

Protested Hearing Documents

File 2 of 5

STATE WATER PLAN

The State Water Plan emerges from a vision of Idaho in which water is used efficiently, and is allocated through laws that fully conform to the prior appropriation doctrine. Water resource planning involves the widespread participation of Idaho citizens.

Objectives

The following objectives of the State Water Plan are formulated for the conservation, development, management and optimum use of all unappropriated water resources and waterways of this state in the public interest [Idaho Code 42-1734A].

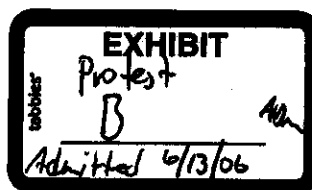
1. **Water Management** - Encourage and promote the quantification of water use and all water rights within the state. Encourage and promote integrated, coordinated, and adaptable water resource management, and the prudent stewardship of water resources. Encourage state protection of waterways or water bodies with outstanding fish and wildlife, recreation, geologic or aesthetic values where protection should take precedence over development.
2. **Public Interest** - Ensure that the needs and wishes of the public are appropriately considered in decisions involving water resources of the state.
3. **Economic Development** - Encourage optimum economic development of the water resources, with due regard for prior water rights, that promotes the integration and coordination of the use of water, the augmentation of existing supplies, and the protection of designated waterways [Idaho Code 42-1734A(1)(b)].
4. **Environmental Quality** - Maintain, and where possible enhance water quality and water-related habitats. Study and examine the quality of rivers, streams, lakes and ground water [Idaho Code 42-1734(15)], and assure that due consideration is given to the needs of fish, wildlife, and recreation in managing the water resources of the state.
5. **Public Safety** - Encourage and promote programs that will assure life and property within the state are not threatened by the management or use of our water resources.

Policies

State Water Plan policies are directed toward optimum management and utilization of the state's water resources. The policies provide a framework within which private enterprise and government entities can develop and propose water resource projects and water management scenarios. Specific water resource projects and programs are identified in the comprehensive plans developed for defined geographic areas. The Water Resource Board adopts the following policies for the conservation, development, management and optimum use of all the unappropriated water resources and waterways of this state in the public interest [Idaho Code 42-1734A].

Water Use Group

A goal of the State Water Plan is to secure greater productivity, in both monetary and nonmonetary terms, from existing water supplies. Water Use policies are concerned with improvement in practices, procedures, and laws relating to existing water use.



1A - STATE SOVEREIGNTY

It is the policy of Idaho that the state has sovereignty over decisions affecting the development and use of its water resources, and that the state opposes any attempt by the federal government, its management agencies, any other state, or any other entity to usurp the state's role in these areas.

Comment: The Idaho Water Resource Board is responsible for the formulation of state water policy through the State Water Plan. The state's position on existing and proposed federal policies and actions should be coordinated by the Water Board to ensure the state retains its traditional right to control the water resources of the state.

1B - PUBLIC INTEREST

It is the policy of Idaho that water be managed with due regard for the public interest as established by state law.

Comment: The constitution and statutes of the State of Idaho declare all the waters of the state, when flowing in their natural channels, including ground waters, and the waters of all natural springs and lakes within the boundaries of the state, to be public waters [Idaho Code 42-101]. Water allocation and management decisions must consider the public interest as established by state law. The State Water Plan is an expression of the public interest.

1C - BENEFICIAL USE OF WATER

It is the policy of Idaho that beneficial uses include certain nonconsumptive water uses.

Comment: This policy is affirmed by Idaho Code 42-1501 and is reflected in the policies adopted by the Idaho Water Resource Board that "beneficial use" includes, but is not limited to, water required for the protection of fish and wildlife habitat, aquatic life, recreation, aesthetics, navigation, water quality, and managed ground water recharge as well as the traditional uses for agriculture, manufacturing, mining, hydropower, and human consumption.

1D - TRANSFERABILITY OF USE

It is the policy of Idaho that changes in the nature of use of a water right be allowed, including changes to nonconsumptive uses, provided other water rights are not injured.

Comment: The demand for water increases every year while the volume of unappropriated water within the state continually decreases. The purpose of allowing transferability of water rights is to provide flexibility in water allocation to meet changing conditions. Idaho Code 42-108 and 42-222 provide for changes in place of diversion, place of use, period of use, and nature of use. Provision is made to protect other water users, the agricultural base of an area, and the local public interest. Priority dates are retained if other water right holders are not injured.

In some instances, it is in the public interest to allow changes from traditional uses to instream flow purposes. In highly developed areas, the potential to protect or restore fish and wildlife, water quality, aesthetic, or recreation resources may depend upon the transferability of water rights. To make such transfers substantive, the priority date of the original water right should be retained if other water rights are not injured. Chapter 15, Title 42, Idaho Code needs to be expanded to enable the Idaho Water Resource Board to apply for a change in the nature of use when a water right is acquired that is best used for minimum or instream flow purposes.

1E - WATER MEASUREMENT

It is the policy of Idaho that the water resources of the state should be quantified and their uses should be measured.

Comment: Planning for the optimum use of the water resources of the state and optimal management requires adequate water supply assessment and water use measurement.

Idaho Code 42-1805 lists as a duty of the Director of the Department of Water Resources preparation of a present and continuing inventory of the water resources of this state. However, stream gaging in the state is sparse and many gaging stations have been abandoned due to rising maintenance costs and reductions in agency funding. The existing stream gaging program should be reviewed and enhanced in the most efficient manner to meet water planning and management needs. Many ground water systems have not been adequately studied. Assessment studies are needed to understand and evaluate the state's ground water resources.

Water use quantification is essential for water resource planning. Chapters six and seven, Title 42, Idaho Code, list authorities for water measurement. The State, through the Department of Water Resources, needs to be actively involved in water use measurement and reporting.

1F - CONJUNCTIVE MANAGEMENT

It is the policy of Idaho that where evidence of hydrologic connection exists between ground and surface waters, they are managed conjunctively in recognition of the interconnection.

Comment: Nearly all ground water aquifers in the state discharge to or are recharged by a surface body of water. Surface water seeps through stream beds, lake beds, and channel banks to aquifers. Aquifers, in turn, serve as underground reservoirs, and can stabilize stream discharge during dry periods. Irrigation practices, ground water pumping, and flood flows impact the relationship.

The goal of conjunctive management is to protect the holders of prior water rights while allowing for the optimum development and use of the state's water resources. The approval of new water-use applications and the administration of existing water rights must recognize this relationship.

1G - REASONABLE USE

It is the policy of Idaho to promote the reasonable use of water in accordance with state law.

Comment: As water use efficiencies are increased, reduced requirements in one water use sector could provide available water for new demands or help efforts to improve instream flows. State and local planning should consider water efficiency techniques, together with legislation or ordinances, that may help conserve water resources for drought periods and increase water supplies for other needed uses.

1H - GROUND WATER WITHDRAWAL

It is the policy of Idaho that average withdrawals from an aquifer should not exceed the reasonably anticipated rate of future recharge to that aquifer.

Comment: Excessive withdrawals of ground water may cause economic, environmental, and social problems nearly anywhere in the state. The state should seek to correct withdrawal/recharge imbalances in an orderly fashion, attempting to minimize negative impacts.

Idaho Code 42-226 allows full economic development of the state's underground water resources. The Director of the Department of Water Resources can establish reasonable ground water pumping levels when necessary to protect prior appropriations of ground water. It is important that all beneficial uses, including interdependent spring and surface water uses be considered in evaluating the full economic development potential of an aquifer. Section 42-237a provides that the Director may prohibit or limit the withdrawal of water from a well if withdrawal would result in diversion of the ground water supply at a rate beyond the reasonable anticipated rate of future natural recharge. The director may allow withdrawals to exceed natural recharge if a program exists to increase recharge or decrease withdrawals and senior ground-water rights are protected.

There are areas within the state where withdrawal/recharge imbalances of the ground water resource have been identified by the Department of Water Resources. Idaho Code 42-233a and 233b give the Director of the Department of Water Resources the authority to designate areas as either Ground Water Management Areas or Critical Ground Water Areas. Designation and its associated management options provide a logical step in arresting excessive withdrawals from an aquifer. The Department of Water Resources should also require water-use reporting and the measuring of water levels.

II - WATER SUPPLY BANK

It is the policy of Idaho that the sale or lease of water is critical to the efficient management of the state's water resources. Use of the State's Water Supply Bank shall be encouraged.

Comment: As the state approaches the situation where little or no water is available for new appropriations, the Water Supply Bank, established by Idaho Code 42-1761, affords an efficient mechanism for the sale or lease of water. By aggregating water available for lease, rental pools operating under the authority of the Water Supply Bank can supply the water needs of many potential users. The Idaho Water Resource Board has adopted rules and regulations governing the sale or lease of water through the Water Supply Bank. The Idaho Water Resource Board has authorized local entities to manage rental pools in Water Districts 01, 63, and 65. The Shoshone-Bannock Tribes are also authorized pursuant to state law, to operate a rental pool.

IIJ - RECHARGE

It is the policy of Idaho that managed recharge be encouraged, pursuant to state law.

Comment: Managed aquifer recharge may enhance spring flows and maintain desirable aquifer levels. Managed recharge should be monitored to document the beneficial effects on the state's water resources, and to minimize any concerns or issues.

IK - SPRING FLOWS

It is the policy of Idaho that the hydrogeologic relationships between ground water supplies and spring flows continue to be quantified to allow for the determination of optimal development of the water resources.

Comment: Spring flow is part of the natural discharge from an aquifer. Pumped ground water withdrawals from an aquifer change the original recharge-discharge relationship and affect spring flows. Where this relationship exists, it must be sufficiently quantified to allow for optimal utilization of the ground water supply while protecting established senior rights which depend on spring flows discharging from the aquifer. This requires continued funding for studies, such as the Upper Snake River Basin Study completed by the Department of Water Resources in 1996.

II. - WATER QUALITY

It is the policy of Idaho that water be protected against unreasonable contamination or deterioration in quality, thereby maintaining designated beneficial uses.

Comment: It is essential that the quality of Idaho's water resources be protected for public safety and economic stability and growth. The quality of surface and ground water depend in large degree on land-use practices within watersheds. Land managers and local units of government are urged to adequately consider means of reducing nutrient loading, bacterial contamination, and soil erosion and deposition to protect water quality. Local units of government and special use districts should participate with Basin Advisory and Watershed Advisory Groups in the preparation of water quality management plans.

The Department of Water Resources administers a statewide ambient ground water quality monitoring network and the Environmental Data Management System. Regional and local monitoring networks are managed by the Division of Environmental Quality. The citizens of Idaho will be most efficiently served by

cooperative water quality monitoring programs involving appropriate public and private entities, and establishment of an information distribution system for all water quality data.

1M - POLLUTION CONTROL

It is the policy of Idaho that the use of water to dilute pollution is not a substitute for adequate treatment.

Comment: State and federal water quality programs should provide protection for the current high quality of water associated with streams within the state. In most cases, allocation of water for instream flow use should be directed toward meeting fish, wildlife, and recreational needs and not to the dilution of pollution. One way to ensure sufficient water would be to obtain storage rights for water quality maintenance in reservoirs and stream reaches below impoundments.

Conservation Group

The Conservation policies focus on wise use and careful planning to accommodate important values. The purpose of the policies is to manage the use of water resources for the benefit of all Idaho citizens.

2A - SPECIES OF CONCERN

It is the policy of Idaho that the public interests be considered when decisions are made to maintain sustainable populations of plant and animal species whose existence is threatened by mankind's actions.

Comment: The state and federal government have identified species of concern and species that are listed or are candidates for listing as Threatened or Endangered. In most cases, action at the state level can identify management strategies that will insure sustainable populations of these species. The State will consider the public interest in determining its strategies and will encourage local leadership to this end. Exceptions to this policy will be made for efforts to eliminate noxious weeds and other pests.

2B - FEDERALLY LISTED SPECIES

It is the policy of Idaho to cooperate, insofar as allowed by state law, in efforts to conserve and restore plant and animal species listed by the federal government as Threatened or Endangered.

Comment: Actions taken by federal agencies under authorities created by the Endangered Species Act do not modify state law. Efforts by the citizens and agencies of the state to achieve federal goals may be constrained by existing state law, particularly the protection and preservation of state water rights.

The State should take an active role in the listing process. To the extent allowed by federal law, the State should be involved in developing and administering recovery and habitat management plans for species that are listed.

2C - LAKE AND RESERVOIR MANAGEMENT

It is the policy of Idaho that comprehensive management plans for surface use and water quality protection be developed for lakes and reservoirs in the state.

Comment: Idaho is a land of numerous lakes and reservoirs. Many lakes and reservoirs in the state have experienced declining water quality, surface crowding, losses in scenic values, and physical damage to the shoreline. Comprehensive management plans for surface use, relative to public safety, and water quality protection can address these problems.

Each lake or reservoir has its own set of needs and constraints which must be considered. County and city government, the local public, land managers, and user groups of the lake or reservoir and its watershed, must be involved in plan development and implementation. Where federal or private entities have regulatory control over water storage and releases, these entities are encouraged to cooperate in

the development of surface use and water quality management plans.

The Idaho Water Resource Board supports implementation of the Clean Lakes Act passed by the Idaho Legislature in 1989 [Chapter 64, Title 39, Idaho Code]. The law provides for the creation of regional councils empowered to develop lake management plans. It further provides for technical advisory groups to support the council in its planning efforts.

2D - CLIMATE VARIABILITY

It is the policy of Idaho that climate variability be considered in planning for and in the management of the state's water resources.

Comment: Regional climate changes are uncertain, however, climate variability should be expected and planned for by the public and its agencies. Possible consequences of regional climate change are important to recognize. Winter snowpack in the mountains may be significantly affected, with consequent effects on water resources available for agriculture, power generation, forestry and fisheries. Even though uncertainties are considerable, we should not wait to put in place policies and procedures that could provide for flexibility and make use of new understanding as it develops.

Protection Group

The Protection policies deal with water and related resources with outstanding social, economic, and environmental values. The purpose of the policies is to safeguard these values and Idaho's citizens, and to provide for minimum stream flows, and the protection and preservation of waterways in accordance with Idaho Code 42-1734A(1)(d).

3A - INSTREAM FLOW

It is the policy of Idaho that when it is in the public interest the Idaho Water Resource Board should seek to appropriate waters in the state for instream flow purposes.

Comment: Instream flows protect many nonconsumptive uses such as fish and wildlife habitat, aquatic life, recreation, aesthetic beauty, transportation, navigation, hydropower and water quality. Many of these uses have direct effects on the economy while others represent intangible values, and the public interest.

Chapter 15, Title 42, Idaho Code, provides the authority and spells out procedures for the Idaho Water Resource Board to appropriate water for minimum stream flows.

The Idaho Water Resource Board supports efforts to obtain storage and natural flow rights to improve and maintain instream flows when in the public interest. Chapter 15, Title 42, Idaho Code, should be expanded to enable the Idaho Water Resource Board to transfer acquired water rights to instream flow water rights. By law [Idaho Code 42-108 and 42-222], provision is made to protect other water users and the agricultural base of an area.

3B - POTENTIAL RESERVOIR SITES

It is the policy of Idaho that potential reservoir sites be protected from significant land use change.

Comment: Future economic development and population growth will bring additional demands on Idaho's water resources. In future years the construction of additional reservoirs may play an important role in managing the water resources of the state. While the State recognizes the rights of existing land owners, improvements and new development within potential reservoir sites, which could increase reservoir costs significantly, should be discouraged.

Table 1 lists current potential reservoir sites which should be protected by the State. Sites will be evaluated or reevaluated for protection during the process of preparing comprehensive plans for basins or waterways.

