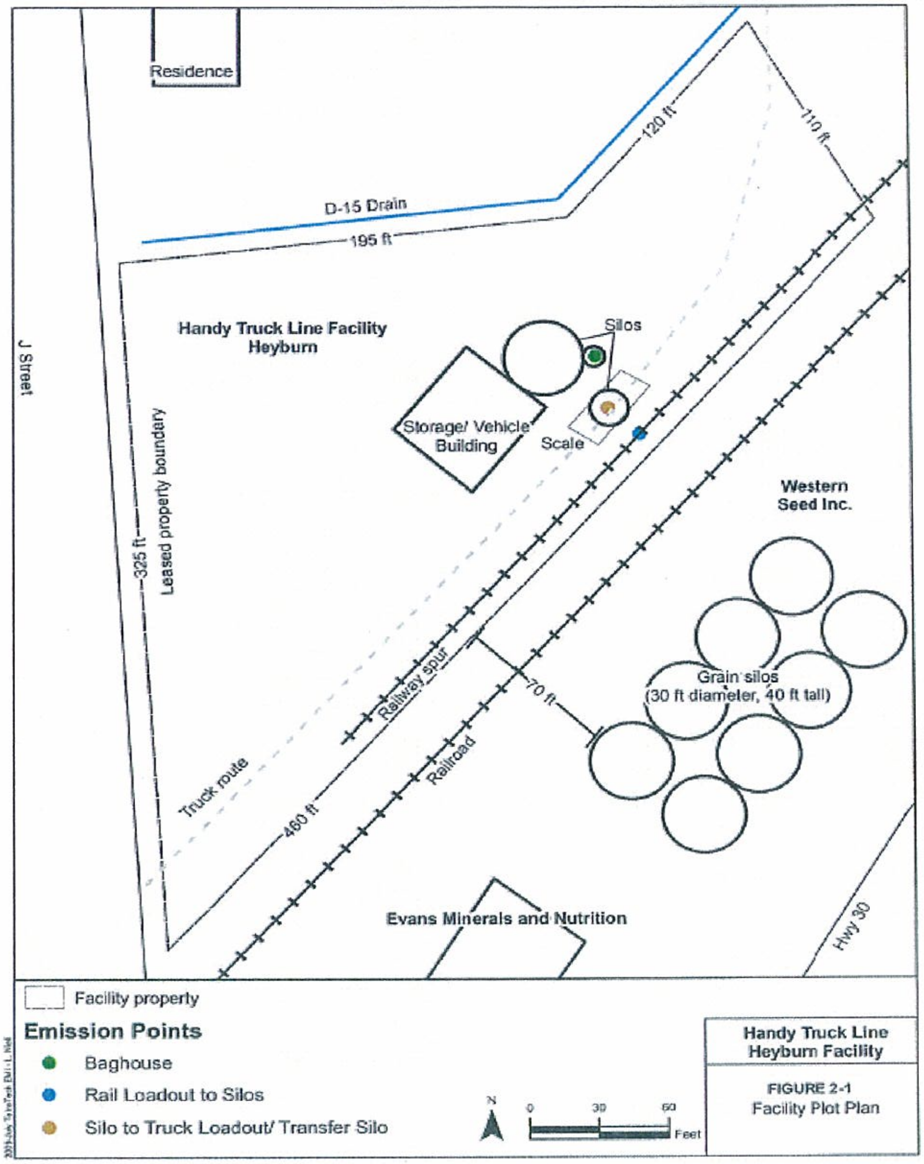

Figure 3-2. HANDY TRUCK LINES HEYBURN FACILITY LAYOUT AND EMISSION POINTS (FIGURE 2-1 FROM THE APPLICATION)

3.1.8 Ambient Air Boundary

Ambient air is defined in Section 006 of the Idaho Air Rules as "that portion of the atmosphere, external to buildings, to which the general public has access." For area sources, the ambient air boundary is typically defined as the property boundary. The Handy Heyburn facility is located on a relatively small parcel, and truck loadout and railcar unloading to the storage silos takes place in a relatively small area where it is reasonable to presume that facility personnel could prevent public access during facility operations. Based on this rationale, the facility property boundary and the boundary of the leased property along the rail tracks were used as the ambient air boundary for the dispersion modeling.

