Mystery Bridge Road/U.S. Highway 20

Superfund Site

Operable Unit 2

Record of Decision

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY

DEPARTMENT OF ENVIRONMENTAL QUALITY

WYOMING

Declaration of the Record of Decision

Site Name and Location

The Mystery Bridge Road/U.S. Highway 20 Site ("Mystery Bridge Site" or "Site") is located in Natrona County, northeast of Casper, Wyoming and near Evansville. The Site is divided into two Operable Units. Operable Unit 1 (OU1) includes the groundwater contaminant plumes and Operable Unit 2 (OU2) includes the contaminated soils on the industrial properties, which represent a source for the ground-water contamination. This Record of Decision (ROD) addresses OU2.

The US Environmental Protection Agency (EPA) Comprehensive Environmental Response, Compensation and Liability System (CERCLIS) Site Identification Number is WYD981546005.

Statement of Basis and Purpose

This decision document represents the selected remedy for the Mystery Bridge Site, OU2. This ROD has been developed in accordance with the requirements of the Comprehensive, Environmental Response, Compensation and Liability Act (CERCLA) of 1980, 42 U.S. Code (USC) §9601 et. seq. as amended by the Superfund Amendments and Reauthorization Act of 1986 (SARA), and to the extent practicable, the National Oil and Hazardous Substance Pollution Contingency Plan (NCP), 40 CFR Part 300. This decision is based on the Administrative Record for the Mystery Bridge Site.

This remedy is selected by the US Environmental Protection Agency (EPA) Region 8. The Wyoming Department of Environmental Quality (WDEQ) concurs with the selected remedy.

Assessment of Site

The response action selected in this ROD is necessary to protect the public health or welfare or the environment from actual or threatened releases of hazardous substances into the environment. Such release or threat of release may present an imminent and substantial endangerment to public health or welfare.

Description of Selected Remedy

The majority of the work on OU2 was conducted under Administrative Orders on Consent (AOCs) by Kinder Morgan Energy Partners, L.P. (KMI) and Dow Chemical Company and Dowell-Schlumberger, Inc. (DOW/DSI), and overseen by EPA. This ROD serves to document the previous completed work and to select the final remedy components, i.e., institutional controls (ICs), that EPA and WDEQ believe are appropriate for long-term protectiveness at the Site.

The objectives of the ICs are to:

- Restrict the use of the KMI and DOW/DSI properties to industrial uses.
- Control handling of excavated soils on the KMI and DOW/DSI properties.

These ICs will be implemented using a deed restriction and a notice of use restrictions and restrictive covenant for KMI and DOW/DSI properties, respectively. The ICs restricting the use of ground water under the KMI and DOW/DSI properties were a component of the ROD for OU1.

Once the ICs have been implemented, no additional CERCLA remedial action is necessary for OU2.

ROD Data Certification Checklist

The following information is included in the Decision Summary section of this ROD. Additional information can be found in the Administrative Record for this Site.

- Contaminants of Concern (COCs) and their respective concentrations. (Section 5 and Section 7)
- Baseline risk represented by the COCs. (Section 7)
- Preliminary Remediation Goals (PRGs) established for COCs and the basis for the levels. (Section 7)
- Whether source materials constituting principal threats are found at the Site. (Section 11)
- Current and future land and ground water use assumptions used in the baseline risk assessment and ROD. (Section 6)
- Potential land and ground water use that will be available at the Site as a result of the selected remedy. (Section 12)
- Estimated capital and operation and maintenance (O&M) costs. (Section 12)
- Key factors that led to selecting the remedy. (Section 12.).

Statutory Determinations

The selected remedy for OU2 is protective of human health and the environment, complies with federal and State requirements that are applicable or relevant and appropriate for the remedial action, is cost-effective, and utilizes permanent solutions and alternative treatment technologies to the extent practicable.

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on site above levels that allow for unlimited use and unrestricted exposure, statutory reviews will continue to be conducted every 5 years to ensure that the remedy is, or will be, protective of human health and the environment. (NCP §300.430(f)(4)(ii))

Authorizing Signatures

Federal

This Record of Decision documents the selected remedy to address the contamination at the Mystery Bridge Road/U.S. Highway 20 Site, Operable Unit 2.

The following authorized official at EPA Region 8 approves the selected remedy as described in this ROD.

Carol L. Campbell

9/30/10

Carol L. Campbell
Assistant Regional Administrator
Office of Ecosystems Protection
and Remediation

Date

Authorizing Signatures

State of Wyoming

This Record of Decision documents the selected remedy to address the contamination at the Mystery Bridge Road/U.S. Highway 20 Site, Operable Unit 2.

The following authorized official at the Wyoming Department of Environmental Quality approves the selected remedy as described in this ROD.

John V. Corra, Director
Wyoming Department of Environmental Quality

9/29/10
Date

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Decision Summary

Section 1: Site Name, Location, and Description

The Mystery Bridge Road/U.S. Highway 20 Superfund Site (" Mystery Bridge Site" or "Site") (Figure 1) is located in Natrona County, one mile east of Evansville, Wyoming and in the eastern suburbs of Casper, Wyoming. The Site includes a residential subdivision (Brookhurst) and an industrial area where certain hazardous materials have been used.

The Site is bordered on the north by the North Platte River, on the west by the Sinclair Refinery (formerly known as the Little America Refining Company or LARCO), on the south by U.S. Highway 20, and on the east by Mystery Bridge Road.

The residential area, located on the northern two-thirds of the Site, consists of 125 lots which range in size from two to five acres. Houses were constructed on approximately 100 of these lots between 1973 and 1983. According to population data collected in 1987, approximately 400 people lived within the Brookhurst Subdivision. In addition, approximately 250 people comprised the work force for the industrial properties bordering the residential area. In recent years, population in the subdivision has declined. Lots have been purchased by the Sinclair Refinery, which then typically demolishes the structures on those lots.

According to the 2000 census, the population of Evansville is 2252 people. It is a part of the greater Casper Metropolitan area, with a population in City of Casper of 54,702 people and 74,050 people in Natrona County (2010 figures).

The industrial area is located within the southern perimeter of the Site to the south of the Burlington Northern Railroad (BNRR) right-of-way and north of U.S. Highway 20. Present industrial operations at the Site include companies which provide oil field services, bulk fuel storage for local delivery, natural gas processing and compressing, and supply commercial chemicals. Several petroleum refineries operate outside the west boundary of the Site. Other businesses located along U.S. Highway 20 but outside the Site, include truck sales, grading, moving and storage, and public utilities.

Past and present surface and subsurface storage units and other structures at the Site include several underground and above ground storage tanks, abandoned drums, an unlined waste pond and a concrete-lined waste pond. Although several of the units have been removed, these features have released contaminants from the industrial facilities at the Site and are discussed in detail in the next section.

Section 2: Site History and Enforcement Activities

Initial Investigations

In August of 1986, residents complained of poor air and water quality in and around the residential subdivision. As a result, the Wyoming Department of Environmental Quality (WDEQ), the Natrona County Health Department and the Office of Drinking Water in EPA Region 8 began an investigation of the Site. Results of early sampling activities indicated organic compounds in residential wells and tap water. Residents were advised not to use their well water for drinking or food preparation. In the same year, the State of Wyoming began providing bottled water to residents. Under the Superfund Removal Program, EPA took over the lead responsibility for removal activities including providing bottled water. As part of the removal program, EPA also installed monitoring wells and conducted sampling programs to further investigate the release of contaminants and gather information to evaluate the need for further removal action.