Table 1. Potential Reservoir Sites

Potential Reservoir Stream Size Purpose

Upper Snake

Teton Teton River 236,000 AF Irrigation, Power, Flood Control

Medicine Lodge Medicine Lodge 12,000 AF Irrigation

Birch Creek Birch Creek 24,000 AF Irrigation

Boulder Flats Big Wood River 61,000 AF Flood Control, Recreation

Southwest Idaho

Grindstone Snake River 115,000 AF Irrigation

Sailor Creek Snake River 113,000 AF Irrigation

Gold Fork Gold Fork Payette River 80,000 AF Irrigation

Twin Springs Boise River 410,000 AF Irrigation, Power, Flood Control

Lost Valley (enlargement) Lost Valley Creek 30,000 AF Irrigation

Galloway Weiser River 1,220,000 AF Irrigation, Flood Control

Monday Gulch Little Weiser River 35,000 AF Irrigation

C. Ben Ross (enlargement) Little Weiser River 12,450 AF Irrigation

Goodrich Weiser River 350,000 AF Irrigation

Tamarack Weiser River 30,000 AF Irrigation

Salmon

Challis Challis Creek 10,600 AF Irrigation

Bear

Caribou Bear River 40,000 AF Irrigation

Plymouth Malad River 400,000 AF Irrigation

3C - STATE PROTECTED RIVER SYSTEM

It is the policy of Idaho that a state protected river system be maintained to meet the desires of the citizens of Idaho. The system should provide for the protection of the unique features that exist on various rivers within the state, and should provide the necessary authority and funding to protect such rivers and related lands for recreational, scenic, and natural values.

Comment: Idahoans have expressed a desire to retain some rivers or river reaches in a free-flowing condition. Idaho Code 42-1734A(1) authorizes the Idaho Water Resource Board to protect highly-valued waterways as State protected rivers. The authority to designate "protected rivers" derives from the State's power to regulate the beds of navigable streams and the waters within the state. In 1991 the Idaho Legislature approved the first stream reaches for state protection.

Because of the comprehensive scope of state water planning, the Idaho Water Resource Board

encourages the federal government to work within the state water planning process rather than independently pursuing federal protection of waters within Idaho. Federal protection adds another layer of bureaucracy to water planning and limits planning flexibility. State water planning provides a means for ensuring coordinated water planning by both federal and state governments.

3D - RIPARIAN HABITAT AND WETLANDS

It is the policy of Idaho to protect the ecological viability of riparian habitat and wetlands within the state in the public interest.

Comment: Riparian lands and wetlands are important components of a watershed. The State of Idaho encourages protection of public riparian lands and wetlands, and the practice of good stewardship in managing private lands. Riparian and wetland protection above the mean high water elevation should be implemented at the watershed level. The authority to control land use is set out in the Local Planning Act of 1975, as amended. The Idaho Stream Channel Protection Act [Idaho Code 42-3801 thru 3812] regulates alteration of stream bed below the mean high water elevation.

3E - STREAM CHANNEL REHABILITATION

It is the policy of Idaho that the costs and benefits of stream channel rehabilitation be evaluated where past activities currently or potentially affect the yield or quality of the state's watersheds.

Comment: Catastrophic flooding is often the outcome of heavy run-off combined with human disturbances, and may result in the destruction of stream channels. The functional loss of impacted channels may threaten public safety, private property, and the overall quality and quantity of water produced in the affected watershed. It is appropriate for the State to take action to rehabilitate impacted stream channels where public safety may be threatened, or where the remedial costs are less than the potential damages.

Many early mining projects have been built and later abandoned. Some of these projects have deteriorated to the extent that public safety and water resource values are threatened. Where liability cannot be established, and public safety may be threatened, the State should take remedial action.

3F - TAILINGS POND REGULATION

It is the policy of Idaho that the construction, operation, and maintenance of mine tailings impoundment structures be regulated by the state.

Comment: Chapter 17, Title 42, Idaho Code makes the regulation of mine tailings impoundment structures a function of the Idaho Department of Water Resources. The health and safety of the citizens of the state and the quality of the state's water re-sources in many areas depend on the proper construction, operation and maintenance of mine waste tailings ponds. Chapter 1, Title 39, Idaho Code, provides general water quality authorities to the Board of Health and Welfare.

3G - RADIOACTIVE WASTE MONITORING

It is the policy of Idaho to maintain a state program to monitor and regulate the use, handling, and storage of radioactive wastes.

Comment: The Idaho National Engineering Laboratory (INEL), near Arco, sits on top of the Eastern Snake Plain aquifer, the primary drinking water supply to half the state's population and the irrigation water supply for three million acres. Protection of this vital water supply from radioactive contamination is imperative for both the physical health of the population and the economic health of the state.

The State of Idaho INEL Oversight Program, provides independent information about the Idaho National Engineering Laboratory to the citizens of Idaho. In order to verify and complement the monitoring conducted by the U.S. Department of Energy and it's contractors, the Oversight Program has developed an environmental surveillance program to monitor potential impacts on air, water, soil, and biota resulting from activities at the INEL. Some of the monitoring sites are the same as, or are co-located with, federal monitoring locations, while others have been located so as to provide information that would not otherwise be available. Monitoring results are reported quarterly, with an annual summary and assessment of impact on the environment and people of Idaho.

The Division of Environmental Quality is Idaho's lead agency for regulatory control over the use, handling, storage, and disposal of radioactive materials. Regulatory control is also exercised over clean up of sites contaminated with radioactive materials and transportation of nuclear waste and spent fuel in Idaho.

The Idaho Water Resource Board supports the Governor's agreement on radioactive waste storage and removal at INEL, and supports continued negotiations to restrict further importation to Idaho. The transfer of all radioactive waste from Idaho to a designated national repository at the earliest date possible is strongly encouraged.

3H - SAFETY MEASURES PROGRAM

It is the policy of Idaho that a program should be established to assist local units of government in repairing and installing safety structures on or near canals, rivers, lakes, and reservoirs. The program should be established as a cost-sharing cooperative program.

Comment: Each year, numerous fatal accidents occur in the state's waterways because of the lack of preventive safety measures. Accidents are not confined to one area of the state nor one segment of the economy but are scattered throughout the state. Most Idaho cities are built on a water course and subsequently are plagued by hazardous canals, rivers, or shore lands. Fencing, signing, debris removal, covering and other structures should be installed to provide for human safety.

Local units of government should be encouraged to conduct annual public awareness campaigns concerning the dangers and hazardous nature of water bodies in their areas.

3I - FLOOD PRONE AREAS

It is the policy of Idaho to encourage the protection of flood plains and reliance on management rather than structural alternatives in reducing or preventing flood damages.

Comment: Flood damage can be limited by providing sufficient space in the flood plain to accommodate flood waters. Local government is encouraged to plan for floodways and protect flood plains from further development.

Prospective buyers should be made aware of identified flood prone areas. The pressures to develop areas subject to periodic flooding will continue to increase as population increases. Buyers should realize those flood prone areas require special construction provisions to avoid flood losses.

The National Flood Insurance Program should be adopted statewide. This program requires that local units of government zone and control flood prone areas in order to be eligible for most federal assistance. Floodplain maps prepared for the Federal Emergency Management Agency are available through the Idaho Department of Water Resources.

3J - FLOOD CONTROL LEVEE REGULATION

It is the policy of Idaho that the construction and maintenance of flood control levees be regulated by the State.

Comment: The only standards applicable to the construction of flood control levees in Idaho are in the Rules governing Stream Channel Alterations. These standards apply only when all or part of the levee will be located below the mean high water mark.

Flood control levees are maintained by local entities. There are no maintenance regulations so the degree of maintenance varies with the capability and diligence of the responsible organization. This situation creates a potential hazard in that levees may be deteriorate to the point of being unsafe.

All new flood control levees should be required to be built to standards promulgated by the Department of Water Resources. The Department should also be authorized to develop maintenance criteria for flood control levees and to insure compliance with these criteria through an inspection program.

When a levee is scheduled to be rebuilt, a cost/benefit analysis should be conducted to determine if it is prudent to rebuild the levee in question or buy the property which the levee would protect.

Management Group

The focus of the Management policies is on improvement in the practices, procedures, and laws relating to existing water and energy resource ad-ministration and programs. The purpose of the policies is achievement of greater administrative efficiency.

4A - AGENCY CONSOLIDATION

It is the policy of Idaho that the administration of state programs for water allocation, planning, and water quality regulation be consolidated in one agency.

Comment: Planning and administration of water quantity and water quality are presently divided between two state agencies even though they are two directly interrelated properties of the same resource. The Department of Water Resources is primarily responsible for programs relating to water quantity, and the Division of Environmental Quality is responsible for protecting the quality of the state's water. Combining water quantity and water quality programs should reduce confusion and improve service to the public while preserving the goals of both programs.

4B - REVIEW OF FEDERAL RESERVOIR WATER ALLOCATION

It is the policy of Idaho that agreements be established with federal agencies to allow Idaho Water Resource Board review of any proposed water allocation from federal reservoirs in excess of 500 acre-feet annually.

Comment: This policy does not encroach upon the authority of federal agencies to operate their facilities according to congressional authorization, but would help to ensure that their actions occur with state review and concurrence. The Idaho Water Resource Board would be guided in such a review by the conformance of the proposed allocation with the State Water Plan.

Formal agreements are necessary for the State Water Plan to be implemented in a coordinated manner. The Idaho Water Resource Board and the U.S. Bureau of Reclamation reached an agreement in 1988 providing for Board review of proposed reallocations. An agreement should be negotiated with the Corps of Engineers regarding large water releases from their facilities.

4C - ENERGY PLAN

It is the policy of Idaho that the State Energy Plan set forth policies for energy use and development in the state and that the plan be updated at least every five years.

Comment: The Idaho State Energy Plan was finalized in February 1982, and adopted by the Water Resource Board on June 3, 1983. The Idaho Water Resource Board recognized this plan as implementation the original State Water Plan's Policy 13, which called for the formulation of a State Energy Plan.

The Energy Plan needs to be updated at least every five years to be effective. This is increasingly important with the current move toward deregulation of the electric utility industry. The Idaho Water Resource Board urges legislative funding for an immediate update of the plan.

4D - HYDROPOWER LICENSING

It is the policy of Idaho to insure that public interest, existing water rights, related settlement agreements, and the future water and energy needs of the State are considered in hydropower licensing.

Comment: Hydropower water rights may be limited to a specific term and subordinated to upstream depletionary uses [Idaho Code, 42-203B(6) and (7)]. Water rights for power purposes may also be defined by agreement as unsubordinated to an established minimum flow [Idaho Code, 42-203B(2)]. Idaho asserts its traditional right to regulate the state's water resources. The federal government, in the hydropower licensing process, must recognize water rights and other constraints on water use established through state law. Hydropower licenses should be compatible with the public interest and outstanding power purchase contracts.

Many hydropower projects in Idaho are or soon will be undergoing relicensing by the Federal Energy Regulatory Commission (FERC). State review of existing water rights should occur in conjunction with the FERC relicensing process.

4E - HYDROPOWER SITING

It is the policy of Idaho that new hydropower developments be in conformance with the State Water Plan and the State Energy Plan.

Comment: The Idaho Water Resource Board is charged with the responsibility for planning for the optimum development of the water resources of the state through policies and water allocations which reflect the public interest. Specific hydropower siting issues are addressed in the Idaho Water Resource Board's comprehensive basin or river plans. The Federal Energy Regulatory Commission must consider State comprehensive plans in making hydropower siting decisions.

As a general policy, the Idaho Water Resource Board believes that energy conservation and efficiency improvements are the most desirable methods to provide for additional power requirements. The State of Idaho will be best served through conservation and the upgrading of existing energy systems. These measures are attractive because of their low costs, short lead time, and flexibility.

Recognizing the future need for new generating capacity, the Board prefers that new hydropower resources be developed at dams having hydropower potential that do not currently generate power or do not generate at their maximum potential. New structures or projects should be carefully evaluated to insure that the benefits to the state outweigh any negative consequences associated with the proposed development. The Idaho Water Resource Board will evaluate specific hydropower developments in comprehensive plans for river basins or waterways.

4F - CONSERVANCY DISTRICTS

It is the policy of Idaho that where practical, the total water needs of a geographic area be satisfied by a legal entity having the authority and responsibility to address all water needs in a comprehensive manner.

Comment: Under present law the boundaries of irrigation districts, ground water districts, recharge districts, water measurement districts, drainage districts, and flood control districts need not coincide. Since coordinated planning is rarely undertaken, the possibility exists for good faith actions to have adverse impacts or be at cross purposes with the aims of other management entities.

A water conservancy district should have the authority to own and operate storage, diversion, and delivery systems to provide the total water needs of large geographic parts of the state (e.g., river basins, single or multi-county areas). It should have authority to levy taxes on all property benefitted by a program or project and to bond and contract for project construction. Water could be supplied for irrigation, domestic, municipal, industrial, recreation, and other purposes. Such districts could also sponsor ground-water recharge projects, distributing the costs over the affected area. They could also integrate the use of the surface and ground-water resources of a river basin for more efficient use of the total resource.

4G - RESEARCH PROGRAM

It is the policy of Idaho to encourage and conduct research on important water resource topics.

Comment: While water programs in Idaho can incorporate information from research in other states, more research dealing with specific problems in Idaho is needed. Topics that need immediate attention include:

- water use efficiency
- optimum monitoring programs for water use
- ground and surface water relationships specifically with regard to the timing and spacial distribution of pumping and recharge efforts,
- ground water flow models, and
- cooperatively developed system operation modeling techniques for Idaho river basins.

4H - FUNDING PROGRAM

It is the policy of Idaho that state funds be available to support the development, preservation, conservation, and restoration of the water and related resources of the state.

Comment: The Idaho Water Resource Board's Revolving Development Fund, the Water Management Account, and the Conservation and Development Trust are mechanisms for partially achieving the goals of this policy. The funds or accounts rely on the appropriation of moneys from the state's general fund. These programs have provided financial assistance for more than 200 water development, conservation, or system rehabilitation projects and studies. They have not been funded with sufficient moneys to have a highly visible impact on the land, water and related resources of the state.

Idaho Code 42-1734(2) provides that the Idaho Water Resource Board may lend the proceeds of the sale of revenue bonds to a local water project sponsor or sponsors. The issuance of revenue bonds does not constitute a general obligation of the State of Idaho or the Idaho Water Resource Board. Since 1983, \$75.7 million has been created by this program to fund 147 projects, including \$10.6 million to help irrigators switch from flood irrigation to sprinkler irrigation, and \$54.3 million to improve municipal water systems. While the revenue bond program was used extensively from 1983 to 1986, the Tax Reform Act of 1986 placed a number of restrictions on the issuance of these bonds, making them practical only for selective large projects. Since 1986, only three projects have been funded through the Revenue Bond program.

The language creating the above funds and accounts should be amended. In most cases it is overly restrictive, providing for the expenditure of moneys primarily for development. Money should be made available for projects that would conserve, preserve, or restore the state's water and related resources

4I - PLANNING PROGRAM

It is the policy of Idaho that water management plans be prepared for the individual river basins.

Comment: Comprehensive planning is necessary to minimize conflicts between competing water uses and to ensure optimal protection of all beneficial uses of water. Detailed water management plans should be prepared for river basins and aquifers within the state to evaluate the specific interrelationship between ground and surface water and provide for the orderly protection and development of the state's water resources.

Idaho Code 42-1734A provides for the development of a "comprehensive state water plan" based upon river basins or other geographic considerations. Each basin or waterway plan becomes a component of the State Water Plan. The following comprehensive plans have been approved by the Idaho Legislature and accepted by the Federal Energy Regulatory Commission:

Priest River Basin

South Fork Boise River Basin

Payette River Reaches

Henrys Fork Basin

Snake River: Milner Dam to King Hill

Upper Boise River Basin

North Fork Clearwater Basin

South Fork Snake River Basin

These plans contain State protected river designations and recommendations concerning other aspects of water use. The positions and policies contained in an approved plan are the State's official position on water use in the affected areas. The plans also assure that the state's interests will be considered in federal management agency decisions.