3.1.9 Receptor Network

The receptor grids used for the submitted modeling analyses and DEQ verification analyses are summarized in Table 4. The receptor spacing for all grids is less than or equal to the maximum spacing recommended in DEQ's Air Quality Modeling Guideline (2002). To ensure that impacts from track loadout were captured, Tetra Tech used a very fine 5-meter grid spacing for a 60-meter stretch along the property boundary near the rail loadout point. The near-field receptor grids are shown in Figure 3-3.

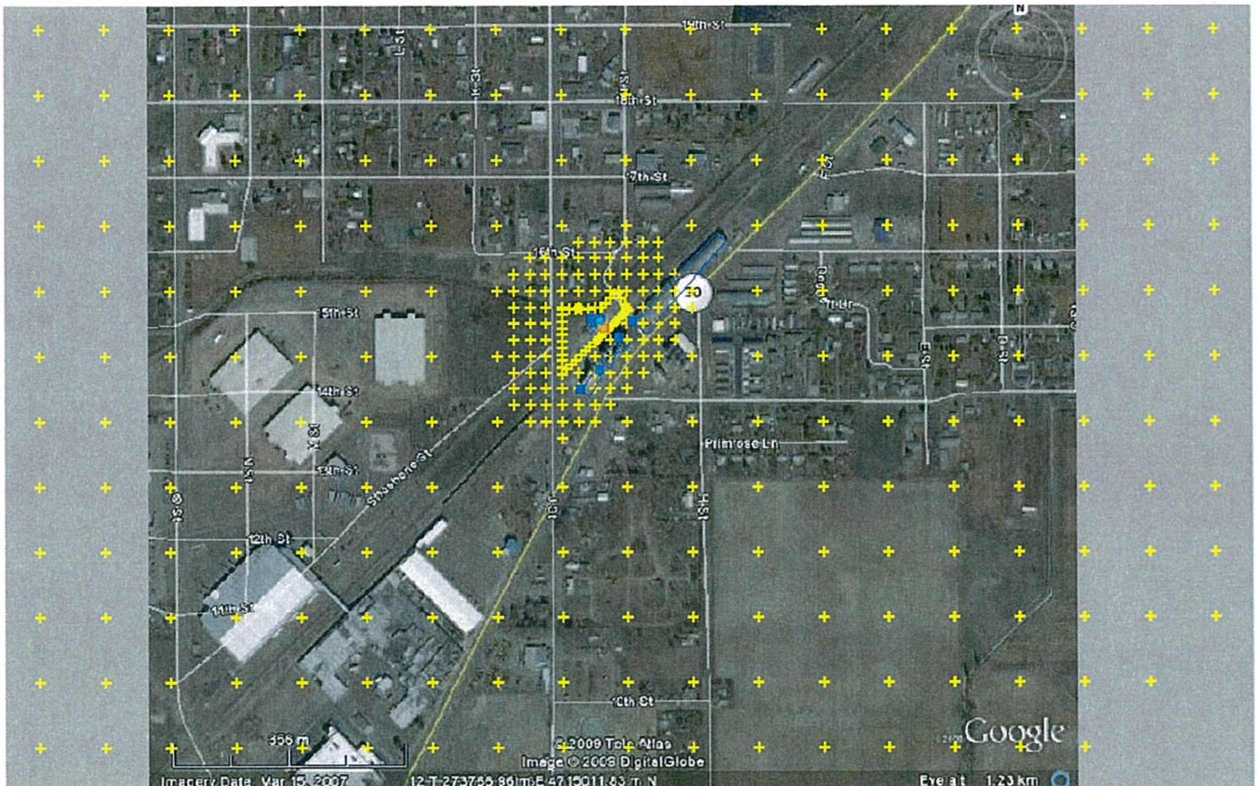

Figure 3-3. HANDY TRUCK LINES HEYBURN – NEAR-FIELD RECEPTOR GRID

3.2 Emission Release Parameters and Emission Rates

Emission release parameters used in the Tetra Tech and DEQ verification modeling analyses are shown in Table 5. The physical stack parameters were confirmed by Tetra Tech during a site visit, and the temperatures, flow rates, and initial vertical and horizontal dimensions appear to be within reasonably expected values for these types of sources. Although the application described the baghouse exhaust point as a horizontal release, the submitted analyses used the AERMOD regulatory defaults with the baghouse exhaust modeled as vertical and uncapped. DEQ allows the use of AERMOD non-regulatory and beta options for horizontal and capped sources for minor sources such as Handy Heyburn. DEQ's verification analyses used the non-regulatory beta option and modeled the baghouse exhaust as a horizontal release.