The Agency for Toxic Substances and Disease Registry (ATSDR) assessed the public health risk posed by volatile organic compounds in the ground water at the Site. ATSDR determined that there was an imminent and substantial health threat to Site residents and that if action were not taken within one year, the concentrations of contaminants in drinking water wells would result in unacceptable lifetime cancer risks for individuals drinking well water in the area.

In March 1987, EPA began an Expanded Site Investigation (ESI) to further define the nature and extent of contamination in air, soil, surface water and ground water at the Site and to respond to community concerns. During the ESI, multiple potential sources and contaminants were investigated on area properties. Subsequently, the investigation became more focused.

The ESI delineated several potential plumes of ground water contamination and identified several potential sources of contaminants. Based on the findings of the ESI, the Mystery Bridge Site was proposed for the National Priorities List (NPL) in June of 1988. Listing of the Mystery Bridge Site on the NPL was finalized on August 28, 1990. The ESI concluded that one or more contaminated ground-water plumes originated near the Dow Chemical Company and Dowell-Schlumberger Inc. (DOW/DSI) property, and that another ground-water plume resulting from the release of aromatic hydrocarbons originated near the KNEnergy facility, now named Kinder Morgan Energy Partners, L.P. (KMI)). The report also concluded that soils at the DOW/DSI facility were contaminated and soils at the KMI facility could be contaminated. A third major plume was identified as entering the subdivision from the LARCO property to the west.

The LARCO facility is under the authority of the Resource Conservation and Recovery Act (RCRA) and was not investigated as part of the CERCLA activities at the Mystery Bridge Site. It is not considered part of the Site. The contamination associated with the LARCO facility is being addressed through a unilateral 3008(h) corrective action order issued on December 1, 1988. The contaminated ground-water plume from the LARCO facility (referred to as the RCRA plume) is believed to be made up of floating petroleum/hydrocarbon products.

Based on an imminent and substantial endangerment to public health revealed by the ESI, EPA decided to supply an alternative permanent water system for the Brookhurst subdivision. The water supply project was separated into two phases: Phase I included the design and construction of a water transmission line from the municipal water supply in Evansville to the Site and a distribution system throughout the residential area; Phase II Involved upgrading the Evansville water filtration facility and included the design and construction of a new water intake and its corresponding pump station, a new transmission line from the new intake to the Evansville water filtration facility, and a new sedimentation basin. Phase II was required because the existing intake was below the Casper wastewater treatment plant discharge location and the water quality was unacceptable. The upgraded system was put into operation in January 1989. These response actions were performed by EPA as removal actions under an action memorandum signed on January 7, 1987 and subsequently amended on July 21, 1987 and May 2, 1990.

Concurrent with the initial scientific studies, EPA also conducted research to identify potentially responsible parties (PRPs), parties who may be liable pursuant to CERCLA, for the cleanup of contamination at the Site. Notice letters regarding removal actions and remedial activities were sent in late 1986 and 1987 to various PRPs identified including DOW/DSI and KMI.

Prior Removal Actions in OU2

In December 1987, KMI and DOW/DSI each entered into Administrative Orders on Consent (AOCs) to perform removal actions at their respective facilities. DOW/DSI and KMI agreed to take immediate actions to control suspected sources of ground-water contamination on their respective properties and to prevent further migration of contaminated ground water into the subdivision.

DOW/DSI: The DOW/DSI facility used mobile mounted pumps, tanks and other associated equipment to perform oil and gas production enhancement services for the oil and gas industry. DOW/DSI performed its own truck washing and repair and stored solvents in drums on their property. A gravel leach sump for disposal of truck wash water located on the western portion of the property had been in operation since shortly after the facility began operations in the 1950's. The wash water is believed to have contained chlorinated solvents. Also located on the western part of the property, a 1000-gallon underground oil/water separator tank was used to separate oil film and solids washed from trucks. Separated wash water left the separator and flowed through a vitreous tile drain to the leach sump system. A toluene storage area was located at the north end of the facility. Contaminants were released from both the wash water disposal system and toluene storage area.

Because of these releases and the resulting contamination, and in accordance with an AOC, DOW/DSI prepared an Engineering Evaluation/Cost Analysis (EE/CA) report to document the extent and nature of the releases of contaminants, and to support proposals of expedited removal actions to control migration of contaminants and eliminate sources of contaminants beneath and adjacent to their property. As a result of drilling and sampling activities at the DOW/DSI facility in 1987, several volatile halogenated organic (VHO) soil contaminants were identified in the ground water and soil near the abandoned chlorinated gravel leach sump area. The EE/CA

prepared by DOW/DSI evaluated removal technologies and recommended a removal action that was then implemented by DOW/DSI.

Beginning in late 1987 and continuing through part of 1988, a removal action was conducted by DOW/DSI. The removal action consisted of three major activities as follows:

1. A buried wash water disposal system, an empty and out-of-service underground storage tank (UST), and approximately 440 cubic yards of soil and debris from an older abandoned sump area, were removed from the DOW/DSI facility. The excavations were backfilled with clean sand and gravel.

2. A soil vapor extraction (SVE) system was used to remove an additional 334 pounds of volatile halogenated organic (VHO) chemicals from the area of the abandoned sump.

3. Another SVE system was used to remove 5,718 pounds of aromatic contaminants (toluene, xylenes, and ethylbenzene) from the former toluene storage area on the DOW/DSI property.

Confirmatory subsurface soil sampling following the SVE operations showed that the SVE systems had lowered in-situ concentrations of soil contaminants to the Soil Action Levels (SALs) developed by EPA for the Site in support of the expedited removal actions. These SALs are listed for each property in Section 5. These response actions were conducted before EPA had divided the Site into operable units.

EPA issued a record of decision in September of 1990 that divided the Site into 2 operable units. The 1990 record of decision (OU1 ROD) principally concerned ground water and was designated as OU1. The OU1 ROD also required further studies, concerning contaminant source abatement, under OU2. After issuance of the OU1 ROD, EPA and DOW/DSI negotiated an amendment to the AOC. Pursuant to the scope of work for that amended order, the work to be performed under OU2 was divided into two parts, Phase I and Phase II. Phase I activities were designed to measure the appropriateness and effectiveness of the removal actions conducted by DOW/DSI prior to the OU1 ROD. If Phase I activities demonstrated that the actions taken to date protected the ground water from future contamination by soil sources, at levels exceeding Federal Maximum Contaminant Levels (MCLs) for drinking water as adopted or proposed by EPA, no further removal actions would be required for OU2.

The Phase I analysis demonstrated that the earlier removal actions were effective and that additional source removal was not necessary to protect ground water.

KMI: KMI has operated a natural gas fractionation, compression, cleaning, odorizing, and transmission plant at the Site since 1965. Operation and maintenance activities are performed on-site. Originally constructed as an earthen impoundment, a flare pit was used to collect spent material generated by the facility. Materials that may have been placed in the flare pit include: 1) crude oil condensate; 2) absorption oil; 3) emulsions, anti-foulants, and anti-corrosive agents; 4) liquids accumulated in the flare stack; 5) potassium hydroxide treater waste; and 6) lubrication oils and blowdown materials from equipment in the plant. In October 1984, the western half of the impoundment was backfilled and a new concrete-lined flare pit was constructed on the

eastern half. Use of the flare pit was discontinued and the pit was decommissioned in 1987. Waste streams formerly collected in the flare pit were re-routed into above-ground storage tanks for temporary storage or recycling.