4J - FEDERAL AND TRIBAL WATER RIGHTS

It is the policy of Idaho to quantify all federal and tribal water rights within the state.

Comment: Federal agency and tribal water rights claims in Idaho must be identified and quantified to plan for continued use of existing water rights and future needs. As a part of each effort to identify and quantify federal agency and tribal water rights, the protection of existing water rights must be considered. The State should seek to negotiate these rights whenever appropriate.

Executive Order No. 91-8 designated the Idaho Water Resource Board as lead agency to coordinate state activities related to the negotiation of reserved water rights with Idaho Tribes. The successful negotiations concluded with the Shoshone-Bannock over the Fort Hall water rights serves as an example of a negotiated settlement.

4K - WATER RESOURCE MANAGEMENT

It is the policy of Idaho that the diversion and use of water occur only in accordance with water rights issued by the state and federal reserved rights established by the courts. Adjudication of water rights through the state courts should be completed where necessary to fully define and quantify the rights.**Comment:** The adjudication of water rights is often necessary to sort out overlapping or incomplete claims for the use of surface and ground water resources. These conflicts need to be resolved if the resources are to be managed effectively. Effective programs can then be applied to assure that water is diverted and used in accordance with valid rights.

River Basins Group

The River Basins Group contains resource management policies specific to the state's three major river basin networks: the Snake River Basin, the Bear River Basin in southeast Idaho, and the northern Panhandle river basins.

Snow River Basin

5A - SWAN FALLS AGREEMENT

It is the policy of Idaho that the Swan Falls agreement between the state and Idaho Power Company establishes the framework for water management in the Snake River basin.

Comment: The Swan Falls Agreement was signed in 1985 by the State of Idaho and the Idaho Power Company. The Idaho Water Resource Board is committed to continued implementation of this agreement. Minimum flows in the Snake River are crucial to the Swan Falls Agreement. During portions of low water years, river flows downstream from Milner Dam to Swan Falls Dam consist almost entirely of ground water discharge. The Eastern Snake Plain aquifer which provides this water must therefore be managed conjunctively as an integral part of the river system. This agreement also calls for the adjudication of water rights in the Snake River Basin to enhance the state's water management capabilities.

5B - SNAKE RIVER MINIMUM FLOWS

It is the policy of Idaho that minimum average daily flows at the Murphy gaging station shall meet or exceed 3,900 cfs from April 1 to October 31 and 5,600 cfs from November 1 to March 31. The average daily flow measured at the Weiser gage shall not be less than 4,750 cfs. A minimum average daily flow of 5,000 cfs at Johnson's Bar shall be maintained and an average daily flow of 13,000 cfs shall be maintained at Lime Point (river mile 172) a minimum of 95 percent of the time. The exercise of water rights above Milner Dam has and may reduce flow at the dam to zero.

Comment: In licensing the Milner hydropower project, the Federal Energy Regulatory Commission (FERC) specified "target flows" for the Snake River at Milner. The target flow must be satisfied only when water in excess of prior irrigation rights is available. Water for target flows may be acquired from storage or may be leased from the Upper Snake Rental Pool. The State should seek to acquire water whenever it becomes available in order to mitigate the impacts of low flow below the Dam.

The minimum flows established for the Snake River at the Murphy and Weiser gaging stations are management and permitting constraints; they further insure that the State will be able to assure an adequate hydropower resource base and better protect other values recognized by the State such as fish propagation, recreation, and aesthetic interests, all of which would be adversely impacted by an inadequate stream flow.

The minimum flows established for Johnson's Bar and Lime Point are contained in the original Federal Power Commission (now FERC) license for the Hells Canyon hydropower complex. By adopting these flows, the Idaho Water Resource Board recognizes the importance of minimum flows to downstream uses and makes their maintenance a matter of state water policy. Lower flows may be permitted at Lime Point during the months of July, August, and September, during which time the operation of the Hells Canyon dams shall be in the best interest of power and navigation as determined by the Corps of Engineers and Idaho Power Company as owner of the Hells Canyon power facilities.

The Idaho Water Resource Board recognizes that FERC license requirements relate primarily to the provision of water for navigation and power and not to other instream uses. The Board realizes that the state has no authority to require releases of stored water by the power company, but believes the license conditions serve the public interest. When the Hells Canyon hydropower complex is relicensed, the Water Board will reevaluate the public interest.

Snake River flows above the hydropower right at any Idaho Power facility are considered unappropriated and therefore are not held in trust by the state. This distinction is further addressed in Policy 5C.

5C - SNAKE RIVER TRUST WATER

It is the policy of Idaho that water held in trust by the state pursuant to Idaho Code 42-203B be reallocated to new uses in accordance with the criteria established by Idaho Code 42-203A and 42-203C.

Comment: The agreement between the State of Idaho and Idaho Power Company dated October 25, 1984 provides that Idaho Power's claimed water right of 8,400 cubic feet per second (cfs) at the Swan Falls Dam may be reduced to either 3,900 cfs or 5,600 cfs during set periods of the year. The claimed water right of 8,400 cfs is deemed appropriated and the amount above the minimum flow established in Policy 5B up to the 8,400 cfs is held in trust by the state. The trust water area is defined by Rule 30 in the Idaho Department of Water Resources' Rules for Water Appropriation.

The agreement further provides that Idaho Power's claimed water rights at facilities upstream from Swan Falls shall be considered satisfied when the company receives the minimum flow specified in Policy 5B at the Murphy gaging station. The 8,400 cfs claim of the power company has not historically been available during summer months.

The 8,400 cfs claimed right at Swan Falls is reduced by the agreement to that flow available after satisfying all applications or claims that demonstrate water was beneficially used prior to Oct. 1, 1984, even if such uses would violate the minimum flows established in Policy 5B. Any remaining water above these minimum flows may be reallocated to new uses by the state providing such use satisfies existing Idaho law.

However, due to continued spring flow decline in the Thousand Springs area since the late 1950s, water availability to satisfy additional beneficial uses is limited. A moratorium, as defined in Idaho Code 42-

station to 80,000 acres in any four-year period. Impact on existing water rights, mitigation for the impact of diversions on hydropower generation, and criteria placed on the reallocation of hydropower rights, however, limits the rate of new development.

5F - SNAKE RIVER BASIN HYDROPOWER

It is the policy of Idaho that hydropower use be recognized as a beneficial use of water, and that depletion of flows below the minimum average daily flows set forth in Policy 5B is not in the public interest.

Comment: This policy specifically recognizes hydropower generation as a beneficial use of water and acknowledges the public interest in maintaining the minimum river flow at key points.

By establishing minimum daily flows at Murphy and Weiser, stabilized flows are guaranteed for hydropower generation.

5G - SNAKE RIVER NAVIGATION

It is the policy of Idaho that water sufficient for commercial and recreational navigation is provided by the minimum flows established for the Snake River.

Comment: Commercial navigation en route to Lewiston via the Columbia River and Lower Snake River can be accommodated with the flows leaving Idaho in the Snake River at Lewiston. Above Lewiston, commercial and recreational navigation on the river should be accommodated within the protected flows on the Snake River and tributary streams.

5H - SNAKE RIVER BASIN SPRINGS

It is the policy of Idaho to seek to maintain spring flows in the American Falls and Thousand Springs reaches of the Snake River which will sustain beneficial uses of surface and ground water supplies in accordance with state law.

Comment: Spring discharge in the American Falls and Thousand Springs reaches of the Snake River are vital to the Snake River Basin and Idaho economy. The springs near American Falls provide an important part of Snake River flow appropriated by Magic Valley irrigators. In the Thousand Springs reach, spring flow is the only

practical source of water for many of the state's aquaculture facilities.

During portions of low-water years, river flows downstream from Milner Dam to the Murphy gaging station consist almost entirely of ground-water discharge from the Thousand Springs reach. Maintaining these discharges should be the goal of water managers. Managed recharge of the aquifers and continued efforts to efficiently use ground water are two strategies for maintaining spring discharges in these reaches.

5I - SNAKE RIVER BASIN NEW STORAGE

It is the policy of Idaho that applications for large surface storage projects upstream from the Murphy gage be approved subject to the requirement that the use is in the public interest.

Comment: "Large surface storage projects" are those which have the potential for significantly impacting existing uses. Projects for which approval is required under Section 42-1737, Idaho Code, would be such projects. This policy addresses the approval of new surface storage in the basin, but does not apply to already approved projects. Approval of new storage projects that would divert water from the main stem of the Snake River between Milner and the Murphy gaging station during the period November 1 to March 31 should be coupled with provisions that mitigate the impact such depletions would have on the generation of hydropower.

5J - STORAGE ACQUISITION

It is the policy of Idaho that reservoir storage be acquired in the name of the Idaho Water Resource Board to provide management flexibility in assuring the minimum flows designated for the Snake River.

Comment: The Idaho Department of Water Resources is expected to allocate the unappropriated waters and the power rights held in trust by the state in such a manner as to assure minimum flows at designated key points on the Snake River. The impacts of ground water use within the basin on the timing of aquifer discharge to the rivers is such that at some time stored surface water may be necessary to maintain the designated minimum flows.

At this time there is little reservoir storage within the basin which could be acquired by the State. The State should act to acquire any available, feasible reservoir storage in order to provide flexibility for management decisions and provide assurance that the established minimum flows can be maintained. Until such time as these waters are needed for management purposes, they shall be credited to the Water Supply Bank and funds obtained from their lease or sale shall accrue to the Water Management Account. The Board should have priority in acquiring water from the Water Bank, if necessary, to meet the minimum flows established by the Swan Falls Agreement.

Flood control space at Brownlee Reservoir should be considered for salmon flow augmentation. If the 500,000 acre-feet evacuated for flood control purposes downstream could be held and released for flow augmentation during downstream salmon migration, this could replace valuable water supplies taken from the upper Snake River Basin.

Bear River Basin

6A - BEAR RIVER COMPACT

It is the policy of Idaho that water use and management in the Bear River Basin conform to the allocations set forth in the Bear River Compact [Idaho Code 42-3402].

Comment: The Bear River Compact has been in effect since 1958, and water allocations for the entire basin were adopted in 1978. The compact must be reviewed at intervals of not less than twenty years and may be amended during the review process.

The goal of Idaho's representatives on the commission should be to urge conjunctive management of ground and surface water resources within the Bear River Basin and to seek as much of the unconsumed flow entering the Great Salt Lake as possible for Idaho while negotiating in good faith with the other states.

6B - INTERSTATE WATER DELIVERY

It is the policy of Idaho that Idaho water users in the Lower Division of the Bear River Basin must be protected from inequitable water allocation in the event of a water emergency and the scheduling of interstate water deliveries.

Comment: Article 4 of the Bear River Compact provides for the Bear River Commission to declare water emergencies and implement interstate water delivery schedules. If a downstream water user believes the flow of water in the Bear River or an interstate tributary is insufficient to satisfy their water right, due to diversions in an upstream state, that user may file a petition requesting water distribution under the direction of the Commission.

Water emergencies must be determined through comprehensive accounting processes and reflect true emergency conditions. Water emergencies should not be declared on an annual basis with the sole intent of advancing interstate water delivery schedules. Unless water accounting models include as many reaches as necessary to account for incremental changes in natural flows, and accurately reflect water rights as well as contractual arrangements, Idaho water users may be adversely impacted by interstate water delivery scheduling.

6C - BEAR LAKE

It is the policy of Idaho to recognize and preserve the outstanding values of Bear Lake while continuing to meet existing allocations for irrigation and hydroelectric power generation.

Comment: Bear Lake is a regional tourist attraction recognized for its unique water coloration and for its fishery. To protect these values, the Idaho Water Resource Board has obtained a minimum lake level water right for Bear Lake. The water right holds the lake elevation at or above 5902 feet.

The State of Idaho also recognizes and supports the Bear Lake Storage Allocation and Recovery Plan. This plan was approved through the Bear Lake Settlement Agreement of April 1995 as the established guideline for the operation of Bear Lake. This document calls for a portion of the active storage in Bear Lake to be voluntarily retained to enhance recreation and water quality values.

Recent information indicates that the major contaminant problem in Bear Lake is suspended sediment. The primary source of suspended sediment is the Bear River during high flow periods when sediment-laden water enters Bear Lake through Mud Lake. The most effective way to further enhance the water quality of Bear Lake is to reduce the sediment load to the Bear River above Bear Lake.

6D - BEAR RIVER BASIN WATER PROJECTS

It is the policy of Idaho to encourage additional projects for the development of the water resources of the basin without regard to state boundaries.

Comment: The Bear River Compact provides for a signatory state to construct storage facilities in another state. In order to obtain the maximum beneficial use of water within the basin, it may be necessary to ignore state boundaries, providing that water rights generated by such projects comply with the basic allocations of the compact. The State of Idaho should participate with Wyoming and Utah in determining the feasibility of headwater storage projects to provide for additional irrigation and other uses in Idaho.

Panhandle River Basins

7A - PANHANDLE BASINS

It is the policy of Idaho that the ground and surface waters of the Idaho Panhandle be managed to protect the environmental quality of the region.

Comment: While appearing water rich in comparison to the rest of the state, the water resources of the Idaho Panhandle are finite, and in some areas are fully utilized. Water is the key to the continued economic development in the region. The Water Board places a high priority on maintaining the quality of the water resource base.

7B - PANHANDLE MINIMUM FLOWS

It is the policy of Idaho to provide sufficient water to meet the minimum requirements for aquatic life, fish and wildlife, and to provide for recreation in the Panhandle Basins.

Comment: The minimum stream flow program provides the Idaho Water Resource Board with the authorities necessary to appropriate water for the purposes of this policy. Several streams in the Panhandle Basins have been examined and protected with minimum stream flows claimed by the Idaho Water Resource Board. As water consumption increases in the region, the minimum stream flow program will become increasingly important in the administration of water rights within the Panhandle Basins.

7C - PANHANDLE DCMI

It is the policy of Idaho to provide water for new domestic, commercial, municipal and industrial uses. A depletion of 14 cfs is allocated for these purposes.

Comment: The purpose of this policy is to set aside a significant amount of water for future DCMI (Domestic, Commercial, Municipal, and Industrial) development. The Panhandle population is projected to grow by approximately 2.9 percent annually to more than 200,000 people by 2015. This is a 73 percent increase over 1990 population. Based on current water-use data for the region, an allocation of nine million gallons per day or 14 cfs for consumptive use should be sufficient through the year 2015.

7D - PANHANDLE AGRICULTURAL WATER

It is the policy of Idaho that additional water be made available for irrigated agriculture in the Panhandle. A combined net depletion of 200 cfs is allocated for this purpose.

Comment: Agriculture is a major industry of the state, and Idaho provides an important share of the nation's food production. The Idaho Water Resource Board wishes to insure the availability of water for this purpose.

7E - PANHANDLE NAVIGATION

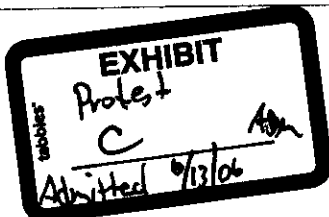
It is the policy of Idaho that water sufficient for commercial and recreational navigation be maintained in the streams and lakes of the Idaho Panhandle.

Comment: Water for navigation is not a significant problem at this time. If such appropriation appeared necessary, the minimum stream flow program can be used to appropriate water to provide a minimum flow or lake level for the protection of navigation and transportation. Navigation interests are further protected in that all new water appropriations must be in the public interest and an adverse effect on navigation would rarely be in the public interest.