Table 5. EMISSION RELEASE PARAMETERS

Source ID	Description	UTM Zone 12 (NAD83) Easting (m)[a]	Northing (m)[a]	Elevation (m)[a]	Stack Height (m)[a]	Stack Temp. (K)[b]	Stack Velocity (m/sec)[c]	Stack Diameter (m)[a]	Stack Type
Point Sources									
BH	Fugitive Dust Collector Baghouse	273749.9	4715130	1266.14	10.5	298.15	3.962	0.688	Horizontal, no rain cap, modeled as vertical and uncapped. (DEQ: Horizontal)

Table 5. EMISSION RELEASE PARAMETERS								
Volume Sources								
Source ID	**Description**	**Easting (m)**	**Northing (m)**	**Elevation (m)**	**Release Height (m) [d]**		**Initial Horiz. Dimension σ_Y (m) [e]**	**Initial Vertical Dimension σ_Z (m) [f]**
RCTX	Railcar Unloading to Silo	273,755	4,715,118	1266.17	0.5		0.233	0.233
TL	Flyash Loading to Truck	273,751	4,715,122	1266.34	4.57 (~5.0)		1.163	2.127

[a] m = meters
[b] K = Kelvin
[c] m/sec = meters per second.
[d] = Release heights were based on the estimated height of the material handling activities.
[e] Initial source length divided by 4.3. Initial source lengths: RCTX = 1 meter, and TL = 5.0 meters.
[f] Initial vertical height (estimated as the release height) divided by 2.15.

3.2.1 Criteria Pollutant Emissions Rates

Emissions of criteria pollutants were limited to PM_{10} and lead. Modeled PM_{10} emissions submitted in the application are shown in Table 6, and were based on the following assumptions:

- Maximum railcar delivery to the facility of 14,800 tons per year of flyash,
- Maximum 14,800 tons per year of flyash is shipped offsite in trucks,
- 300 tons of flyash are delivered by rail each day, based on three 100-ton railcars per day.
- 300 tons of flyash per day loaded into trucks for shipment offsite.
- Flyash transfer rate for rail and truck transfer points is 54,545 lb/hr each, based on an 11-hour workday from 7:00 a.m. to 6 p.m..
- Twenty percent (20%) of the flyash is presumed to be placed first in the storage silo, then transferred through the transfer silo for loadout into trucks (10,909 lb/hr, 2,960 tons per year).
- Material transfers occur from 7 a.m. to 6 p.m. weekdays, and from 8 a.m. to noon on Saturdays (3,068 hours per year).
- PM_{10} emissions for flyash transfer from the railcar to the silos were based on 1.10 lb/ton of flyash, the value listed in AP-42, Table 11.12-2, for uncontrolled cement supplement unloading to elevated storage silo (pneumatic).
- PM_{10} emissions for fugitive emissions during flyash transfer from the railcar to the silos, and for transferring flyash from the transfer silo to trucks, were based on 0.278 lb/ton of cement and flyash, the value listed in AP-42, Table 11.12-2, for uncontrolled truck loading.

The evaluation of whether these emission factors were representative for flyash handling was conducted by the permit engineer.

Predicted lead emissions of 2.68E-07 lb/month were well below the DEQ modeling threshold of 10 lbs/month. Annual PM_{10} emissions were predicted to be 0.13 tons per year in the submitted analyses. These emissions are well below the 1 ton per year DEQ modeling threshold.

Because the modeling analyses uses an hour of day and day of week file that multiplied the hourly emissions by zero when the facility was not operating, and by one during the requested operating hours, the 1-hour average emissions shown in Table 6 were input to the model.