A catchment area, a low spot in the ground just west of Elkhorn Creek, collected surface run-off water containing contaminants from the plant area and steam condensate from the dehydration unit. Various activities were undertaken by KMI to re-route materials away from this area in 1984. In 1965, an underground pipe burst during facility start-up and 5,000 to 10,000 gallons of absorption oil were injected under pressure into the ground beneath the process area. Absorption oil is used at the KMI processing facility to remove impurities from the natural gas stream. Other releases occurred between 1965 and 1987 in the form of small leaks and spills near the flare pit and catchment area.

Because of these releases and the resulting contamination, and in accordance with an AOC, KMI prepared an EE/CA report. An investigation was conducted as part of the EE/CA for removal actions at the KMI facility. A soil vapor survey was conducted in the vicinity of the flare pit, and soil boreholes and ground water were sampled.

Additional samples were collected from soils between the concrete flare pit and the flare stack, and also beneath the concrete flare pit. Several aromatic hydrocarbon contaminants were identified in the soils and ground water near the flare pit. Benzene, toluene, ethylbenzene and xylenes (collectively known as BTEX) are included in the aromatic hydrocarbons group. A floating layer of BTEX contaminants was identified during subsequent ground-water sampling at the KMI facility.

Based on additional drilling and sampling, aromatic hydrocarbons were identified within the boundaries of a section of soil that was stained by what was believed to be absorption oil from past releases in the process area and flare pit location. The stained soil on the KMI property extended across the northeastern portion of the DOW/DSI property, through the railroad right-of-way and slightly into the residential area.

The EE/CA prepared by KMI evaluated removal technologies and recommended a removal action. EPA signed an action memorandum on July 14, 1989 that chose the recommended actions from the EE/CA as the removal action for the KMI property. KMI began the removal action in November 1989. The removal action consisted of ground water pump and treat (PAT) and soil vapor extraction (SVE) systems that remove BTEX contaminants via three phases: free floating product, ground water, and soil vapor. The SVE system extracts vapor phase hydrocarbons from the unsaturated interval between the water table and the ground surface. The PAT system pumps ground water to the surface where volatile hydrocarbons are removed by air stripping. Floating product, when present, was removed from the ground-water extraction wells when the PAT system was in operation. By July 31, 1990, the KMI removal system had recovered approximately 6,000 gallons of BTEX contaminants and had extracted approximately 135 pounds of benzene from the soils and ground water beneath the KMI facility.

As part of selected remedy in the OU1 ROD, the SVE and PAT systems constructed by KMI were selected as the remedy for the BTEX ground-water plume. The OU1 ROD also required

further studies, concerning contaminant source abatement, under Operable Unit 2 (OU2). EPA and KMI negotiated an amendment to the AOC. Pursuant to the scope of work for that amended order, KMI agreed to perform the following response actions under OU2:

1. Evaluate the current remedial action;
2. Confirm current soil conditions;
3. Enhance the ongoing remedial action by implementing a fullscale air sparging system;
4. Update existing applicable or relevant and appropriate requirements (ARARs) ;
5. After completing air sparging operations, identify remaining source areas, if any; and
6. Address remaining source areas, if necessary.

Between July 1993 and September 1993, fifty-four air sparging wells were installed at the Site. On October 28, 1993, the enhanced air sparging program began and operated for 495 days until March 9, 1995. Based on the results of the enhanced air sparging it was concluded that no identifiable source areas remained at the KMI Facility above SALs. The soil BTEX concentrations after air sparging were as follows:

Sample ID	**Benzene**	**Ethylbenzene**	**Toluene**	**Xylenes**
SB-01A	<8.00	570	<8	2900
SB-02A	<8.00	280	<8	260
SB-03A	<8.00	93	<8	400
SB-04A	<8.00	1700	<8	3000
SB-05A	<8.00	280	<8	430

Concentrations in micrograms per kilogram (µg/kg)

Remedial Investigation/Feasibility Study (RI/FS)

In December 1987, an AOC was issued to DOW/DSI and KMI requiring them to conduct a Remedial Investigation/Feasibility Study (RI/FS) to characterize the extent of contamination and identify alternatives for cleaning up the Site. The RI/FS report, which was completed in June 1990, concluded that two plumes of contaminated ground water originated in the industrial area south of the subdivision and were migrating through the subdivision in a northeast direction. The first of these plumes was contaminated with VHO compounds (referred to as the VHO plume), and extended from the DOW/DSI facility to the North Platte River. The second plume was contaminated with BTEX compounds (referred to as the BTEX plume), and extended from the KMI facility to the BNRR property and possibly into the subdivision directly north of the KMI facility. In addition, a layer of BTEX contaminants which originated at the KMI facility and extended slightly into the subdivision, was found floating on the ground water.

As part of the RI/FS in September 1989, EPA prepared a baseline risk assessment (BRA) to estimate potential human health and environmental risk that could result if no action were taken at the Site. The BRA indicated that exposure to ground water could result in significant risks due to contaminants at the Site. Details of the BRA are summarized later in Section 6.

The RI/FS, completed in June 1990, suggested that ground-water plumes of VHO compounds emanating from the DOW/DSI property and BTEX compounds emanating from the KMI property were not commingled in the area downgradient from the DOW/DSI and KMI facilities.

The OU1 ROD was signed on September 24, 1990. The remedial action selected for OU1 included the systems for extracting contaminated ground water from locations near the KMI and DOW/DSI facilities that were already constructed in removal actions by KMI; and DOW/DSI, treating the extracted water to remove contaminants, and re-injecting the resulting clean water into the ground. The DOW/DSI portion of the remedy also included natural attenuation of the portion of the ground-water contaminant plume extending beyond the northern DOW/DSI property boundary.

The OU1 ROD also selected temporary institutional controls for the ground water. The selected remedial actions for OU1 addressed the ground-water plume emanating from the DOW/DSI facility that contained volatile halogenated organic (VHO) contaminants and the ground-water plume emanating from the KMI facility that contained aromatic hydrocarbon contaminants including benzene, toluene, ethylbenzene, and xylene (BTEX). A Consent Decree was signed with both DOW/DSI and KMI in October 1991, in which the parties agreed to implement the OU1 ROD remedy.

OU1 Remediation

DOW/DSI: October 1991, the Consent Decree for remedial design and remedial action entered by the Court required the following performance standards:

1. Remediate ground water so that concentrations shall not exceed Maximum Contaminant Levels (MCLs) and proposed MCLs, as set forth in the ROD for VHOs.

2. The area of attainment shall include the entire VHO plume, including those areas of the plume inside and outside the DOW/DSI facility.

Construction of the ground water extraction/treatment system began with the installation of three extraction wells in August 1993. Subsequent construction included the installation of a ground water treatment unit and an infiltration gallery. No additional monitoring wells were installed during initial remedial construction.

Construction was determined to be complete based on a November 1993 site inspection.

KMI: October 1991, the Consent Decree for remedial design and remedial action entered by the Court required the following performance standards:

1. Remediate ground water so that concentrations shall not exceed Maximum Contaminant Levels (MCLs) and proposed MCLs, as set forth in the ROD for BTEX.

2. The area of attainment shall include the entire BTEX plume, including those areas of the plume inside and outside the KMI facility.