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**IDAPA 02
TITLE 04
CHAPTER 23**

02.04.23 - RULES GOVERNING COMMERCIAL LIVESTOCK TRUCK WASHING FACILITIES

000. LEGAL AUTHORITY.

This chapter is adopted under the legal authority of Title 22, Chapter 103 (17), Idaho Code. (5-3-03)

001. TITLE AND SCOPE.

01. Title. The title of this chapter is IDAPA 02.04.23, "Rules Governing Commercial Livestock Truck Washing Facilities". (5-3-03)

02. Scope. These rules shall govern the permitting, construction, and management of commercial livestock truck washing facilities. The official citation of this chapter is IDAPA 02.04.23.000 et.seq. For example, this Section's citation is IDAPA 02.04.23.001. (5-3-03)

002. WRITTEN INTERPRETATIONS.

There are no written interpretations of these rules. (5-3-03)

003. ADMINISTRATIVE APPEAL.

Persons may be entitled to appeal agency actions authorized under these rules pursuant to Title 67, Chapter 52, Idaho Code. (5-3-03)

004. INCORPORATION BY REFERENCE.

Copies of these documents may be obtained from the Idaho State Department of Agriculture central office and the State Law Library. (5-3-03)

01. The 1997 United States Department Of Agriculture Natural Resources Conservation Service Agricultural Waste Management Field Handbook, Appendix 10 D. (5-3-03)

02. The 2000 American Society Of Agricultural Engineers Standard EP393.3. (5-3-03)

03. The 1999 Publication By The United States Department Of Agriculture, Natural Resource Conservation Service, Conservation Practice Standard, Nutrient Management Code 590. (5-3-03)

005. ADDRESS, OFFICE HOURS, TELEPHONE, AND FAX NUMBERS.

01. Physical Address. The central office of the Idaho State Department of Agriculture is located at 2270 Old Penitentiary Road, Boise, Idaho 83712-0790. (5-3-03)

02. Office Hours. Office hours are 8 a.m. to 5 p.m., Mountain Time, Monday through Friday, except holidays designated by the state of Idaho. (5-3-03)

03. Mailing Address. The mailing address for the central office is Idaho State Department of Agriculture, P.O. Box 790, Boise, Idaho 83701. (5-3-03)

04. Telephone Number. The telephone number of the central office is (208) 332-8500. (5-3-03)

05. Fax Number. The fax number of the central office is (208) 334-2170. (5-3-03)

006. IDAHO PUBLIC RECORDS ACT.

These rules are public records available for inspection and copying at the central office of ISDA and the State Law Library. (5-3-03)

007. -- 009. (RESERVED).

010. DEFINITIONS.

The following definitions shall apply in the interpretation and enforcement of this chapter. (5-3-03)

01. Commercial Livestock Truck Washing Facilities. Livestock truck washing facilities that charge a fee to wash livestock trucks and trailers, or those facilities where the process wastewater is not regulated pursuant IDAPA 02.04.14 "Rules Governing Dairy Waste," or 02.04.15 "Rules of the Department of Agriculture Governing Beef Cattle Animal Feeding Operations". (5-3-03)

02. Compost. A biologically stable material derived from the biological decomposition of organic matter. (5-3-03)

03. Director. The Director of the Idaho State Department of Agriculture or his designee. (5-3-03)

04. Discharge. Release of process wastewater or manure from a commercial livestock truck washing facility to waters of the state. (5-3-03)

05. Land Application. The spreading on, or incorporation of manure or process wastewater into the soil. (5-3-03)

06. Livestock. Bovidae, ovidae, suidae, and equidae. (5-3-03)

07. Livestock Truck Washing Facilities. Those facilities utilized primarily for washing and cleaning trucks and trailers that haul livestock. (5-3-03)

08. Manure. Livestock excrement that may also contain bedding, spilled feed, water, or soil. (5-3-03)

09. Modified. Structural or management changes, or alterations to the livestock truck washing facility which would require increased storage or containment capacity or such changes, which would alter the function of the wastewater storage or containment facility. (5-3-03)

10. Non-Compliance. A practice or condition that causes an unauthorized discharge or a practice or condition that if left uncorrected will cause an unauthorized discharge. (5-3-03)

11. Non-Land Application Season. The portion of the year during which land application is not allowed pursuant to an approved NMP. (5-3-03)

12. Nutrient Management Plan. A plan prepared in conformance with the nutrient management standard or other equally protective standard for managing the amount, source, placement, form, and timing of the land application of nutrients or soil amendments. (5-3-03)

13. Nutrient Management Standard. The 1999 publication by the United States Department of Agriculture Natural Resources Conservation Service, Conservation Practice Standard, Nutrient Management Code 590, or other equally protective standard approved by the Director. (5-3-03)

14. Operate. Washing or cleaning livestock trucks. (5-3-03)

15. Operator. The person who has power or authority to manage, or direct, or has financial control of a commercial livestock truck washing facility. (5-3-03)

16. Person. Any individual, association, partnership, firm, joint stock company, joint venture, trust, estate, political subdivision, public or private corporation, state, or federal governmental department, agency or instrumentality, or any legal entity, which is recognized by law as the subject of rights and duties. (5-3-03)

17. Process Wastewater. Any water generated on a commercial livestock truck washing facility that comes into contact with manure, compost, bedding, or feed. (5-3-03)

18. Runoff. Any precipitation that comes into contact with manure, compost, bedding, or feed on a

commercial livestock truck washing facility.

(5-3-03)

19. Unauthorized Discharge. A discharge of process wastewater or manure from a commercial livestock truck washing facility to surface waters of the state that is not authorized by a National Pollutant Discharge Elimination System permit issued by the United States Environmental Protection Agency. (5-3-03)

20. Wastewater Storage And Containment Facility. That portion of a CLTWF where manure or process wastewater is stored or collected. This includes, but is not limited to, waste collection systems, waste conveyance systems, waste storage ponds, waste treatment lagoons and evaporative ponds. (5-3-03)

21. Waters Of The State. All surface and ground water located within the boundaries of the state or boundary streams, rivers and lakes except for private waters as defined in Title 42, Chapter 2, Idaho Code. (5-3-03)

011. ABBREVIATIONS.

01. CLTWF. Commercial Livestock Truck Washing Facility. (5-3-03)

02. FEMA. Federal Emergency Management Agency. (5-3-03)

03. ISDA. Idaho State Department of Agriculture. (5-3-03)

04. NMP. Nutrient Management Plan. (5-3-03)

05. NPDES. National Pollutant Discharge Elimination System. (5-3-03)

06. NRCS. Natural Resources Conservation Service. (5-3-03)

07. USDA. United States Department of Agriculture. (5-3-03)

012. APPLICABILITY.

These rules apply to all CLTWF.

(5-3-03)

013. -- 049. (RESERVED).

050. INSPECTIONS.

In order to ascertain compliance with this chapter, the Director shall have reasonable access to: (5-3-03)

01. Inspect Facilities. Inspect any facility or land application site listed in the CLTWF's NMP. (5-3-03)

02. Inspect Records. Inspect, review, or copy any CLTWF's records deemed necessary, during normal business hours. (5-3-03)

051. -- 099. (RESERVED).

100. PERMIT REQUIRED.

No person shall construct or operate a CLTWF without first obtaining a permit to do so from the Director. (5-3-03)

101. APPLICATION FOR PERMIT.

Applications for permits submitted to the Director shall contain the following: (5-3-03)

01. Name, Telephone Number, And Address. The name, telephone number, and address of the owner and operator of the CLTWF. (5-3-03)

02. Physical Address. The physical address of the CLTWF. (5-3-03)

03. Scaled Vicinity Map With Site Location. A detailed sketch of the proposed or existing CLTWF

site location, on an aerial photograph if available, which includes the following: (5-3-03)

a. The location of all homes, schools, churches, etc. within a one (1) mile radius of the proposed CLTWF; and (5-3-03)

b. Private and community domestic water wells, irrigation wells, existing monitoring wells, and existing injection wells as documented by Idaho Department of Water Resources or other sources, which are within a one (1) mile radius of the proposed or existing CLTWF; and (5-3-03)

c. Irrigation canals, irrigation laterals, rivers, streams, springs, lakes, reservoirs, and designated wetlands, which are within a one (1) mile radius of the proposed CLTWF; and (5-3-03)

d. Location of all land application sites; and (5-3-03)

e. FEMA flood zones or other appropriate flood data for the CLTWF site and all land application sites. (5-3-03)

04. Scaled Site Plan. A site plan showing all buildings, process wastewater and manure storage areas, piping, and roadways. (5-3-03)

05. Land Application System. A detailed description of the current or proposed management practices and methods used to make land application including: (5-3-03)

a. Timing, frequency, and duration of practices. (5-3-03)

b. Proximity of land application sites to residential and public use areas. (5-3-03)

06. Nutrient Management Plan. A NMP for all land where manure or process wastewater from the CLTWF is land applied. (5-3-03)

102. -- 109. (RESERVED).

110. DURATION OF PERMIT.

Permits issued pursuant to this chapter shall be valid for a period of two (2) years. (5-3-03)

111. RENEWAL OF PERMIT.

The operator of a CLTWF shall submit an application to renew the permit to the Director for approval ninety (90) days prior to the expiration of the existing permit. (5-3-03)

112. -- 119. (RESERVED).

120. REVOCATION OF PERMIT.

The Director may revoke the permit of any CLTWF that violates any of the provisions of this Chapter. (5-3-03)

121. -- 199. (RESERVED).

200. UNAUTHORIZED DISCHARGES.

Unauthorized discharges of manure or process wastewater from CLTWF or land application sites owned or controlled by a CLTWF are prohibited. (5-3-03)

201. -- 209 (RESERVED).

210. NOTIFICATION OF DISCHARGE.

Within twenty-four (24) hours of learning of a discharge, the operator of a CLTWF shall verbally notify the Director of such a discharge. (5-3-03)

211. WRITTEN NOTIFICATION.

If the ISDA has not begun a discharge investigation within five (5) days of the verbal notification to the director, the operator shall submit a written report to the Director which includes: (5-3-03)

01. **A Description Of The Discharge.** A description of the flow path to the receiving water body; and (5-3-03)
 02. **Flow Rate.** An estimation of the flow rate and volume discharged; and (5-3-03)
 03. **Dates And Time.** The period of discharge, including dates and times, and if not already corrected, the anticipated time the discharge is expected to continue; and (5-3-03)
 04. **Steps Taken.** Steps taken to reduce, eliminate, and prevent recurrence of the discharge. (5-3-03)
212. -- 299. (RESERVED).

300. WASTEWATER STORAGE AND CONTAINMENT FACILITIES.

All CLTWF shall have wastewater storage and containment facilities designed, constructed, operated, and maintained sufficient to contain: (5-3-03)

01. **Process Wastewater.** All process wastewater generated on the CLTWF during the non-land application season; and (5-3-03)
02. **Rainfall.** The runoff from a twenty-five (25) year, twenty-four (24) hour rainfall event; and (5-3-03)
03. **Winter Precipitation.** Either three (3) inches of runoff from the accumulation of winter precipitation or the amount of runoff from the accumulation of precipitation from a one-in-five (1 in 5) year winter. (5-3-03)

301. -- 309. (RESERVED).

310. CONSTRUCTION REQUIREMENTS.

All CLTWF shall have wastewater storage and containment facilities designed and constructed in accordance with the engineering standards and specifications contained in the Natural Resources Conservation Service Agricultural Waste Management Field Handbook, Appendix 10D or the American Society of Agricultural Engineers Standard EP393.3, or other equally protective standards approved by the Director. (5-3-03)

311. -- 319. (RESERVED).

320. SUBSTANCES ENTERING WASTEWATER STORAGE AND CONTAINMENT FACILITIES.

Only manure and process wastewater from the operation of the CLTWF shall be allowed to enter wastewater storage and containment facilities. The disposal of any other materials into a wastewater storage and containment facility, including, but not limited to oil, grease, heavy metals, chlorinated solvents, and human waste is prohibited. (5-3-03)

321. -- 329. (RESERVED).

330. NUTRIENT MANAGEMENT.

Each CLTWF shall submit, to the Director for approval, a NMP that conforms to the nutrient management standard. (5-3-03)

01. **Odor.** Each NMP shall address odors generated on the CLTWF, and land application sites. Odors shall not be generated in excess of odors normally associated with livestock production in Idaho. (5-3-03)
02. **Land Application.** Each NMP shall include all land to which manure or process wastewater from the CLTWF is land applied. (5-3-03)
03. **Duty Of Operator.** It shall be the duty of the operator of a CLTWF to ensure that the NMP, for any

land included in the NMP, is implemented.

(5-3-03)

04. Implementation Of NMP. Failure to implement and abide by an approved NMP is a violation of this chapter. (5-3-03)

331. -- 349. (RESERVED).

350. EXISTING CLTWF.
CLTWF that are operating on or before July 1, 2002 shall submit a NMP to the director for approval no later than January 1, 2003. (5-3-03)

351. -- 359. (RESERVED).

360. NEW CLTWF.
Any new CLTWF, commencing operations after July 1, 2002, shall submit a NMP to the Director for approval with its application for a permit to operate a CLTWF. The Director shall respond to or approve such NMP within sixty (60) days of submission. (5-3-03)

361. -- 999. (RESERVED).

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STATE OF IDAHO

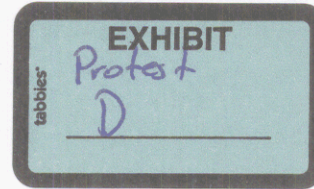
DEPARTMENT OF AGRICULTURE

.1 mg liter
surface water

DIRK KEMPTHORNE
Governor
PATRICK A. TAKASUGI
Director

July 29, 2005

Rich Carlson
PO Box 21
Filer, Id 83328



Re. Public Records Request

Dear Mr. Carlson:

On July 15, 2005, the Idaho State Department of Agriculture, Dairy Bureau, received your facsimile request for, "(1) Any studies, reports, summaries, data compilations etc. ISDA has showing the number of acres in Jerome, Gooding, Twin Falls, Cassia, Lincoln, Canyon, Owyhee Counties (the "counties") which have been identified as having reached a phosphorus level where application of dairy manure is not appropriate. (2) Any studies, reports, summaries, data compilations, etc. showing the percentage of manure produced at dairy facilities which dairy facilities in the above referenced counties are "exporting" from their facilities based on reports in their Nutrient management plans. (3) Current statistics on the number of number of dairy facilities in the above referenced counties, the number of NMPs which have been "approved" by the department, the number of NMPs which have not been approved, the number of NMPs which have been "ground truthed", the percentage of facilities where the department has done regulatory soil samples for NMP compliance purposes, and the percentage of facilities which have been checked or audited for compliance with the soil testing the operator is required to do under the NMP...."

Regarding #2 of your request, at this time our computer programs are unable to tabulate "the percentage of manure produced at dairy facilities. "consequently, this information is not available.

Regarding #3 of your request, all dairy farms in the referenced counties have approved nutrient management plans. "Ground truthing" or NMP inspection review is an on going process. NMP's are continually updated to reflect changes made on dairy facilities, i.e. additional fields, field combining, renaming, irrigation changes, herd size changes, cropping changes etc.

Enclosed please find the other documents you requested.

	DATE	INFORMATION	NUMBER OF PAGES
1.	4/22/03	Dairy Resource Exportation	1
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3.	7/28/05	Waste inspection - Mature Animal Summary	1
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TOTAL			31

If you have any questions, please call.

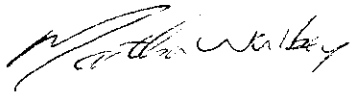
Sincerely,

A handwritten signature in cursive script that reads "Marv Patten".

Marv Patten, Chief
Bureau of Dairying

Certificate of Mailing

I hereby certify that the original of this letter was deposited in the United States mail, postage prepaid, this 29th day of July, 2005.

A handwritten signature in cursive script that reads "Martha Walbey".