Table 6. CRITERIA POLLUTANT MODELED EMISSIONS RATES				
Point Sources				
Source ID	**Description**	**Emissions**	**PM_{10} Emission Rate**	
			1-hr avg (lb/hr)	**1-hr avg (g/sec)**
BH	Fugitive Dust Collector Baghouse	Transfer from railcar to storage silo or transfer silo Transfer from storage silo to transfer silo Total	0.030 0.006 0.036	4.54E-03
Volume Sources				
Source ID	**Description**	**Emissions**	**PM_{10} Emission Rate**	
			(lb/hr)	**(g/sec)**
RCTX	Railcar Unloading	Railcar unloading to auger pit (fugitive emissions from boot/seal system)	7.6E-03	9.55E-04
TL	Flyash Loading to Truck	Truck loadout (fugitive emissions from boot/capture system)	0.44	5.54E-02

3.2.2 TAP Emissions Rates

TAP emissions that exceeded the applicable screening emission levels (EL) were limited to hexavalent chromium. Tetra Tech presumed that 40% of total chromium in the flyash was present in hexavalent form, which is consistent with DEQ recommendations for flyash produced from western U.S. coals.

Tetra Tech calculated TAPs emissions using factors taken from AP-42, Section 11.12. TAPs emissions were determined by first calculating the fraction of each TAP included in particulate matter (PM) emissions, then multiplying this fraction by the total PM emitted from the facility. The evaluation of whether these emission factors were representative for flyash handling was conducted by the permit engineer.

The submitted analyses and the DEQ verification analyses used an hour of day, day of week, seasonal file to model emissions only during the requested facility operating hours. For hexavalent chromium, which is subject to an annual standard, the submitted emissions inventory estimated the annual hourly emissions based on operating 8,760 hours per year. This is appropriate for comparison with the applicable EL to determine whether modeling is required. It is not appropriate, however, for calculating the 1-hour average emission rate for a modeling analysis that is based on operating 3,068 hours per year. The requested annual operations hours were calculated by DEQ as follows:

11 hr/day x 5 days/week x 52 weeks/yr =	2,860 hr/yr
4 hr/day x 1 day(Saturday)/week x 52 weeks/yr =	208 hr/yr
	3,068 hr/yr

Because the submitted analyses used an hourly input file, the submitted Cr (VI) analyses underpredicted the annual impacts. DEQ's verification analyses used arsenic and Cr (VI) hourly emission rates from the application, but adjusted the rates by 3,068 hr/year instead of 8,760 hr/yr to reflect the number of operating hours included in the model.

The modeled emissions are shown in Table 7, with the values used in DEQ's verification analyses shown in parentheses. Although the application reported arsenic emission rates in Table 3-5 of the application, the submitted modeling analyses included modeling only for hexavalent chromium.

Table 7. TAPS MODELED EMISSIONS RATES						
Point Sources						
Source ID	**Description**	**Emissions**	**As**		**Cr(VI)**	
			(lb/hr)	**(g/sec)**	**(lb/hr)**	**(g/sec)**
BH	Fugitive Dust Collector Baghouse	Transfer from railcar to storage silo or transfer silo, and Transfer from storage silo to transfer silo	---	9.01E-08	---	4.40E-08
		Total	(2.04E-06)	**(2.57E-07)**	(9.97E-07)	**(1.26E-07)**
Volume Sources						
Source ID	**Description**	**Emissions**	**As**		**Cr(VI)**	
			(lb/hr)	**(g/sec)**	**(lb/hr)**	**(g/sec)**
RCTX	Railcar Unloading	Railcar unloading to auger pit	--- (1.47E-08)	6.47E-10 **(1.85E-09)**	--- (2.20E-08)	9.71E-10 **(2.77E-09)**
TL	Flyash Loading to Truck	Truck loadout	--- (8.50E-07)	3.75E-08 **(1.07E-07)**	--- (1.28E-06)	5.63E-08 **(1.61E-07)**

[a] Values shown in the table were multiplied by 1E+06 when input into AERMOD to reduce problems associated with calculations using very small numbers in the dispersion modeling program. The model output results were then divided by 1E-06.