The applicable MCLs for BTEX, established by the National Primary Drinking Water Regulations (40 CFR §141.61) were as follows:

Benzene: 0.005 mg/L
Ethylbenzene: 0.7 mg/L
Toluene: 1 mg/L
Xylenes: 10 mg/L

Concentrations of ethylbenzene, toluene, and xylenes had not been measured above the MCLs. Therefore, the ground-water remediation evaluation focused on benzene as the indicator contaminant of concern.

The OU1 remediation system operated between November 1989 and August 1996 and included ground-water pump-and-treat (PAT) with air stripping and soil vapor extraction (SVE). The PAT system pumped ground water to the surface where volatile hydrocarbons were removed by air stripping. The treated water was subsequently returned to the ground water via injection or infiltration. The SVE system extracted vapor phase hydrocarbons from the unsaturated interval between the water table and the ground surface. Floating free product was removed from the ground -water extraction wells by the PAT system. The PAT system operated at approximately 55 to 75 gallons per minute. The OU1 remediation system (PAT and SVE) was turned off with consent of EPA in August 1996.

A Ground Water Monitoring Plan (GMP) was developed in 1993 to evaluate the effectiveness of the Remedial Action (RA) and post-RA and determine compliance with the performance standards. Specifically, the GMP established that following shut down of the remediation system and after 12 months of ground-water sampling with results below the MCL, quarterly post-RA monitoring would begin.

Current Status

DOW/DSI: The remediation system operated continuously between November 1993 and April 2001 when EPA approved DOW/DSI's request to cease active remediation. The request was based on the appearance of a temporary petroleum sheen entering the ground water treatment equipment and measurable light non-aqueous phase liquid (LNAPL) near the north boundary of the DOW/DSI property. The observance of LNAPL in some of the wells was temporary and has not been observed in subsequent sampling events. The remediation system was not designed to accommodate LNAPL.

The ground water extraction rate averaged approximately 100 gallon per minute (gpm) between June 1999 and April 2001.

In accordance with post-RA ground water monitoring requirements, RAOs will not be achieved until the 85 percent upper confidence limit (UCL85) of the arithmetic mean for eight consecutive quarters of ground water monitoring data do not exceed the remedial performance goals. This test is performed for each monitoring well in the contaminant plume.

Although significantly reduced in areal extent, the DOW/DSI plume has not yet met the cleanup standards in the OU1 ROD.

KMI: Achievement of RAOs under post-RA monitoring was determined to have been met after a minimum of eight quarterly sampling events were conducted in which, for each well, the 90 percent one-tailed upper confidence limit (UCL90) concentrations for benzene, ethylbenzene, toluene and total xylenes were below the MCLs for each chemical. Compliance with RAOs for the KMI plume has recently been achieved.

Section 3: Community Participation

This section summarizes the community relations activities performed by EPA and WDEQ during the remedy selection process. EPA and WDEQ developed a community relations plan for the Site to promote public awareness of cleanup activities and investigations and to promote public involvement in the decision-making process. Community participation activities included fact sheets, public meetings, and public notices.

Recent community interest and public involvement have been low-key. The Proposed Plan for OU2 was issued on August 23, 2010 with a public notice placed in the Casper Star Tribune on August 23, 2010 outlining remedial alternatives and announcing the public comment period and public meeting. The public comment period was open from August 23 to September 21, 2010. The public meeting was held September 2, 2010 at the Evansville Town Hall. A transcript of the public meeting is included in the Administrative Record.

EPA's responses to official public comment on the Proposed Plan are presented in the Responsiveness Summary attached to this ROD.

Section 4: Scope and Role of Operable Unit or Response Action

The Mystery Bridge Site has been divided into two operable units: one to address ground water (OU1) and the other to address the contaminant source areas (OU2) on the industrial properties. The remedy selected in this ROD is for OU2. Prior response actions addressed contaminated soils on the KMI and DOW/DSI properties such that it was determined that no additional source removal actions were necessary to protect ground water. The remedy selected in this ROD is necessary to protect future users of these properties. This ROD addresses whether ICs are necessary for contaminated source areas on the DOW/DSI and KMI facilities because wastes were left in place such that unrestricted use and unrestricted exposure are not possible. Removal Action Levels (RALs) were based on industrial uses, and unrestricted use is not possible.

The remedy selected by EPA and documented in this ROD includes remedial actions necessary to protect human health and the environment, specifically with respect to potential future use of

the industrial properties. EPA identified the need for this remedy in the Third Five-Year Review Report, dated September 30, 2009.

Section 5: Site Characteristics

This section summarizes information obtained through the investigations and feasibility studies. It includes a description of the site conceptual model on which the investigations, risk assessment, and response actions are based. The major characteristics of the Mystery Bridge Site and the nature and extent of contamination are summarized below. More detailed information is available in the Administrative Record for the Site.

Site Geology and Hydrology

The Site is located within a narrow strip of Quaternary alluvial floodplain and terrace deposits along the North Platte River and Elkhorn Creek. The upper 1.5 to 13 feet of the alluvial deposit is a surficial soil layer which consists of a mixture of sandy silt and clayey silt. The remaining alluvium ranges in thickness from 13 to 68 feet. It is well-sorted coarse-to-medium sand with little fine sand and trace amounts of silt and gravel.

Bedrock crops out to the southeast and northwest of the Site. In the uppermost 200 to 300 feet of bedrock the formations are in ascending order 1) Teapot Sandstone, consisting of medium to fine-grained sandstone with shale partings and 2) the Lewis Shale, consisting of thick bedded shale grading into brown sandstone.

The bedrock surface at the Site is beneath a layer of alluvium. A clay layer indicating weathered bedrock was encountered at the contact between the alluvium and bedrock in almost every borehole. A valley in the bedrock surface that roughly parallels the present course of Elkhorn Creek was also identified. This valley was probably eroded by a former course of the North Platte River. Bedrock elevations increase on both flanks of the valley. To the east this increase is part of a divide separating the Site from an adjoining drainage. The alluvium pinches out in the east restricting movement of ground water towards the residential area. The bedrock surface is less regular to the northwest. A comparison of bedrock surface topography to alluvial ground water flow directions shows that the shape of the bedrock valley significantly affects ground water movement in the alluvial aquifer. The low permeability layer at the bedrock surface also appears to confine the contaminants to the upper alluvial aquifer.

The horizontal component of ground water flow within the alluvial aquifer is consistently to the northeast with only minor and local variations. The flow direction appears to be controlled to a certain degree by the alignment of the valley in the bedrock surface. Although water level differences between the alluvium and underlying bedrock have been variable, they generally confirm the potential for ground water in the bedrock to flow into the alluvium in the valley from peripheral portions of the local area.

Based on the character of the alluvial materials at the Site and on hydraulic tests conducted within the alluvium, the ground water seepage velocity for horizontal flow within the alluvium ranges from 0.21 to 4.9 feet per day, with an average value of 2.12 feet per day. The seepage

velocity represents the rate at which dissolved contaminants would be transported with the ground water in the absence of hydrogeochemical factors such as adsorption onto sand grains in the aquifer.

Nature and Extent of Contamination

The scope of the investigations at the Mystery Bridge Site has included studies for all media that may be contaminated. For these media, soils in the residential area, surface water and sediments from Elkhorn Creek, and air quality at the Site were determined not to be of concern with regard to contaminant levels and exposure pathways at the Site. Areas of contaminated soils were identified on the industrial properties at the Site. These source areas, discussed below, represent potential exposure pathways at the DOW/DSI and KMI properties, in addition to contributing to ground water contamination beneath the industrial properties and adjacent Brookhurst Subdivision.