Martha Walbey
Administrative Assistant

Soil Samples Query

7/18/2005

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DYNumber	County	FieldName	FieldAcreage	SampleDate	SWSampleP	GWSampleP
			149	11/26/2002	33	
DY16310387	Cassia	Tram East	32	11/25/2002	49	
DY16310387	Cassia	Terry East wheeline	37	12/12/2002	22	
DY16310387	Cassia	Interstate Handline South	135	11/25/2002		12
DY16310387	Cassia	Terry West	137	11/26/2002	40	
DY16310387	Cassia	Desert East	58	3/21/2003		25
DY16310387	Cassia	Kennedy	130	11/21/2002		11
DY16310387	Cassia	Orton	28	3/21/2003	32	
DY16310387	Cassia	Canal	131	3/21/2003	41	
DY16310387	Cassia	Pump 1 East	132	3/17/2003	27	
DY16310387	Cassia	Field Pump 5 West	130	3/20/2003	18	
DY16310387	Cassia	Neilson 129A	129	5/26/2005	25	0
DY16310387	Cassia	Nielson 129	148	5/26/2005	0	6
DY16310387	Cassia	Tram East	130	3/20/2003	18	
DY16310387	Cassia	Anderson North Pivot	67	11/21/2002		15
DY16310387	Cassia	Marriot	111	5/31/2005	0	27
DY16310387	Cassia	Mortensen Pivot	76	5/31/2005	0	18
DY16310387	Cassia	Mortensen East	65	8/5/2002		10
DY16310387	Cassia	Mortensen East	127	8/5/2002		15
DY16310387	Cassia	Mortensen Pivot	100	7/5/2002		13
DY16470587	Gooding	Box Canyon Pivot & Handline	33	10/1/2002		21
DY16470587	Gooding	Sandy Mini Pivot	124	10/1/2002	67	
DY16470587	Gooding	Madalena West	32	9/26/2002		18
DY16470587	Gooding	Durfee Pivot	30	12/20/2002	40	
DY16470587	Gooding	Mini West	67	9/30/2002	123	
DY16470587	Gooding	Pilkington East	37	9/30/2002		31
DY16470587	Gooding	AFOP	65	7/25/2002		32
DY16470620	Gooding	2	7	11/1/2002	51	
DY16470587	Gooding	Smallhone	120	7/25/2002		18
DY16470620	Gooding	5	125	9/30/2002		23
DY16470587	Gooding	Pilkington West	27	12/20/2002	32	
DY16470587	Gooding	Mini East	138	9/27/2002	71	
DY16470587	Gooding	N17	59	9/27/2002	112	
DY16470587	Gooding	Clark				

Soil Samples Query

7/18/2005

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DYNumber	County	FieldName	FieldAcreage	SampleDate	SWSampleP	GWSampleP
			72	9/26/2002		41
DY16470587	Gooding	Prins	31	9/26/2002		47
DY16470587	Gooding	Lawton	147	11/1/2002		26
DY16470587	Gooding	Madalena East	125	11/1/2002		35
DY16470587	Gooding	N18A,N18	32	9/26/2002		25
DY16470587	Gooding	Durfee Mini Pivot	16	12/23/2002		28
DY16470620	Gooding	2A	45	10/9/2003		19
DY16470640	Gooding	6	121	10/1/2002	115	
DY16470587	Gooding	Sandy Pivot	14	5/27/2003		37
DY16470570	Gooding	1	28	5/20/2003	40	
DY16470643	Gooding	Benson Mini	165	9/26/2002		32
DY16470587	Gooding	N19, N19A, N19B	138	5/23/2003		13
DY16470640	Gooding	East Big Pivot	11	10/25/2002		11
DY16470563	Gooding	2+1 Wheeline	45	9/23/2002	174	
DY16470563	Gooding	Dairy East Pivot, Dairy West Pivot	13	12/27/2002	17	
DY16471024	Gooding	BSN25	96	3/15/2004	64	0
DY16470643	Gooding	Benson Big Pivot	146	10/25/2002		37
DY16470563	Gooding	2+1	133	10/28/2002		41
DY16470563	Gooding	2+2	79	4/10/2003		34
DY16470566	Gooding	Field 4	21	4/10/2003		50
DY16470566	Gooding	Pivot 2	119	5/19/2003		54
DY16470566	Gooding	Pivot 1	203	4/10/2003		30
DY16470566	Gooding	Field 3	131	10/20/2003	43	
DY16470640	Gooding	8	109	5/27/2003		11
DY16470640	Gooding	4,5	34	12/23/2002	25	
DY16470620	Gooding	1	38	10/15/2003		13
DY16470640	Gooding	9	92	10/9/2003	43	
DY16470640	Gooding	2,3	100	10/20/2003	73	
DY16470640	Gooding	7	13	5/23/2003		43
DY16470640	Gooding	Lagoon Pivot	46	5/27/2003	47	
DY16470639	Gooding	A	38	10/9/2003	24	
DY16470639	Gooding	B	16	3/15/2004	8	0
DY16470639	Gooding	Field # C	121	10/9/2002		7
DY16470620	Gooding	P3-P5				

Soil Samples Query

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DYNumber	County	FieldName	FieldAcreage	SampleDate	SWSampleP	GWSampleP
			69	10/10/2002		11
DY16470620	Gooding	P1,P2	64	12/19/2002	39	
DY16470620	Gooding	3	96	12/19/2002	58	
DY16470620	Gooding	4 "is now other field that has not been sampled.	26	10/9/2003		10
DY16470640	Gooding	19	31	12/27/2002	17	
DY16471024	Gooding	NW53	47	3/4/2003	8	
DY16471024	Gooding	CV14	107	3/7/2003	9	
DY16471024	Gooding	HV5,HV6	33	3/6/2003	5	
DY16471024	Gooding	HV7	51	12/27/2002	23	
DY16471024	Gooding	E40	81	3/13/2003	32	
DY16471024	Gooding	May West Pivots	117	3/6/2003	10	
DY16471024	Gooding	HV10	60	3/4/2003	4	
DY16471024	Gooding	CV13	25	3/4/2003	13	
DY16471024	Gooding	CV10	86	3/4/2003	4	
DY16471024	Gooding	CV12	119	3/7/2003	9	
DY16471024	Gooding	May East Pivots	26	3/6/2003	9	
DY16471024	Gooding	HV9	31	12/26/2002	40	
DY16471024	Gooding	N40	89	12/20/2002	25	
DY16471024	Gooding	Blick 3/4	146	3/7/2003	7	
DY16471024	Gooding	HV3	33	12/26/2002	16	
DY16471024	Gooding	N42	49	3/4/2003	5	
DY16471024	Gooding	CV20	127	12/26/2002	43	
DY16471024	Gooding	W160	112	12/26/2002	18	
DY16471024	Gooding	NW130	26	3/4/2003	16	
DY16471024	Gooding	CV11	114	3/7/2003	7	
DY16471024	Gooding	HV1, HV4	28	10/7/2003	36	
DY16530525	Gooding	Field 13	28	12/27/2002	22	
DY16471024	Gooding	Blick 1/2	70	5/25/2005	0	23
DY16470669	Gooding	5 & west 1/2 of 4	172	8/20/2002	49	
DY16470995	Gooding	J12 & J12A	128	2/27/2003	13	
DY16471024	Gooding	CV2	73	7/12/2002	20	
DY16471024	Gooding	CV21	122	7/3/2002	11	
DY16471024	Gooding	CV4	149	9/25/2002		15
DY16471024	Gooding	M160				

Soil Samples Query

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DYNumber	County	FieldName	FieldAcreage	SampleDate	SWSampleP	GWSampleP
			38	7/3/2002	8	
DY16471024	Gooding	CV17	133	7/3/2002	9	
DY16471024	Gooding	CV16	105	7/3/2002	14	
DY16471024	Gooding	CV24&CV25	53	7/3/2002	7	
DY16471024	Gooding	HV8	85	7/10/2002	22	
DY16471024	Gooding	CV26&CV27	32	7/2/2002	6	
DY16471024	Gooding	CV18	127	7/8/2002	8	
DY16471024	Gooding	CV1	21	7/9/2002	19	
DY16471024	Gooding	CV3	125	3/7/2003	11	
DY16471024	Gooding	HV2	51	7/9/2002	26	
DY16471024	Gooding	CV6	138	9/25/2002		14
DY16471024	Gooding	E160	147	7/9/2002	17	
DY16471024	Gooding	CV23	139	7/10/2002	18	
DY16471024	Gooding	CV28&CV30	133	7/12/2002	29	
DY16471024	Gooding	CV31	132	7/12/2002	20	
DY16471024	Gooding	CV32	26	7/12/2002	17	
DY16471024	Gooding	CV29	74	7/12/2002	20	
DY16471024	Gooding	CV22	59	7/9/2002	13	
DY16471024	Gooding	CV19	22	7/12/2002	19	
DY16471024	Gooding	CV9	118	7/9/2002	11	
DY16471024	Gooding	CV5	150	3/4/2003	10	
DY16471024	Gooding	CV8	109	3/6/2003	20	
DY16471024	Gooding	CV15	148	7/9/2002	24	
DY16471024	Gooding	CV7	28	11/19/2002	9	
DY16470995	Gooding	G-3	147	10/14/2003	51	
DY16470995	Gooding	Rock Creek 27	137	11/15/2002		12
DY16470995	Gooding	C-3	134	11/15/2002	18	
DY16470995	Gooding	C-4	117	11/15/2002		8
DY16470995	Gooding	C-2	152	11/15/2002		19
DY16470995	Gooding	C-1	125	11/18/2002		13
DY16470995	Gooding	A-24,A-24A	139	11/18/2002		13
DY16470995	Gooding	G-1	144	11/18/2002		28
DY16470995	Gooding	A-21,A-21A	47	11/18/2002	87	
DY16470995	Gooding	A-mini 1,2				

Soil Samples Query

7/18/2005

DYNumber	County	FieldName	FieldAcreage	SampleDate	SWSampleP	GWSampleP
			44	11/19/2002		23
DY16470995	Gooding	A-mini 3,4	80	7/22/2002	46	
DY16470995	Gooding	C-5	3	11/19/2002		8
DY16470995	Gooding	now shown as part of A-mini 1,2	175	12/2/2002	90	
DY16470995	Gooding	J-11, J-11A	124	11/19/2002		11
DY16470995	Gooding	G-4	64	12/3/2002	91	
DY16470995	Gooding	J13B	148	10/14/2003	15	
DY16470995	Gooding	Rock Creek 24	29	5/28/2003		65
DY16470569	Gooding	Pature 2	128	12/19/2002	26	
DY16470995	Gooding	J25, J25A	15	5/28/2003	46	
DY16470569	Gooding	Pasture 1	117	12/11/2002		27
DY16470995	Gooding	J3	14	12/11/2002		18
DY16470995	Gooding	J4	93	11/19/2002		8
DY16470995	Gooding	H-4	165	12/11/2002	39	
DY16470995	Gooding	J7	69	12/13/2002	21	
DY16470995	Gooding	J26	8	11/19/2002		7
DY16470995	Gooding	A-wheels	54	9/19/2002	93	
DY16470564	Gooding	2	70	9/19/2002		27
DY16470564	Gooding	12	96	10/30/2002		33
DY16470564	Gooding	15	119	10/30/2002		62
DY16470564	Gooding	20	130	6/21/2002		17
DY16470564	Gooding	6	80	6/24/2002		19
DY16470564	Gooding	3&5	138	6/27/2002		27
DY16470564	Gooding	19&21	67	6/18/2002		22
DY16470564	Gooding	14	138	6/18/2002		18
DY16470564	Gooding	9	143	9/20/2002	86	
DY16470564	Gooding	8,10,11	140	6/10/2002		14
DY16470564	Gooding	1&4	142	11/20/2002	63	
DY16470995	Gooding	H-2	21	10/28/2002	139	
DY16470564	Gooding	16	29	12/6/2002		10
DY16470995	Gooding	J8	128	10/9/2002		33
DY16470564	Gooding	13	7	9/1/1902	86	
DY16470564	Gooding	24	98	9/19/2002		47
DY16470564	Gooding	22 & 23				

Soil Samples Query

7/18/2005

DYNumber	County	FieldName	FieldAcreage	SampleDate	SWSampleP	GWSampleP
			95	10/8/2002		30
DY16470564	Gooding	18	125	7/19/2002		13
DY16470995	Gooding	H3	235	3/15/2004	40	0
DY16470995	Gooding	Rock Creek # 1&2	40	7/19/2002		21
DY16470995	Gooding	P1	40	7/17/2002		19
DY16470995	Gooding	P3	133	7/17/2002		16
DY16470995	Gooding	P2&P2A	205	7/24/2002		15
DY16470995	Gooding	Arch-23	75	7/17/2002		21
DY16470995	Gooding	P4&P5	47	10/9/2002	120	
DY16470564	Gooding	17	31	5/5/2003	22	
DY16470642	Gooding	Pasture	146	11/20/2002	73	
DY16470995	Gooding	H-1	175	5/8/2003	51	
DY16470995	Gooding	Rock Creek 17	155	5/13/2003	50	
DY16470995	Gooding	Rock Creek 13	20	5/13/2003	35	
DY16470995	Gooding	Rock Creek 14	22	5/7/2003	17	
DY16470995	Gooding	Rock Creek 20	38	5/7/2003	17	
DY16470995	Gooding	Rock Creek 21	55	5/13/2003	20	
DY16470995	Gooding	Rock Creek 16	35	6/2/2003	15	
DY16470995	Gooding	Rock Creek 28	132	5/8/2003	28	
DY16470995	Gooding	Rock Creek 18	17	5/2/2003		34
DY16470642	Gooding	1	128	6/2/2003	16	
DY16470995	Gooding	Rock Creek 30	93	5/2/2003		31
DY16470642	Gooding	5	37	6/2/2003	14	
DY16470995	Gooding	Rock Creek 29	115	10/8/2003	68	
DY16470642	Gooding	14	32	3/12/2004	0	20
DY16471004	Gooding	16	88	5/16/2003	70	
DY16471004	Gooding	10	89	10/9/2003	25	
DY16471004	Gooding	15	122	5/22/2003		27
DY16471004	Gooding	7	15	5/16/2003		28
DY16471004	Gooding	10 1/2	35	5/5/2003	26	
DY16471004	Gooding	12	23	5/5/2003		12
DY16471004	Gooding	13	122	5/5/2003		32
DY16471004	Gooding	3	64	5/5/2003		20
DY16471004	Gooding	2				

Soil Samples Query

7/18/2005

DYNumber	County	FieldName	FieldAcreage	SampleDate	SWSampleP	GWSampleP
DY16471004	Gooding	8,9	70	5/5/2003		33
DY16470642	Gooding	6	17	5/2/2003		28
DY16470995	Gooding	Rock Creek 12	150	5/6/2003	19	
DY16470995	Gooding	J13A	51	12/3/2002	77	
DY16470995	Gooding	A-22	120	12/2/2002		61
DY16470995	Gooding	H-5	65	12/2/2002	80	
DY16470995	Gooding	J13 & J13C	85	8/20/2002		21
DY16470995	Gooding	J5,J6	92	12/11/2002		17
DY16470995	Gooding	J-14,15	72	3/24/2003		23
DY16470995	Gooding	Rock Creek 25	25	6/3/2003	14	
DY16470995	Gooding	Rock Creek 26	66	6/3/2003	19	
DY16470995	Gooding	Rock Creek 11	47	5/6/2003	28	
DY16470995	Gooding	Rock Creek 3	17	5/6/2003	12	
DY16470995	Gooding	Rock Creek 23	38	5/7/2003	19	
DY16470995	Gooding	Rock Creek 8	35	6/3/2003	20	
DY16471004	Gooding	11	118	5/15/2003		30
DY16470995	Gooding	Rock Creek 4	131	6/5/2003	16	
DY16470995	Gooding	Rock Creek10	57	6/3/2003	14	
DY16470995	Gooding	K-1	128	3/24/2003	75	
DY16470995	Gooding	K-2	34	3/24/2003		27
DY16470995	Gooding	K-4	34	3/24/2003		21
DY16470995	Gooding	K-3	136	3/24/2003		27
DY16470995	Gooding	Rock Creek 5	153	6/5/2003	22	
DY16470995	Gooding	Rock Creek 6,6A	110	6/5/2003	18	
DY16470995	Gooding	Rock Creek 7	47	6/3/2003	16	
DY16470995	Gooding	Rock Creek 22	34	5/7/2003	19	
DY16470995	Gooding	Rock Creek 19	20	5/7/2003	25	
DY16470995	Gooding	Rock Creek 9	157	6/3/2003	14	
DY16471024	Gooding	S40	34	12/26/2002	13	
DY16530499	Jerome	Pasture	61	4/22/2004	64	0
DY16530517	Jerome	1	92	4/11/2003	43	
DY16530490	Jerome	B3	134	6/20/2002		22
DY16530507	Jerome	37	39	8/5/2003		11