3.3 Results for Significant and Full NAAQS Impact Analyses

This is the initial permit for an existing facility. Facility-wide modeling was required to demonstrate compliance for all criteria pollutants with emissions greater than the DEQ modeling thresholds. Criteria pollutant modeling was limited to demonstrating compliance with the 24-hr PM_{10} NAAQS.

As discussed in Section 3.2, the submitted analyses modeled the baghouse exhaust as vertical and uncapped, although the release is horizontal. DEQ's verification analyses used the non-regulatory beta option and modeled the baghouse exhaust as a horizontal release. The highest ambient impact was 66.2 $\mu g/m^3$ at the property boundary near the rail loadout point, as shown in Figure 3-4. As expected, this result is slightly higher than the 63.8 $\mu g/m^3$ value reported in the submitted analyses. As shown in the contribution pie chart in the figure, the truck loadout was the primary source contributing to this predicted impact, followed by rail unloading and baghouse-controlled silo filling emissions.

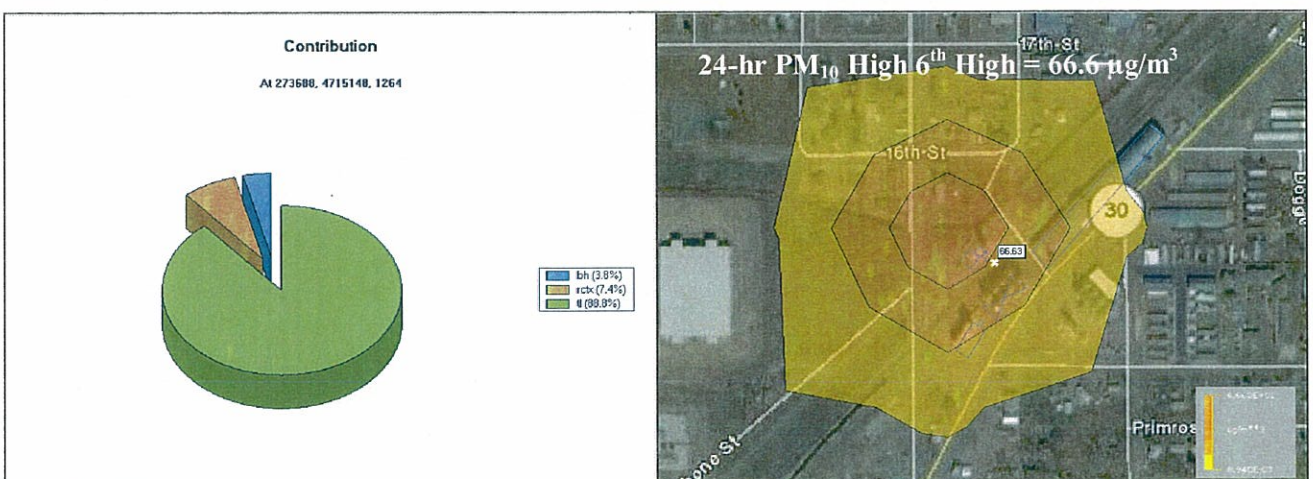

Figure 3-4. DEQ VERIFICATION ANALYSES, 24-HR PM_{10}, Baghouse Horizontal Exhaust

Results of the cumulative NAAQS impact analyses are provided in Table 8, with DEQ verification results shown in parentheses.

Table 8. RESULTS FOR FULL IMPACT ANALYSES						
Pollutant	**Averaging Period**	**Modeled Ambient Impact ($\mu g/m^3$)**	**Background Concentration ($\mu g/m^3$)**	**Total Ambient Impact ($\mu g/m^3$)**	**NAAQS[a] ($\mu g/m^3$)**	**Percent of NAAQS**
PM_{10}	24-hour	63.8 (66.6)	81	144.8 (147.6)	150	96.5% (98.4%)

[a] Defined in Idaho Air Rules Section 577

3.4 Results for TAPs Analyses

Tetra Tech performed a TAPs impact analyses to evaluate compliance with applicable acceptable ambient concentration (AAC) for noncarcinogens and acceptable ambient concentration for a carcinogen (AACC) increments listed in Sections 585 and 586 of the Rules. Modeling for hexavalent chromium impacts was submitted with the application. Using an alternate calculation method for the emissions, DEQ conducted verification analyses for arsenic and hexavalent chromium. The results of the modeling are shown in Table 9, with DEQ verification analyses results shown in parentheses.