DOW/DSI: Investigations of the DSI facility soils revealed the presence of contaminants comprising the following volatile and semi-volatile organic chemicals, with the indicated maximum concentrations:

1,1-Dichloroethane	840
1,1-Dichloroethene	2,800
1,1,1-Trichloroethane	26,000
Trichloroethene (TCE)	17,000
Tetrachloroethene (PCE)	62,000
Toluene	1,400000
Ethyl benzene	1,300,000
Xylenes	3,300,000

Concentrations in micrograms per kilogram (µg/kg)

Soils in the west-central part of the DOW/DSI facility were contaminated by chlorinated organic compounds, particularly TCE and PCE. Soils in the north-central part of the facility were contaminated by toluene. Several sources for the chlorinated organic contaminants in soils in the western part of the facility were found. These included the following:

1. A 1000-gallon oil/water separator approximately 60 feet north of the truck maintenance building;

2. An abandoned sump, unused since about 1980, approximately 160 feet north of the truck maintenance building;

3. A vitreous clay tile drain line connecting the wash bay drain in the truck maintenance building to the oil/water separator and, formerly, the oil/water separator to the leach sump; and

4. A waste oil tank with a capacity of approximately 1000 gallons, emptied, removed from service and filled with sand in 1985.

The primary source of the chlorinated organic soil contaminants was the abandoned sump. The sump was used to dispose of water from washing truck exteriors, and may have received small quantities of solid materials (e.g., frac sand). Use of this sump was discontinued sometime in the 1970s or early 1980s, when a new wash water sump was constructed.

Soils in the vicinity of the new wash water sump did not exhibit contamination by chlorinated organic compounds, probably because the use of such compounds had been discontinued prior to construction of the new structure.

The approximate areal and vertical extent of soil contamination in the former toluene storage area was delineated on the basis of field observations. Because soils in the area exhibit no visible staining, the primary method used to determine the extent of contamination was correlation of organic vapor analyzer (OVA) measurements made on soil boring and trench soil samples. The approximate limit of soil contamination associated with the former toluene storage was conservatively estimated to extend under the entire area formerly diked.

The source of contaminants in the former toluene storage area was presumed to be leakage and/or spillage of toluene from the former above-ground storage tank and from transfer of the product to or from transport vehicles. The toluene storage area was dismantled sometime before 1988, so potential sources of additional contamination of this type were no longer present when the soil removals were conducted in 1988.

KMI: Site investigations have shown that two similar releases of contaminants have occurred from the KMI facility to the ground surface during the life of the KMI facility. The first contaminant released was absorption oil. A pipe burst during the initial start-up of the facility in 1965, which resulted in injection of up to 10,000 gallons of this product beneath the ground surface. The estimated volume of oil injected is based on the approximate capacity of the absorption oil system. In addition, between 1965 and 1987, various undefined amounts of absorption oil were lost to the ground surface via a number of facility practices, such as bearing cooling and lubrication. Quantities and locations of absorption oil lost during this time period are not documented in the KMI records. By 1987, the operational procedures of the facility had been changed sufficiently to eliminate these relatively small losses of absorption oil.

The second contaminant released from the facility was a mixture of some portion of the materials deposited in the flare pit during the period from 1965-1985. These materials were also likely to have originated within the process area as absorption oil, possibly modified by mixing with other hydrocarbons from the gas stream, and also possibly modified by burning. Both releases were comprised of mainly straight chain paraffins and are likely to have included a few percent arenes (including benzene, ethyl benzene, toluene, and xylenes) (including naphthalene and 2-methyl naphthalene).

The extent of the soil contamination at the KMI facility was found to be correlated to visible staining in the soil. Three sources of contamination were identified on the KMI property including: 1) the flare pit, 2) the catchment area, and 3) the process area. High concentrations of BTEX compounds were found in monitoring wells near these sources. These compounds were believed to be components of absorption oil and other liquids associated with refining activities

at the KMI facility. Prior to remediation the concentrations of BTEX compounds in soils were as follows:

Sample ID	Benzene	Ethylbenzene	Toluene	Xylenes
SB-01	<10.00	810	<9.75	5500
SB-02	<10.00	660	<9.75	4900
SB-03	<10.00	2000	<9.75	11000
SB-04	<10.00	5900	<9.75	22000
SB-05	<10.00	1400	<9.75	5300

Concentrations in micrograms per kilogram (µg/kg)

Section 6: Current and Potential Future Site and Resource Uses

The DOW/DSI and KMI properties are currently zoned heavy industrial as defined under Section 10 of the Natrona County Zoning Resolution. It is anticipated that the use of these properties will remain industrial. The intent of the institutional controls is for the use of these properties to remain industrial unless further studies and or cleanup are done.

It is anticipated that the Brookhurst Subdivision will remain residential.

Land use in the area surrounding the Site is changing from rural to commercial and residential, as development is expanding out from Casper proper. Recent development has occurred upstream from the Site and may be impacting flows in Elkhorn Creek.

Section 7: Site Risks

EPA developed Soil Action Levels (SALs) in 1988 to support the expedited removal actions. The approach for developing the SALs focused on those contaminants that exceeded a preliminary toxicity screening based on the then available toxicity benchmarks. The SALS are in micrograms per kilogram (µg/kg) and are listed below for each facility.

Soil Action Levels (SALs) for the DOW/DSI property:

Tetrachloroethene (PCE):	8,000 to 20,000 (revised to 600 to 1,400 in 1993)
Trichloroethene (TCE):	400 to 500
1,1,1-Trichloroethane (1,1,1-TCA):	34,000 to 52,000

SALs for the KMI property:

Benzene	80 - 82
Ethyl benzene	182,000 to 325,000
Toluene	71,000 to 107,000
Xylene	176,000

Based on these SALs, soil removals were conducted at the DOW/DSI and KMI properties to reduce source area contamination and reduce further inputs to ground water contamination.

Following the removal actions, as part of the RI/FS, EPA prepared a Baseline Risk Assessment (BRA) for the Mystery Bridge Site in December 1989. This risk assessment was carried out to characterize, in the absence of remedial action (i.e., the "no-action" alternative), the current and potential threats to human health and the environment that may be posed by contaminants migrating in ground water or surface water, released to the air, leaching through the soil, remaining in the soil, or bio-accumulating in the food chain at the Site. Since this BRA preceded the OU1 ROD that divided the Site into two Operable Units, the scope of the assessment was intended to address all environmental media and all potential pathways of exposure.

The BRA began by compiling a list of contaminants from the results of the various sampling activities that were measured to be above detection limits or above natural background levels. Thirteen indicator contaminants were selected based on concentrations at the Site, toxicity, physical/chemical properties that affect transport/movement in air, soil and ground water and prevalence/persistence in these media. These indicator contaminants were judged to represent the major potential health risks at the Site. Subsequent to the 1989 BRA, EPA conducted a supplemental review of five additional contaminants detected at the Site that were not addressed in the BRA. In this report, Final Risk Analysis, RI/FS-OU2, dated March 5, 1992, EPA concluded that none of the five additional contaminants warranted further risk evaluation.

Exposure and Toxicity Assessment

Based on the results of the ESI and EE/CAs for the DOW/DSI and KMI properties, the 1989 BRA concluded that workers, visitors, or trespassers at the industrial properties could be exposed through incidental soil ingestion and that, given future development, the soil pathway could be complete for future residents. The BRA further concluded, however, that these risks would be relatively insignificant, based on compliance with the SALs developed in support of the removal actions. Consequently, the BRA focused primarily on the current and future exposure pathways for the Brookhurst Subdivision rather than the industrial properties.