Soil Samples Query

7/18/2005

DYNumber	County	FieldName	FieldAcreage	SampleDate	SWSampleP	GWSampleP
DY16530490	Jerome	CV1 Pivot 4	50	7/16/2002	26	11
DY16530490	Jerome	CV1-3	150	6/20/2002		10
DY16530490	Jerome	B1	90	6/20/2002		14
DY16530490	Jerome	CV1-2	33	6/20/2002		7
DY16530521	Jerome	East Pasture	20	4/18/2003		45
DY16530521	Jerome	West Pasture	23	4/18/2003		50
DY16530521	Jerome	120 Pivot	86	4/18/2003		18
DY16530561	Jerome	Handline	19	11/7/2002		
DY16530561	Jerome	Reinke Pivot	36	7/15/2002	54	41
DY16530562	Jerome	Pivot 10	34	5/6/2003		
DY16530562	Jerome	Pivot 10				
DY16530490	Jerome	CV1 Pivot 1	114	7/16/2002	61	8
DY16530490	Jerome	SC2	30	6/13/2002		
DY16530532	Jerome	Field C	26	5/20/2003	101	
DY16530532	Jerome	Field B	35	5/27/2003		37
DY16530532	Jerome	Field A	64	9/24/2003	47	
DY16530532	Jerome	Field A	133	7/16/2002	51	
DY16530490	Jerome	SC3	90	7/18/2002	26	
DY16530490	Jerome	CV1 Pivot 2	102	7/23/2002	38	
DY16530490	Jerome	S-103	102	7/23/2002	38	
DY16530490	Jerome	B2	96	7/18/2002	47	
DY16530490	Jerome	B2	144	4/30/2003		16
DY16530562	Jerome	Zimberman	152	6/18/2002		11
DY16530490	Jerome	SC5	129	7/16/2002	24	
DY16530490	Jerome	SC4	140	7/23/2002	58	
DY16530490	Jerome	CV2E	80	7/23/2002	53	
DY16530490	Jerome	S-80	6	6/13/2002		17
DY16530490	Jerome	SC1	132	6/20/2002		7
DY16530490	Jerome	CV1 Pivot 3	140	7/23/2002	49	
DY16530490	Jerome	CV2W+ sw corner	34	11/12/2002	25	
DY16530504	Jerome	E	34	10/10/2003		27
DY16530552	Jerome	1	75	11/30/2004	23	0
DY16530559	Jerome	3,4,5	27	9/1/2004	10	0
DY16530559	Jerome	Field #6	145	11/30/2004	42	0
DY16530559	Jerome	New Pivot	151	11/30/2004	15	0
DY16530559	Jerome	7,8,9				

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DYNumber	County	FieldName	FieldAcreage	SampleDate	SWSampleP	GWSampleP
DY16530562	Jerome	Hills South Pivot	65	4/29/2003		3
DY16530504	Jerome	D	134	11/7/2002	19	18
DY16530541	Jerome	West Pasture	4	4/1/2003		8
DY16530504	Jerome	C	22	11/7/2002		
DY16530504	Jerome	A	32	7/8/2002	21	
DY16530520	Jerome	Field 1	76	1/28/2003		39
DY16530520	Jerome	Field 3	135	1/28/2003		13
DY16530520	Jerome	Field 2	36	1/28/2003		32
DY16530517	Jerome	3	76	4/11/2003		11
DY16530504	Jerome	B	11	7/8/2002	11	
DY16530562	Jerome	8,9	154	4/28/2003		17
DY16530501	Jerome	Pivot West 1/2	54	6/7/2004	0	8
DY16530562	Jerome	Hills North Pivot	148	4/29/2003		11
DY16530562	Jerome	Pivot1	90	4/24/2003		11
DY16530562	Jerome	Pivot2	112	4/24/2003		31
DY16530562	Jerome	Red's Pasture	66	4/28/2003		6
DY16530562	Jerome	Pivot4	93	4/24/2003		38
DY16530552	Jerome	2	15	5/15/2003	14	
DY16530562	Jerome	7	72	4/28/2003		8
DY16530541	Jerome	Dairy Pivot	65	4/1/2003		32
DY16530562	Jerome	Pardue Pasture	34	5/6/2003		41
DY16530530	Jerome	1	72	10/10/2003		29
DY16530530	Jerome	2	52	5/22/2003	49	
DY16530530	Jerome	2	58	4/10/2003	63	
DY16531010	Jerome	1	7	4/1/2003		21
DY16530541	Jerome	East Pasture	193	4/28/2003		8
DY16530562	Jerome	11	132	4/28/2003		13
DY16530562	Jerome	Pivot 5,6	12	10/22/2002		6
DY16530502	Jerome	Barrymore NE	89	7/2/2002		17
DY16530502	Jerome	2	135	7/2/2002		12
DY16530502	Jerome	1&1B	127	6/26/2002	62	
DY16530502	Jerome	Big Dairy Pivot	227	10/1/2002		12
DY16530502	Jerome	6 & 6B	63	11/27/2002		37
DY16530502	Jerome	Shill 1/2 Pivot				

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DYNumber	County	FieldName	FieldAcreage	SampleDate	SWSampleP	GWSampleP
			61	7/15/2002		48
DY16530509	Jerome	4&7	69	10/9/2002	35	
DY16530502	Jerome	3,4 solid set	7	5/16/2003		28
DY16530539	Jerome	East Field	21	10/22/2002	10	
DY16530502	Jerome	Barrymore N	37	10/22/2002	9	
DY16530502	Jerome	Barrymore SE	50	10/22/2002	13	
DY16530502	Jerome	Barrymore W	17	12/2/2002		58
DY16530526	Jerome	2	151	7/11/2002	109	
DY16530526	Jerome	1	74	3/17/2004	0	8
DY16530501	Jerome	Pivot East 1/2	15	10/9/2002	32	
DY16530502	Jerome	5	114	10/18/2002		6
DY16530529	Jerome	5-2 + Corner	35	10/31/2003		3
DY16530522	Jerome	2	85	10/31/2003		43
DY16530522	Jerome	1	34	5/15/2003		45
DY16530531	Jerome	Dairy Mini	107	6/10/2002		5
DY16530529	Jerome	Riley Wheeline	118	6/10/2002		4
DY16530529	Jerome	Riley Pivot	35	12/2/2002	167	
DY16530529	Jerome	Dairy Mini	17	11/27/2002		50
DY16530502	Jerome	Dairy Mini	33	1/30/2003		7
DY16530529	Jerome	S-4	38	6/26/2002	36	
DY16530500	Jerome	Mini Pivot	132	1/30/2003		6
DY16530529	Jerome	S-5	105	6/11/2002		4
DY16530529	Jerome	Grandma Middle Pivot	134	1/15/2003		10
DY16530529	Jerome	5-1	95	10/18/2002		12
DY16530529	Jerome	South Grandma Pivot	33	5/19/2003	99	
DY16530539	Jerome	Pivot	16	9/12/2002		47
DY16530509	Jerome	6	94	1/15/2003		9
DY16530529	Jerome	5-3	10	2/7/2003		48
DY16530498	Jerome	4	6	5/20/2003		72
DY16530534	Jerome	South Pasture	33	9/24/2003		51
DY16530534	Jerome	Meyers	125	6/2/2003		17
DY16530534	Jerome	Wiegler Full Pivot	185	5/29/2003	13	
DY16530534	Jerome	Gunning East	154	8/5/2003	20	
DY16530534	Jerome	Gunning Swing				

Soil Samples Query

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DYNumber	County	FieldName	FieldAcreage	SampleDate	SWSampleP	GWSampleP
			38	1/7/2003	67	
DY16530526	Jerome	3	29	6/2/2003	18	
DY16530555	Jerome	1	35	10/8/2003		19
DY16530534	Jerome	Home Mini	4	2/7/2003	44	
DY16530498	Jerome	2	19	2/7/2003	40	
DY16530498	Jerome	1	21	2/7/2003	28	
DY16530498	Jerome	5	35	2/7/2003		73
DY16530498	Jerome	6	9	2/7/2003	34	
DY16530498	Jerome	3	90	7/18/2002	79	
DY16530490	Jerome	B5	6	5/21/2003		72
DY16530534	Jerome	Pivot Corner Pasture	42	5/19/2003		32
DY16530535	Jerome	A	147	9/12/2002		61
DY16530509	Jerome	1	26	9/13/2002		83
DY16530509	Jerome	3	134	10/1/2002	91	
DY16530509	Jerome	20	109	11/8/2002	95	
DY16530509	Jerome	5	151	10/7/2002	46	
DY16530509	Jerome	21	30	2/20/2003		47
DY16530990	Jerome	10	29	9/25/2003		19
DY16530534	Jerome	Weigle 1/2 Pivot	56	4/22/2003		17
DY16530535	Jerome	B+C	65	10/8/2003		26
DY16530534	Jerome	Edwards	126	5/20/2003		13
DY16530534	Jerome	Dairy East Pivot	41	5/20/2003		8
DY16530534	Jerome	Childers	131	9/24/2003	106	
DY16530534	Jerome	Desert	54	9/25/2003	155	
DY16530534	Jerome	Pasture Pivot	133	6/4/2003		26
DY16530534	Jerome	Johnson	45	4/9/2004	42	0
DY16530501	Jerome	West Field	37	2/20/2003		38
DY16530990	Jerome	9	124	11/15/2002	9	
DY16530556	Jerome	1	85	7/1/2002	21	
DY16530963	Jerome	6	9	4/1/2003	15	
DY16530553	Jerome	4	10	4/1/2003	72	
DY16530553	Jerome	1	39	10/7/2002		41
DY16530508	Jerome	1 & 4	18	10/7/2002		30
DY16530508	Jerome	5				

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DYNumber	County	FieldName	FieldAcreage	SampleDate	SWSampleP	GWSampleP
			33	5/7/2004	0	21
DY16530548	Jerome	3	103	10/7/2002		30
DY16530508	Jerome	8 & 9	36	5/6/2004	0	19
DY16530536	Jerome	Gulley	15	6/12/2002		26
DY16530556	Jerome	5	59	6/12/2002		32
DY16530556	Jerome	9	18	6/12/2002		12
DY16530556	Jerome	10	61	6/11/2002		8
DY16530556	Jerome	13	21	6/12/2002		25
DY16530556	Jerome	7	141	6/12/2002		11
DY16530556	Jerome	11	72	12/3/2002		75
DY16530508	Jerome	2,3	63	9/3/2002	22	
DY16530963	Jerome	16	54	9/25/2002		11
DY16530963	Jerome	9	94	11/22/2002		9
DY16530963	Jerome	7	65	11/4/2002		7
DY16530963	Jerome	10	130	11/4/2002	31	
DY16530963	Jerome	15	86	9/25/2002		8
DY16530963	Jerome	3	11	4/1/2003	45	
DY16530553	Jerome	2	139	11/7/2002		10
DY16530963	Jerome	1	148	6/12/2002		17
DY16530556	Jerome	4	164	10/3/2002		5
DY16530963	Jerome	2	140	8/2/2002	9	
DY16530963	Jerome	8	280	5/7/2004	0	28
DY16530993	Jerome	4	75	4/23/2004	86	0
DY16530536	Jerome	Tibaults	70	8/2/2004	29	0
DY16530536	Jerome	IDA West	27	4/23/2004	0	37
DY16530536	Jerome	Little Stinky	140	8/2/2002		6
DY16530963	Jerome	5	145	6/21/2002		47
DY16530511	Jerome	2	28	5/22/2003	40	
DY16530507	Jerome	29,30	64	9/23/2003		26
DY16530507	Jerome	35	41	8/5/2003	70	
DY16530507	Jerome	27	73	9/14/2002	93	
DY16530511	Jerome	12 & 12A	74	10/7/2002	45	
DY16530511	Jerome	13 & 14	26	6/12/2002		23
DY16530556	Jerome	8				

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DYNumber	County	FieldName	FieldAcreage	SampleDate	SWSampleP	GWSampleP
DY16530511	Jerome	A-1	90	12/9/2002	70	
DY16530490	Jerome	B4	103	7/23/2002	69	
DY16530511	Jerome	10 & 11	70	9/19/2002		31
DY16530507	Jerome	32	65	10/30/2003		33
DY16530507	Jerome	33	122	8/5/2003		23
DY16530507	Jerome	34	131	10/30/2003	34	
DY16530507	Jerome	31	33	9/23/2003		176
DY16530507	Jerome	36,38	43	8/5/2003	27	
DY16530511	Jerome	A-2	25	12/9/2002	59	
DY16530514	Jerome	Home Place Handline	8	4/16/2003	39	
DY16530518	Jerome	2 & 3	74	10/2/2002	154	
DY16530556	Jerome	3	62	11/12/2002	39	
DY16530556	Jerome	6	139	6/12/2002		32
DY16530556	Jerome	12	37	6/11/2002		9
DY16530514	Jerome	Home Place Pivot	40	4/16/2003	27	
DY16530514	Jerome	Heifer Place	63	10/25/2002	95	
DY16530507	Jerome	28	25	9/23/2003	75	
DY16530514	Jerome	South Pasture	4	4/16/2003	5	
DY16530554	Jerome	1	32	4/22/2003	11	
DY16530514	Jerome	Fife	102	4/16/2003	5	
DY16530514	Jerome	Jacky	69	4/16/2003		44
DY16530528	Jerome	1	13	5/15/2003	62	
DY16530517	Jerome	4	34	4/11/2003		14
DY16530518	Jerome	1	14	10/2/2002		99
DY16530556	Jerome	2	37	11/14/2002	16	
DY16530514	Jerome	North Pasture	2	4/16/2003	5	
DY16530533	Jerome	6	56	10/8/2003	24	
DY16531015	Jerome	Truck Shop 11 acre corner	12	6/29/2004	15	0
DY16531021	Jerome	5	91	6/26/2002	15	
DY16531021	Jerome	7	140	6/26/2002	12	
DY16530497	Jerome	4	5	7/20/2004	37	0
DY16530497	Jerome	3	8	7/20/2004	42	0
DY16531021	Jerome	Field by House	36	6/26/2002	13	

Soil Samples Query

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DYNumber	County	FieldName	FieldAcreage	SampleDate	SWSampleP	GWSampleP
DY16530497	Jerome	2	3	7/20/2004	0	17
DY16531021	Jerome	1	50	6/26/2002	11	
DY16530516	Jerome	1	35	2/12/2003		61
DY16530533	Jerome	South East Pivot	25	6/4/2003	33	
DY16530533	Jerome	2	30	9/24/2003		19
DY16531015	Jerome	Truck Shop 1/2 Pivot	65	4/30/2004	30	0
DY16531015	Jerome	2 South Half	72	6/30/2004	0	12
DY16531015	Jerome	2B	20	6/30/2004	0	7
DY16530497	Jerome	1	24	7/20/2004	34	0
DY16530519	Jerome	Mogensen	120	8/6/2002		21
DY16530554	Jerome	2	74	4/22/2003		45
DY16530517	Jerome	2	44	4/11/2003		7
DY16530517	Jerome	6	36	5/12/2003		34
DY16530495	Jerome	16	7	4/29/2004	29	0
DY16530495	Jerome	17	7	11/17/2004	100	0
DY16531021	Jerome	4	110	6/26/2002	24	
DY16530519	Jerome	Watson	33	1/2/2003		23
DY16530533	Jerome	1	25	9/23/2003		24
DY16530519	Jerome	Dairy Pivot	54	1/3/2003	59	
DY16530519	Jerome	Blessing	32	1/2/2003		31
DY16531021	Jerome	3	142	9/10/2002	25	
DY16531021	Jerome	6	137	9/12/2002	15	
DY16531021	Jerome	8	120	9/10/2002	21	
DY16531021	Jerome	2	140	6/26/2002	12	
DY16530519	Jerome	Meyer	49	1/3/2003		26
DY16531005	Jerome	Field 1	39	4/23/2004	25	0
DY16530560	Jerome	8	37	3/25/2003		33
DY16530560	Jerome	6,7	24	3/25/2003		30
DY16530560	Jerome	5A	13	3/26/2003		19
DY16531015	Jerome	Truck Shop Handline	43	6/29/2004	23	0
DY16530560	Jerome	1	35	3/31/2003		15
DY16530533	Jerome	4,5	25	9/23/2003		19
DY16530560	Jerome	2A	7	3/31/2003		11