Table 9. RESULTS FOR TAP IMPACT ANALYSES				
Pollutant	**Averaging Period**	**Modeled Ambient Impact ($\mu g/m^3$)**	**AACC[a] ($\mu g/m^3$)**	**Percent of AACC**
Arsenic	Annual	--- (6.86E-05)	2.3E-04	--- **(30%)**
Hexavalent Chromium	Annual	1.65E-05 (5.89E-05)	8.3E-05	19.9% **(71%)**

[a] Defined in Idaho Air Rules Section 586 (IDAPA 58.01.01.586)

As discussed in Section 3.2, the submitted analyses modeled the baghouse exhaust as vertical and uncapped, although the release is horizontal. DEQ's verification analyses used the non-regulatory beta option and modeled the baghouse exhaust as a horizontal release. In addition, DEQ's verification analyses for TAPs emissions corrected the 1-hour average emission to reflect proposed operations of 3,086 hours per year rather than 8,760 hours per year. The highest ambient impact for hexavalent chromium was 71% of the standard, with the maximum impact occurring near the rail loadout point, as shown in Figure 3-5. As expected, this result is higher than the value reported in the submitted analyses.

As shown in the contribution pie chart in the figure, the truck loadout was the primary source contributing to this predicted impact, followed by the baghouse-controlled silo filling emissions and railcar unloading.

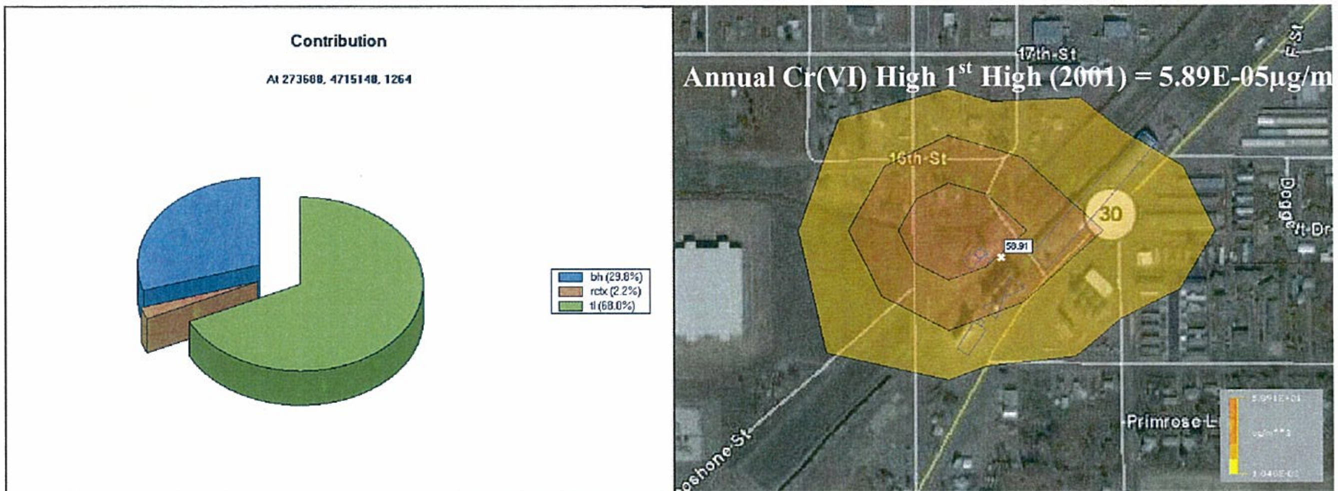

Figure 3-5. DEQ VERIFICATION ANALYSES, Annual Cr (VI) Impacts, Baghouse Horizontal Exhaust

4.0 Conclusions

The submitted ambient air impact analyses, combined with DEQ's verification analyses, demonstrated to DEQ's satisfaction that emissions from the facility will not cause or significantly contribute to a violation of any air quality standard.