Since the development of the site-specific SALs, EPA has developed Regional Screening Levels (RSLs) for soils for both industrial and residential scenarios. With respect to the contaminants identified in the DOW/DSI and KMI SALS, the current RSLs for Ethylbenzene and Toluene are significantly lower than the SALs for both the industrial and residential scenarios. In addition, the toxicity benchmarks have been revised for Ethylbenzene (1991), Xylenes (2003), and TCE (under IRIS review), since the development of the SALs. The toxicological profiles presented in the BRA for these contaminants include a discussion of the relevant toxicity benchmarks for non-cancer effects (Reference Dose or RfD) and cancer (Slope Factors or SF). Several of these contaminants are classified as probable or known human carcinogens and are associated with various lung, kidney and liver cancers. Other non-cancer effects include blood, immune, and nervous system disorders.

Considering the potential for future land development at the Site, future residences potentially could be located on properties currently used by industries, unless precluded by the implementation of ICs. The soil ingestion and ground water pathways are therefore likely to be complete for these future hypothetical residences under the no action alternative.

Worker and visitor exposures to contaminants present in the soil and ground water at the industrial properties are constrained by Site access and, at the KMI facility, by health and safety protocols for an active gas plant. Since compliance with the SALs allowed some level of contamination to remain in the subsurface soils, ICs are necessary to limit intrusive activities and to provide for management of Site soils.

Risk Characterization

The BRA evaluated the potential non-carcinogenic and carcinogenic risks posed by the indicator contaminants in the various exposure media at the Mystery Bridge Site. Carcinogenic risk is presented as a probability value (i.e., the chance of contracting some form of cancer over a lifetime). The estimate of carcinogenic risk is conservative and may overestimate the actual risk due to exposure. In the risk characterization, the aggregate carcinogenic risk due to soil and ground water indicator contaminants at the Site is compared to an acceptable target risk. The chance of one additional person developing cancer per one million people (or 10^{-6}) is used as a target value or point of departure above which carcinogenic risks may be considered unacceptable. The 10^{-6} point of departure is used when ARARs are not available (i.e., no risk-based soil levels or MCLs or proposed MCLs for the indicator contaminants) or are not sufficiently protective of human health and the environment. A summary of carcinogenic risks was provided in Table 3 of the BRA.

Carcinogenic Risk: Total carcinogenic risk due to ground water consumption in the Brookhurst Subdivision exceeded 10^{-6} for both the VHO and BTEX plumes. The primary source of risk posed by the VHO plume was PCE and TCE contamination. The major component of the risk values calculated for the BTEX plume was based on the risk due to exposure to benzene. The September 2009 Five-Year Review concluded that these risks have been addressed and that the OU1 remedy is currently protective of human health, based on multiple monitoring events and the availability of a public water supply.

Carcinogenic risks were also calculated for selected indicator contaminants for residents using ground water from wells at the DOW/DSI and KMI properties in the Future Hypothetical Resident scenario. These risks also exceeded 10^{-6}. Current monitoring data indicate that, for the KMI facility, compliance with RAOs for the KMI plume has recently been achieved. Although significantly reduced in areal extent, the DOW/DSI plume has not yet met the RAOs in the OU1 ROD.

Non-Carcinogenic Risks: Non-carcinogenic hazard indices were calculated for both the Current Resident and Future Hypothetical Resident scenarios. Results indicated the aggregate hazard indices do not exceed unity; therefore, EPA believes that there is no non-carcinogenic public health threat.

Industrial Site Risks: Both DOW/DSI and KMI conducted extensive soil and other source removal activities to reduce contaminant concentrations in on-Site soils. In addition, the soil vapor extraction activities at the DOW/DSI facility and the enhanced air sparging activities at the KMI facility have significantly further reduced soil and ground water contaminant concentrations at these properties. While the SALs implemented at the time of the removal

activities are not fully equivalent to the current RSLs for soils, EPA believes Site risks to potentially exposed individuals are acceptable, with the implementation of ICs limiting intrusive activities and requiring proper management of Site soils, and limiting future use to industrial activities.

Risks Due to Indoor Air Contamination: The OU1 ROD remedy did not require a response for the indoor air pathway. The BRA stated that there was a high likelihood that the residents who use contaminated well water were being exposed to indoor organic vapor contaminants that had volatilized from the well water. The exposure would have occurred through inhalation of volatilized contaminants while showering, bathing, or cooking, as well as volatilized contaminants from home cooling units. Quantitative risk calculations were not done for indoor air during the BRA, because there was a high degree of uncertainty associated with the generic (non-site-specific) and inhalation risk factors. Although not quantified, this exposure to contaminated indoor air added uncertainty to the risk estimates for subdivision residents using contaminated well water.

Another potential source of Site-related indoor air contamination identified in the BRA was the direct emanation and accumulation of volatilized contaminants from ground water in the living spaces of residences located directly over the contaminated ground water plumes. As was common practice at the time, the risks from this direct accumulation of indoor organic vapors were evaluated qualitatively rather than quantitatively during the BRA, and they were considered to be insignificant when compared to the risks from inhaling volatilized shower, bath or cooking water.

The knowledge and approach to conducting risk assessment for vapor intrusion from contaminated ground water has greatly increased in the past twenty years, and during the summer of 2010, EPA required DOW/DSI and KMI to conduct vapor intrusion modeling using recent results from DOW/DSI and KMI ground-water sampling. The results of this modeling indicate that, currently, there are no unacceptable risks in the Brookhurst Subdivision due to vapor intrusion.

Environmental Risks

In the BRA, the ecological risks due to releases from industrial areas were not expected to be significant for three reasons: 1) the industrial areas do not provide preferred habitat resources for wildlife ; 2) the sampling data for surface water and sediments at Elkhorn Creek indicated minor levels of contamination from the Site; and 3) contamination of the North Platte River via ground-water plume discharge was expected to be relatively insignificant due to the high rate of river flow as compared with the rate of ground-water discharge. In addition, owing to the significant reduction in volume and contaminant loading of both the DOW/DSI and KMI ground-water plumes, this pathway is now considered incomplete.

Section 8: Remedial Action Objectives

Remedial action objectives (RAOs) consist of medium-specific or location-specific goals for protecting human health and the environment. This section presents the RAOs for OU2 at the Site.

8.1 Need for Remedial Action

The active remediation of the source contamination is complete for OU2 and the DOW/DSI and KMI properties were cleaned up to levels safe for industrial use. Contaminants were left above levels that allow for unlimited use and unrestricted exposure. Remedial action is necessary for future protectiveness at the Site.

8.2 Remedial Action Objectives

The objectives of the remaining remedial action are to:

- Restrict the use of the KMI and DOW/DSI properties to industrial uses.
- Control handling of excavated soils on the KMI and DOW/DSI properties.

Section 9: Description of Alternatives

9.1. Alternative 1: No Further Action

This alternative is required by the NCP so that a baseline set of conditions can be established against which other remedial actions may be compared. This alternative allows the Site to remain in its current state with no additional remedial action being implemented. Five-year reviews are included in this alternative.

9.1. Alternative 2: Institutional Controls

It was determined that the KMI and DOW/DSI properties were likely to remain industrial properties and that this is the most reasonable future use for these properties. All soils exceeding industrial use standards were either treated or excavated. The soils at these properties are now acceptable for industrial uses. The cleanup standards selected for ground water in the ROD for OU1 were to drinking water standards

Because soil cleanup was not performed to levels appropriate for unlimited use and unrestricted exposure, ICs that meet the RAOs are necessary to provide information and controls for future protectiveness.