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DYNumber	County	FieldName	FieldAcreage	SampleDate	SWSampleP	GWSampleP
			52	2/22/2005	41	0
DY16530546	Jerome	M&C Big Pivot NW 1/4	113	3/25/2003		17
DY16530560	Jerome	9,10,11	141	2/12/2003		38
DY16530516	Jerome	6	37	2/12/2003	21	
DY16530516	Jerome	8	96	2/10/2003		16
DY16530516	Jerome	7	148	2/10/2003	84	
DY16530516	Jerome	3	16	2/10/2003		14
DY16530516	Jerome	5	41	2/10/2003		30
DY16530516	Jerome	4	70	8/2/2004	21	0
DY16530546	Jerome	MC Big Pivot South 1/2	287	6/27/2002	23	
DY16530543	Jerome	3	91	4/29/2004	0	9
DY16531015	Jerome	3	141	4/30/2004	40	0
DY16531015	Jerome	Truck Shop Full Pivot	138	8/3/2004	66	0
DY16530546	Jerome	SS Big Pivot	3	3/31/2003		3
DY16530560	Jerome	4A	12	6/24/2002	0	16
DY16530496	Jerome	Pivot 1 South	148	7/1/2002	49	
DY16530543	Jerome	2	19	6/24/2002		16
DY16530496	Jerome	Pivot 1 North	82	7/1/2002		12
DY16530543	Jerome	1	142	1/7/2003	25	
DY16530543	Jerome	4	32	6/29/2004	0	12
DY16530543	Jerome	5	30	4/10/2003	26	
DY16530550	Jerome	2	16	5/28/2003		27
DY16530550	Jerome	1	125	3/31/2003	16	
DY16530560	Jerome	2	124	3/31/2003	19	
DY16530560	Jerome	3,4	110	5/7/2004	0	15
DY16531015	Jerome	Suter 3 Mini Pivots	158	7/14/2004	14	0
DY16630302	Lincoln	Robin's Pivot	13	7/23/2004	10	0
DY16630288	Lincoln	NW5	4	8/9/2004	27	0
DY16630288	Lincoln	NW11	151	8/11/2004	46	0
DY16630302	Lincoln	Spud Cellar Pivot	65	8/11/2004	0	8
DY16630302	Lincoln	West Wheeline	148	8/11/2004	11	0
DY16630302	Lincoln	Preston Pivot	142	7/14/2004	16	0
DY16630302	Lincoln	North Pivot	62	7/14/2004	35	0
DY16630302	Lincoln	East Wheeline				

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DYNumber	County	FieldName	FieldAcreage	SampleDate	SWSampleP	GWSampleP
			170	7/15/2004	15	0
DY16630302	Lincoln	Randy Pivot	6	7/23/2004	5	0
DY16630291	Lincoln	NW23	22	7/24/2004	8	0
DY16630288	Lincoln	NW24	11	7/23/2004	5	0
DY16630291	Lincoln	NW4	157	7/15/2004	15	0
DY16630302	Lincoln	MgNaulty Pivot	93	7/20/2004	0	53
DY16630308	Lincoln	Zimmatic	8	8/9/2004	16	0
DY16630288	Lincoln	NW22	24	7/22/2004	99	0
DY16630288	Lincoln	NW13&NW14	146	7/21/2004	0	42
DY16630308	Lincoln	Pierce	75	7/21/2004	0	49
DY16630308	Lincoln	Buckwald	23	7/20/2004	0	63
DY16630308	Lincoln	Mini Pivot	15	7/20/2004	0	103
DY16630308	Lincoln	26	20	6/21/2004	0	6
DY16630296	Lincoln	# 1 Middle Field	15	7/15/2004	0	6
DY16630296	Lincoln	# 1 South	39	7/15/2004	0	8
DY16630296	Lincoln	7	19	7/15/2004	0	5
DY16630296	Lincoln	6	14	6/21/2004	0	14
DY16630296	Lincoln	2	37	7/15/2004	0	6
DY16630296	Lincoln	4	15	7/15/2004	0	6
DY16630296	Lincoln	3	44	7/21/2004	0	12
DY16630308	Lincoln	Hubbs	74	3/29/2004	19	0
DY16830380	Twin Falls	Bean 3,4,5,6	21	4/5/2004	17	0
DY16830380	Twin Falls	B7	22	4/5/2004	0	10
DY16830380	Twin Falls	B2	21	4/12/2004	0	21
DY16830380	Twin Falls	Denny North	52	4/12/2004	7	0
DY16830380	Twin Falls	Kevern North	14	4/12/2004	11	0
DY16830380	Twin Falls	B8	50	4/5/2004	22	0
DY16830380	Twin Falls	Kevern South	73	4/12/2004	34	0
DY16830380	Twin Falls	SS17,SS18	113	4/9/2004	34	0
DY16830380	Twin Falls	G2,G3,G4	79	3/29/2004	0	16
DY16830380	Twin Falls	Stanger 3	102	3/25/2004	57	0
DY16830380	Twin Falls	SS1,2,4	75	10/16/2003	24	
DY16830380	Twin Falls	SS8	101	10/17/2003	13	
DY16830380	Twin Falls	K1,K2				

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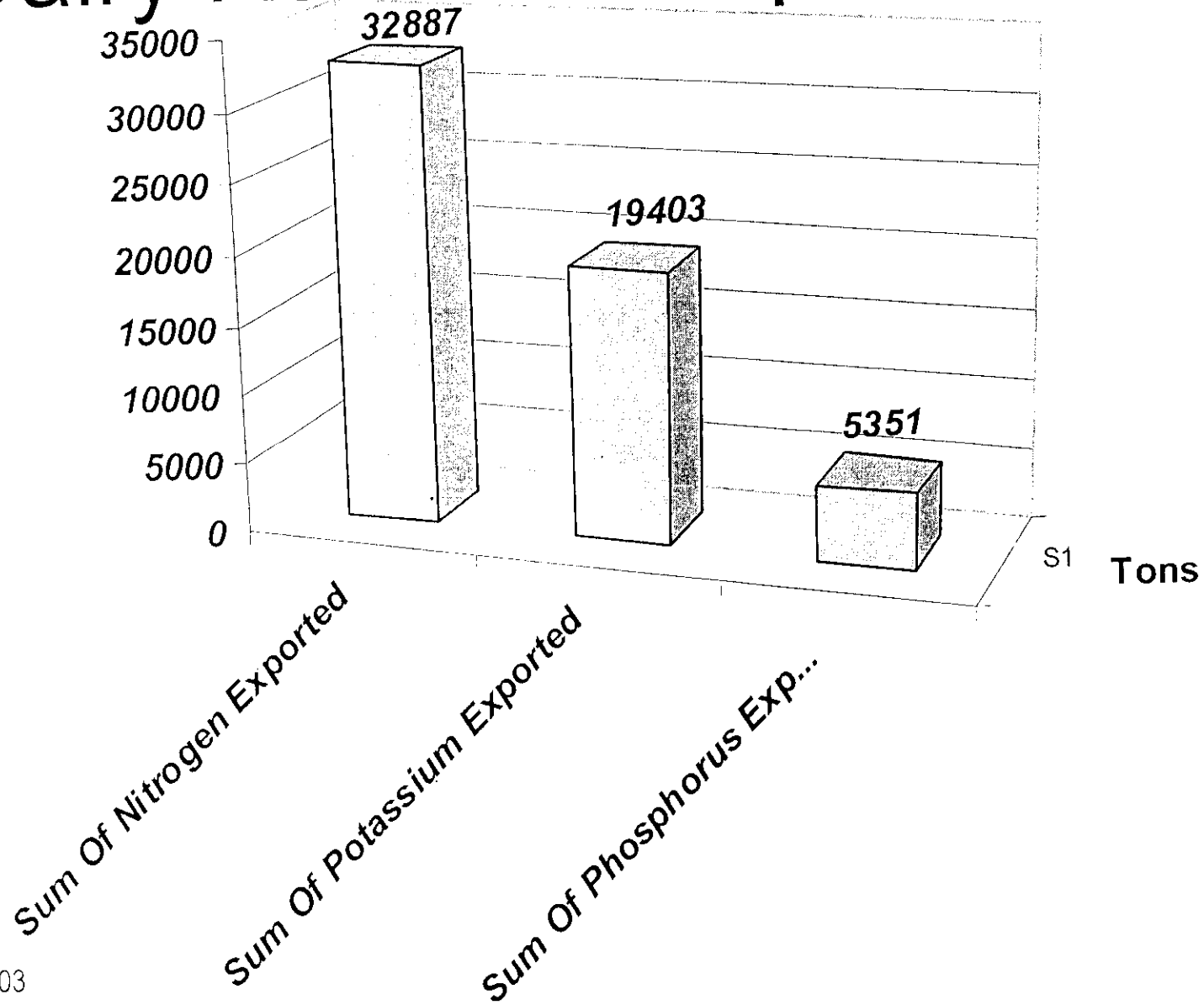
DYNumber	County	FieldName	FieldAcreage	SampleDate	SWSampleP	GWSampleP
			29	4/12/2004	11	0
DY16830380	Twin Falls	D4	188	12/23/2003	22	6
DY16830962	Twin Falls	North Pivot	109	4/7/2004	17	0
DY16830380	Twin Falls	Thesch Pivot	143	3/29/2004	0	12
DY16830380	Twin Falls	Stanger 1	38	3/22/2004	0	15
DY16830380	Twin Falls	SS15	8	4/7/2004	0	6
DY16830380	Twin Falls	G1	145	4/7/2004	0	7
DY16830380	Twin Falls	Denny Pivot	38	12/22/2003	15	4
DY16830962	Twin Falls	South 40	179	3/23/2004	26	0
DY16830380	Twin Falls	D2	129	12/22/2003	44	11
DY16830962	Twin Falls	Dairy Pivot	154	3/29/2004	0	25
DY16830380	Twin Falls	Stanger 1-2	126	12/23/2003	32	
DY16830962	Twin Falls	Wheeline Field	42	3/24/2004	0	6
DY16830380	Twin Falls	D3	35	11/6/2003		3
DY16830962	Twin Falls	North 40	97	10/17/2003	12	
DY16830380	Twin Falls	SS12	113	11/6/2003		6
DY16830962	Twin Falls	East 120	24	3/22/2004	21	0
DY16830380	Twin Falls	17 West	48	4/7/2004	20	0
DY16830380	Twin Falls	Thesch East	196	11/7/2003		7
DY16830962	Twin Falls	South Pivot	22	5/14/2003	13	
DY16830381	Twin Falls	8	110	3/25/2004	0	23
DY16830380	Twin Falls	Stanger 2	23	5/13/2003	76	
DY16830376	Twin Falls	2	15	5/14/2003		13
DY16830376	Twin Falls	1	6	5/14/2003	51	
DY16830376	Twin Falls	7	17	5/13/2003		15
DY16830376	Twin Falls	6	31	11/29/2004	34	0
DY16830714	Twin Falls	1 & 2	17	5/13/2003		13
DY16830376	Twin Falls	5	156	10/16/2003	33	
DY16830378	Twin Falls	F-2	77	3/18/2004	0	7
DY16830381	Twin Falls	#1 Middle Field	65	5/14/2003	32	
DY16830381	Twin Falls	5	48	3/18/2004	22	0
DY16830381	Twin Falls	# 9 East Field	36	3/18/2004	23	0
DY16830381	Twin Falls	#7 Southeast Field	12	5/14/2003	25	
DY16830381	Twin Falls	6				

Soil Samples Query

7/18/2005

DYNumber	County	FieldName	FieldAcreage	SampleDate	SWSampleP	GWSampleP
DY16830381	Twin Falls	4	46	5/14/2003	22	
DY16830376	Twin Falls	3,4	36	5/13/2003	39	
DY16830380	Twin Falls	SS9	88	3/22/2004	0	16
DY16830380	Twin Falls	SS13	16	10/17/2003		4
DY16830380	Twin Falls	SS14	78	3/22/2004	0	12
DY16830380	Twin Falls	SS3	41	3/24/2004	29	0
DY16830380	Twin Falls	SS6	41	3/24/2004	35	0
DY16830380	Twin Falls	SS5	12	3/24/2004	19	0
DY16830962	Twin Falls	Angle Field	10	11/6/2003	23	
DY16830380	Twin Falls	SS16	56	6/5/2003	23	
DY16830380	Twin Falls	SS10	49	10/17/2003		9
DY16830380	Twin Falls	D1	46	3/23/2004	0	7
DY16830380	Twin Falls	Gordon Egbert Pivot	124	4/9/2004	0	34
DY16830380	Twin Falls	SS11	34	3/22/2004	25	0
DY16830380	Twin Falls	Thesch Southwest	21	4/6/2004	0	6
DY16830380	Twin Falls	Thesch Northwest	38	4/6/2004	13	0
DY16830378	Twin Falls	F-1	71	5/30/2003	30	
DY16830380	Twin Falls	SS7	93	3/24/2004	0	9

Dairy Resource Exportation

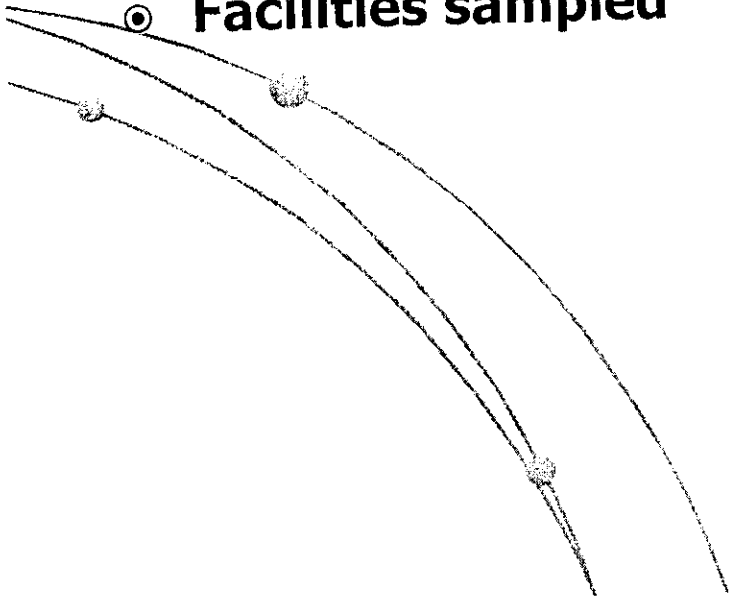


4/22/2003

Nutrient Management

Status of Other NMP Activities – End of 2003

○ Total Acres to Sample	213,988
○ Total Acres Sampled	81,412
○ Percent of Acres Sampled to date	38% ✓
○ Percent of Acres Sampled <u>above Threshold</u>	25% ✓
○ Facilities sampled	107