Appendix D – Facility Comments

Facility Comments

Comment #1 – Section 1.2, Description of transfer and elimination of auger pit verbiage.
Response - Transfer to pit via auger was replaced "gravity fed via air slide to the elevator". This was done as the auger is not longer at the facility.

Comment #2 – Section 2.1, Description updates – Add Line into title of facility and replace auger with air slide and elevator.
Response: - The appropriate updates to the descriptions were made to better reflect the facility.

Comment #3 – Section 2.2, Table number is missing, description updates
Response - The table number was fixed as the bookmark reference could not be located hence the error. Also, the auger pit description updates were made again.

Comment #4 – Section 2.3, Table number is missing, description updates
Response - The table number was fixed as the bookmark reference could not be located hence the error. Also, the auger pit description updates were made again.

Comment #5 - Control description of boot enclosure (Table 1.1) should include baghouse control with negative air pressure.
Response - The verbiage of negative pressure with baghouse control were included into the table.

Comment #6 - A request to see DEQ verification model run assumptions with references was made.
Response - During the first facility review, the modeling memo was not included. The modeling memo prepared by Cheryl Robinson includes all the request information.

Comment #7 – The facility states that the release for the baghouse does in fact have a vertical release rather than a horizontal release as suggested by DEQ modeling staff during the verification run.
Response – Section 3.3 of this statement of basis was updated to reflect the assertion by the facility that the release is vertical. Both model runs demonstrate compliance and the results are stated in the statement of basis and the modeling memo.

Comment #8 – The facility had some concerns about recordkeeping requirements and requested that the permit state a log book may be kept on site for keeping the records and periodic DEQ inspections.
Response - The permit conditions do not explicitly state how recordkeeping shall be performed. Following a telephone conversation with Sandra Carroll of Tetra Tech (Handy's consultant) it was determined that all recordkeeping conditions were appropriate as stated with the exception of 2.11. This was updated from recording every day to only recording those days when the facility is operating.

Comment #9 - Data from the Jim Bridger facility in Wyoming where Handy receives the flyash was requested by Tetra Tech to be added to the SOB.
Response - The pdf file obtained by DEQ from Tetra Tech on November 20, 2009 was added at the end of Appendix D. Samples of fly ash were collected February 20, 2009, and Xenco Laboratories determined concentrations of chromium, arsenic, and other metals utilizing the analytical method 'TCLP Metals by SW-846 1311/6010B.

XENCO Laboratories

Certificate of Analytical Results 325997

Headwaters Resources, Taylorsville, GA

West TCLP

Sample Id: **211JB Jim Bridger FA** Matrix: **WATER** % Moisture:
Lab Sample Id: **325997-010** Date Collected: **Feb-20-09 14:00** Date Received: **Feb-26-09 12:46**

Analytical Method: TCLP Metals by SW-846 1311/6010B Prep Method: SW3010A

Date Analyzed: Mar-02-09 13:42 Analyst: 4150 Date Prep: Feb-27-09 09:06 Tech: ABA
Seq Number: 751226

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Arsenic	7440-38-2	0.016	0.500	0.013	mg/L	J	1
Barium	7440-39-3	0.184	1.00	0.005	mg/L	J	1
Cadmium	7440-43-9	0.008	0.100	0.001	mg/L	J	1
Chromium	7440-47-3	0.349	0.500	0.001	mg/L	J	1
Lead	7439-92-1	U	0.500	0.004	mg/L	U	1
Selenium	7782-49-2	0.139	0.100	0.016	mg/L		1
Silver	7440-22-4	0.002	0.500	0.001	mg/L	J	1

Analytical Method: TCLP Mercury by SW1311/7470A Prep Method: SW7470P

Date Analyzed: Mar-03-09 14:30 Analyst: 4150 Date Prep: Mar-02-09 16:28 Tech: ABA
Seq Number: 751340

Parameter	Cas Number	Result	PQL	MDL	Units	Flag	Dil
Mercury	7439-97-6	U	0.0200	0.0003	mg/L	U	1