The objectives of the ICs are to:

- Restrict the use of the KMI and DOW/DSI properties to industrial uses.

- Control handling of excavated soils on the KMI and DOW/DSI properties.

KMI and DOW/DSI have agreed to implement necessary ICs on their respective properties. On the KMI property, the ICs are proposed to be implemented through restrictive covenants within a deed. On the DOW/DSI property, the ICs are proposed to be implemented through a notice of use restrictions and restrictive covenant.

Section 10: Comparative Analysis of Alternatives

The NCP requires that each remedial alternative be evaluated according to specific criteria. The purpose of this evaluation is to promote consistent identification of the relative advantages and disadvantages of each alternative, thereby guiding selection of remedies offering the most effective and efficient means of achieving site cleanup goals. There are nine criteria by which feasible remedial alternatives are evaluated. While all nine criteria are important, they are weighed differently in the decision-making process depending on whether they describe or involve protection of human health and the environment or compliance with federal or state statutes and regulations (threshold criteria), a consideration of technical or socioeconomic merits (primary balancing criteria), or the evaluation of non-EPA reviewers that may influence an EPA decision (modifying criteria).

Due to the limited number of alternatives in this ROD, the comparative analysis discussion below is brief.

10.1 Overall Protection of Human Health and the Environment

Overall protection of human health and the environment addresses whether each alternative provides adequate protection of human health and the environment and describes how risks posed through each exposure pathway are eliminated, reduced, or controlled, through treatment, engineering controls, and/or institutional controls.

Alternative 1, No-Action, would not be protective of human health. Since this alternative does not meet this threshold criterion, it is not analyzed further.

Alternative 2, Institutional Controls is protective of human health and the environment by limiting future use of the industrial properties to their anticipated industrial land use, notifying future owners of these limitations, and providing EPA and WDEQ potential enforcement mechanisms.

10.2 Compliance with ARARS

Section 121(d) of CERCLA and NCP §300.430(f)(1)(ii)(B) require that remedial actions at CERCLA sites at least attain legally applicable or relevant and appropriate federal and State requirements, standards, criteria, and limitations, which are collectively referred to as ARARs, unless such ARARs are waived under CERCLA 121(d)(4).

There are no specific applicable or relevant and appropriate requirements regarding either alternative.

10.3 Long-Term Effectiveness and Permanence

Long-term effectiveness and permanence refers to expected residual risk and the ability of a remedy to maintain reliable protection of human health and the environment over time, once cleanup levels have been met. This criterion includes the consideration of residual risk that will remain on site following remediation and the adequacy and reliability of controls.

This preferred alternative is implementable and enhances the long-term effectiveness and permanence of the source control remedy.

10.4 Reduction of Toxicity, Mobility, or Volume Through Treatment

Reduction of toxicity, mobility, or volume through treatment refers to the anticipated performance of the treatment technologies that may be included as part of a remedy.

The preferred alternative does not add to the "reduction in toxicity, mobility, or volume of contaminants through treatment" since the source control remediation has already been completed.

10.5 Short-Term Effectiveness

Short-term effectiveness addresses the period of time needed to implement the remedy and any adverse impacts that may be posed to workers, the community, and the environment during construction and operation of the remedy until cleanup levels are achieved.

There is a very short period of time needed to record the notice of use restrictions and restricted covenants for each of the properties. No adverse impacts are anticipated during this implementation timeframe.

10.6 Implementability

Implementability addresses the technical and administrative feasibility of a remedy from design through construction and operation. Factors such as availability for services and materials, administrative feasibility, and coordination with other government entities are also considered.

The preferred alternative is easily implementable by DOW/DSI and KMI, as each are the owners of the properties and are willing to place the necessary ICs on their properties.

10.7 Cost

Cost includes estimated capital and annual operation and maintenance costs. Cost is calculated as the present worth cost, which is the total cost of an alternative over time in terms of today's dollars.

The costs of implementing the ICs are relatively minimal, essentially involving drafting and negotiating the instruments for each property, as well as the filing fees. The estimate for each instrument is $2,500, for a total of $5,000 capital costs.

Annual operation and maintenance (O&M) costs involve an annual site visit and review of documents at the clerk and recorder office to ensure that the ICs remain in place. Approximate annual O&M costs are $500.

10.8 State Acceptance

State Acceptance considers whether the State of Wyoming agrees with EPA's analyses and the preferred alternative.

The State of Wyoming concurs with the preferred alternative.

10.9 Community Acceptance

This criterion evaluates whether the local community agrees with EPA's analyses and preferred alternative.

No adverse comments regarding the proposed ICs were received from the community during the public comment period.

Section 11: Principal Threat Waste

The NCP establishes an expectation that EPA will use treatment to address principal threats posed by a site wherever practical. A principal threat concept is applied to the characterization of "source material" at a Superfund site. A source material is material that includes or contains hazardous substances, pollutants, or contaminants that act as a reservoir for migration of contamination to ground water, surface water, or air, or acts as a source for direct exposure. EPA has defined principal threat wastes as those source materials considered to be highly toxic or highly mobile that generally cannot be reliably contained or would present a significant risk to human health or the environment should exposure occur.

There are no principal threat wastes remaining at the Site.

Section 12: Selected Remedy

The selected remedy is as follows:

Implement necessary ICs on the DOW/DSI and KMI properties. On the KMI property, the ICs are proposed to be implemented through restrictive covenants within a deed. On the DOW/DSI property, the ICs are proposed to be implemented through a notice of use restrictions and restrictive covenant.

The objectives of the ICs are to:

- Restrict the use of the KMI and DOW/DSI properties to industrial uses.
- Control handling of excavated soils on the KMI and DOW/DSI properties.

Section 13: Statutory Determinations

Under CERCLA § 121 and the NCP, the lead agency must select remedies that are protective of human health and the environment, comply with applicable or relevant and appropriate requirements (unless a statutory waiver is justified), are cost-effective, and utilize permanent solutions to the extent practicable. In addition, CERCLA includes a preference for remedies that employ treatment that permanently and significantly reduces the volume, toxicity, or mobility of hazardous wastes as a principal element and a bias against off-site disposal of untreated wastes. The following sections discuss how the selected remedy meets these statutory requirements.

13.1 Protection of Human Health and the Environment

The selected remedy will protect human health and the environment by limiting future use of the industrial properties to their anticipated industrial land use.

13.2 Compliance with Applicable or Relevant and Appropriate Requirements

The selected remedy will comply with federal and State ARARs that have been identified. No waiver of any ARAR is being sought for the selected remedy.

13.3 Cost-Effectiveness

The selected remedy is determined to be cost-effective. In making this determination, the following definition set forth in the NCP was used: "A remedy shall be cost-effective if its costs are proportional to its overall effectiveness." (40 CFR §300.430(f)(1)(ii)(D)). This was accomplished by evaluating the "overall effectiveness" of those alternatives that satisfy the threshold criteria. Overall effectiveness was evaluated by assessing three of the five balancing criteria in combination (long-term effectiveness and permanence; reduction of toxicity, mobility, and volume through treatment; and short-term effectiveness). Overall effectiveness was then compared to costs to determine cost effectiveness. The relationship of the overall effectiveness of this remedial alternative was determined to be proportional to its costs, and, hence, this alternative represents a reasonable value for the money to be spent.

The costs of implementing the ICs are relatively minimal, essentially involving drafting and negotiating the instruments for each property, as well as the filing fees.

13.4 Utilization of Permanent Solutions and Alternative Treatment (or Resource Recovery) Technologies to the Maximum Extent Practicable (MEP)

The selected remedy represents the maximum extent to which permanent solutions and treatment technologies can be utilized in a practicable manner at the Site. Of those alternatives that are protective of human health and the environment and comply with ARARs, the selected remedy

provides the best balance of trade-offs in terms of the five balancing criteria while also considering the statutory preference for treatment as a principal element and bias against off-site treatment and disposal and considering State and community acceptance.

13.5 Preference for Treatment as a Principal Element

The selected remedy does not utilize treatment technologies, since only ICs remain to be needed for this OU. Treatment was a component in previous work at the Site. Since the reasonably anticipated future use of these properties is industrial additional treatment is not required in order to be protective of human health and the environment once the ICs selected in this ROD have been implemented.

13.6 Five-year Review Requirements

Because this remedy will result in hazardous substances, pollutants, or contaminants remaining on site above levels that allow for unlimited use and unrestricted exposure, statutory reviews have been conducted since 1999 and will continue to be conducted at least every 5 years to ensure that the remedy is, or will be, protective of human health and the environment.

Section 14: Documentation of Significant Changes

The proposed plan for this ROD included restricting the use of ground water under the KMI and DOW/DSI properties. This IC was a component of the ROD for OU1 and was never implemented. It has been removed from this selected remedy since it was already selected under the OU1 ROD. KMI and DOW/DSI have agreed to implement this IC along with the ICs selected in the ROD.

There are no additional significant changes as a result of the public comment period.

Responsiveness Summary

A. Stakeholder Issues and Lead Agency Responses

Issues were raised during the public meeting regarding citizen concerns about Elkhorn Creek. These concerns were about the recent development upstream of the Site and the impact that development is having on the quality and quantity of water in the creek,

EPA understands these concerns, but this is outside of the scope of this NPL site and this ROD.

No additional citizen's comments were received outside of the public meeting.

B. Technical and Legal Issues

A comment was received from one of the responsible parties. Mr. David White of Kinder Morgan, Inc., wrote in support of the remedy in the proposed plan. Mr. White further suggested that the control for any excavated soils be included in the restrictive covenant rather than in a separate media management plan.

EPA and WDEQ concur with the suggestion to include the media management requirements in the IC rather than in a separate plan. It is anticipated that this approach will be used at both the KMI and DOW/DSI properties.

Appendix

Figure 1. Mystery Bridge Site Boundaries Map

Mystery Bridge Rd./ U.S. Highway 20 NPL Site

Natrona County, Wyoming

NPL Boundary

Responsible Party Properties

Date: August 9, 2010

Map Projection: UTM, Meters, Zone 13N, NAD83.

Data Sources: *Boundaries* - U.S. EPA Region 8 (2010). *Imagery* - USDA NAIP 1-meter aerial photo (2009).

0 500 1,000 Feet

N 0 100 200 Meters

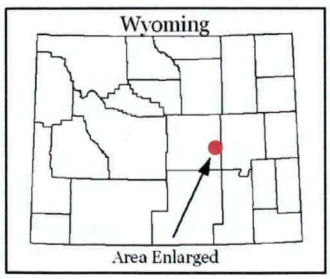

Figure 2. Isoconcentration Map of PCE and Benzene, January 13, 1993

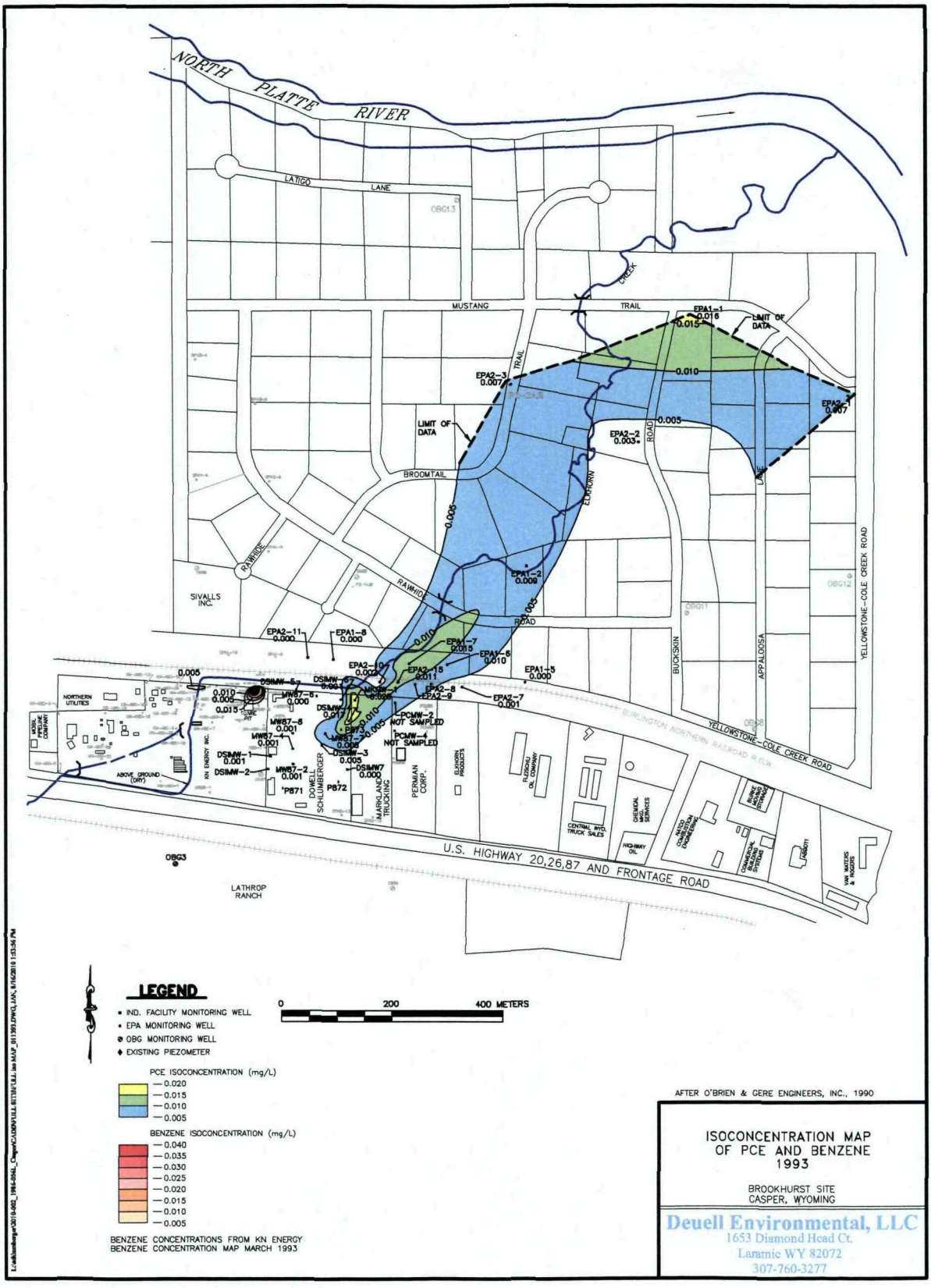

Figure 3. Isoconcentration Map of PCE and Benzene, January 8, 2010