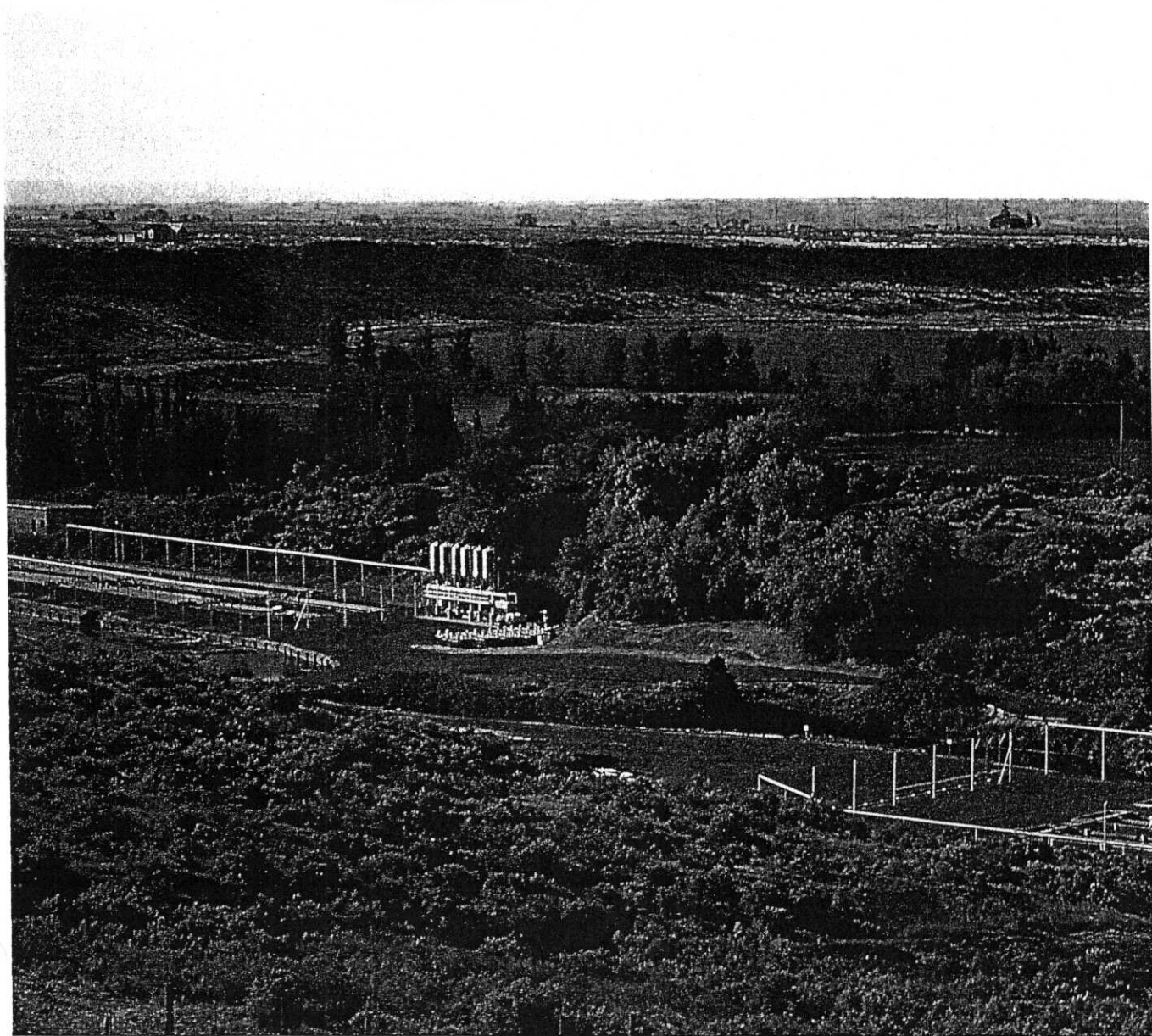
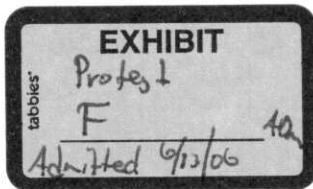


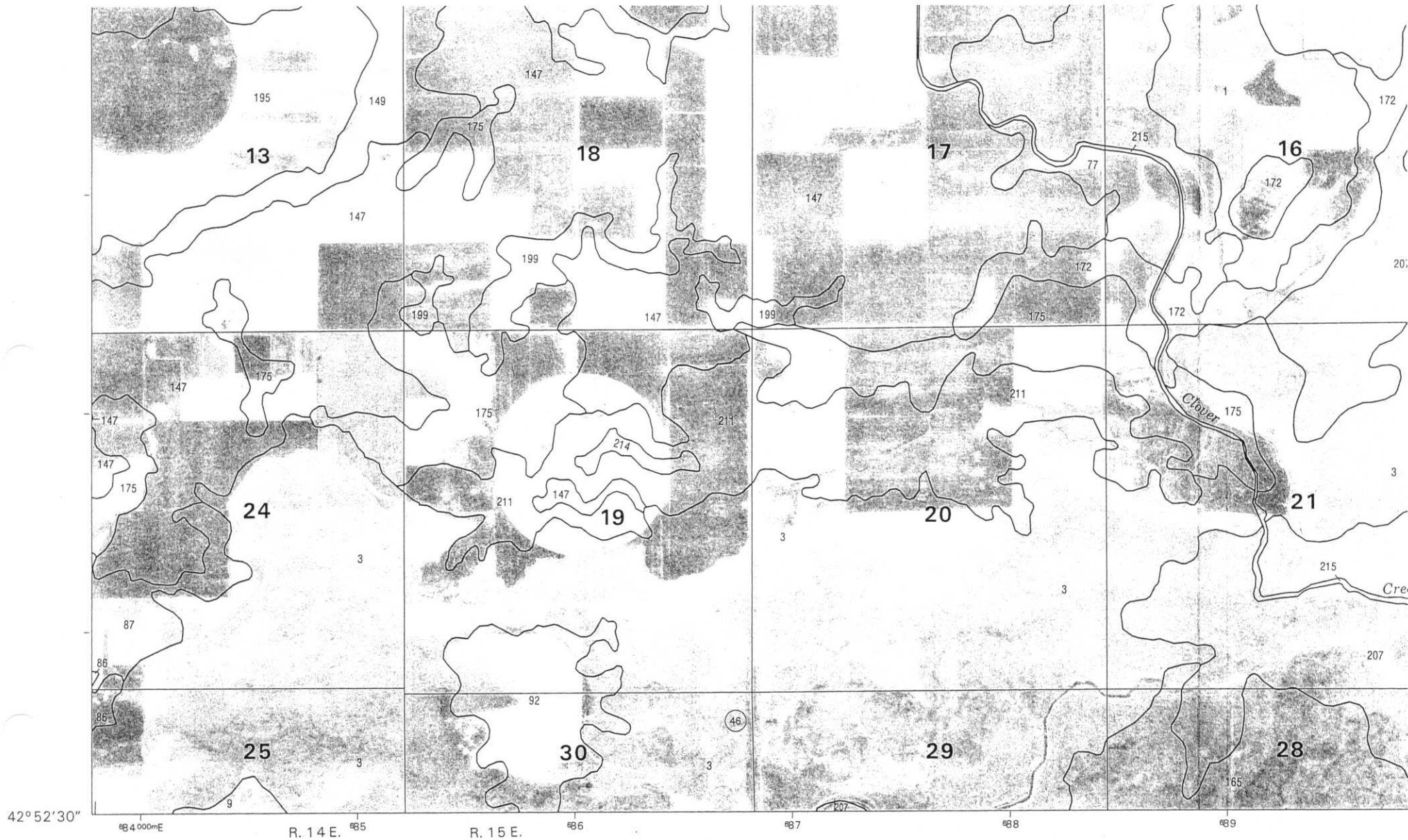
United States
Department of
Agriculture

Natural
Resources
Conservation
Service

In cooperation with
United States Department
of the Interior, Bureau of
Land Management;
University of Idaho,
College of Agriculture; and
Idaho Soil Conservation
Commission

Soil Survey of Wood River Area, Idaho, Gooding County and Parts of Blaine, Lincoln, and Minidoka Counties





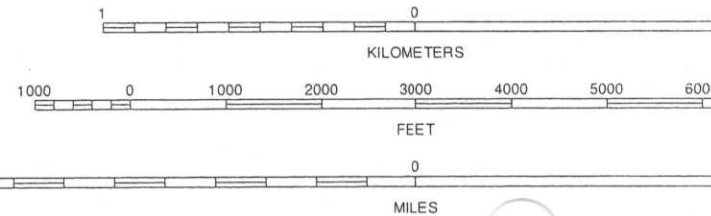
This soil survey was compiled by the U.S. Department of Agriculture, Natural Resources Conservation Service, formerly Soil Conservation Service, and cooperating agencies. Base maps are orthophotographs prepared by the U.S. Department of Interior, Geological Survey, from 1992 aerial photography.

North American Datum of 1983 (NAD83). GRS-80 Spheroid 1000-meter ticks: Universal Transverse Mercator, zones 11 and 12. Coordinate grid ticks and land division data, if shown, are approximately positioned. Digital data are available for this map.



QUAD LOCATION

SCALE 1:24000



itec a depth to the hardpan in the low soil. Suitable management practices are needed to overcome the hazard of wind erosion. Commonly used irrigation methods include furrow, rugation, and sprinkler systems. The risk of erosion is increased in areas where row or corrugation irrigation systems are used. Sprinkler irrigation is the most suitable method of plying water.

Interpretive Groups

apability classification: IIIe, irrigated

—Ackelton-Jestrick-Rock outcrop complex, 2 to 12 percent slopes

Composition

ackelton loamy fine sand and similar inclusions—40 percent
 Jestrick loamy fine sand and similar inclusions—35 percent
 Rock outcrop—15 percent
 Contrasting inclusions—10 percent

Setting

elevation: 3,300 to 3,400 feet
 Average annual precipitation: About 10 inches
 Average annual air temperature: About 49 degrees F
 Frost-free period: About 110 days

Characteristics of the Ackelton Soil

Position on landscape: Concave areas on basalt plains
 Slope: 2 to 6 percent
 Typical profile:
 0 to 8 inches—brown loamy fine sand
 8 to 19 inches—brown and yellowish brown fine sandy loam
 19 to 34 inches—yellowish brown sandy clay loam
 34 to 53 inches—light yellowish brown sandy clay loam and very pale brown loam
 53 to 62 inches—very pale brown, lime- and silica-cemented hardpan
 62 to 76 inches—very pale brown loamy very fine sand
 Depth class: Deep to a hardpan
 Drainage class: Well drained
 Permeability: Moderate
 Available water capacity: Moderate
 Potential rooting depth: 43 to 58 inches
 Restriction to rooting depth: Lime- and silica-cemented hardpan at a depth of 53 inches

Runoff: Slow

Hazard of erosion: By water—slight or moderate; by wind—severe

Characteristics of the Jestrick Soil

Position on landscape: Convex areas on basalt plains

Slope: 4 to 12 percent

Typical profile:

0 to 5 inches—brown loamy fine sand
 5 to 16 inches—yellowish brown fine sandy loam
 16 to 22 inches—very pale brown cobbly fine sandy loam
 22 to 29 inches—white, lime- and silica-cemented hardpan
 29 inches—basalt

Depth class: Moderately deep to a hardpan

Drainage class: Somewhat excessively drained

Permeability: Moderately rapid

Available water capacity: Low

Potential rooting depth: 21 to 32 inches

Restriction to rooting depth: Lime- and silica-cemented hardpan at a depth of 22 inches

Runoff: Slow

Hazard of erosion: By water—moderate or severe; by wind—severe

Characteristics of the Rock Outcrop

Kind of material: Basalt

Position on landscape: Ridges

Contrasting Inclusions

- Ackelton and Jestrick soils that have slopes of 12 to 20 percent (5 percent)
- Taunton fine sandy loam that has slopes of 0 to 1 percent (5 percent)

Use and Management

Major uses: Rangeland, cropland, pasture, and hayland

Major management factors: Rock outcrop, hazards of wind and water erosion, depth to bedrock and to a hardpan, and very low available water capacity

Rangeland

Dominant vegetation in potential natural plant community: Basin big sagebrush, Indian ricegrass, and needleandthread

Major management considerations:

- Construction of fences and distribution of livestock are limited by the areas of Rock outcrop.
- The low available water capacity of the Jestrick soil limits the selection of species suitable for seeding.

- Planned grazing systems that encourage the growth of ground cover minimize the risks of wind and water erosion.

Cropland

Commonly grown crops: Irrigated wheat, barley, sugar beets, potatoes, and corn

Major management considerations:

- Suitable management practices are needed to overcome the hazards of wind and water erosion.
- Irrigation water management is needed to overcome the low available water capacity of the Jestrick soil.
- Excavation for irrigation mainlines and ditches is limited by the areas of Rock outcrop and by the depth to the hardpan and bedrock in the Jestrick soil.
- Sprinkler irrigation is the most suitable method of applying water.

Hayland and Pasture

Suitable crops: Alfalfa and pasture

Major management considerations:

- Suitable management practices are needed to overcome the hazards of wind and water erosion.
- Irrigation water management is needed to overcome the low available water capacity of the Jestrick soil.
- Excavation for irrigation mainlines and ditches is limited by the areas of Rock outcrop and by the depth to the hardpan and bedrock in the Jestrick soil.
- Sprinkler irrigation is the most suitable method of applying water.

Interpretive Groups

Capability classification: IVe, irrigated, and VIe, nonirrigated

Range site: Ackelton and Jestrick soils—011AY014ID
Sand 8-12 ARTRT/ACHY-HECOC8

4—Ackelton-Kecko complex, 1 to 5 percent slopes

Composition

Ackelton loamy sand and similar inclusions—
65 percent

Kecko loamy fine sand and similar inclusions—
15 percent

*Contrasting inclusions—*20 percent

Setting

Elevation: 3,900 to 4,200 feet

Average annual precipitation: About 10 inches

Average annual air temperature: About 49 degrees F

Frost-free period: About 105 days

Characteristics of the Ackelton Soil

Position on landscape: Side slopes and broad ridgetops of stable sand dunes on basalt plains

Typical profile:

0 to 8 inches—brown loamy fine sand

8 to 19 inches—brown and yellowish brown fine sandy loam

19 to 34 inches—yellowish brown sandy clay loam

34 to 37 inches—light yellowish brown loam

37 to 53 inches—light yellowish brown sandy clay loam and very pale brown loam

53 to 62 inches—very pale brown, lime- and silica-cemented hardpan

Depth class: Deep to a hardpan

Drainage class: Well drained

Permeability: Moderate

Available water capacity: Moderate

Potential rooting depth: 43 to 58 inches

Restriction to rooting depth: Lime- and silica-cemented hardpan at a depth of 53 inches

Runoff: Slow

Hazard of wind erosion: Severe

Characteristics of the Kecko Soil

Position on landscape: Side slopes and broad ridgetops of stable sand dunes on basalt plains

Typical profile:

0 to 14 inches—brown loamy fine sand

14 to 41 inches—yellowish brown fine sandy loam

41 to 60 inches—light yellowish brown sandy loam

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately rapid

Available water capacity: Moderate

Potential rooting depth: 60 inches or more

Runoff: Slow

Hazard of wind erosion: Severe

Contrasting Inclusions

- Wako sandy loam on convex slopes (10 percent)
- Soils that are similar to the Ackelton and Kecko soils but have slopes of 5 to 7 percent (5 percent)
- Snowmore sandy loam on convex slopes (5 percent)

Use and Management

Major uses: Cropland, pasture, and hayland

Major management factor: Hazard of wind erosion

Cropland

Commonly grown crops: Irrigated wheat, barley, corn for silage, sugar beets, dry beans, and potatoes

Contrasting Inclusions

Wako fine sandy loam (10 percent)
Ackelton fine sandy loam on gently sloping side
slopes and in drainageways (5 percent)

Use and Management

Major uses: Cropland, pasture, and hayland
Major management factors: Hazards of wind and
water erosion, low available water capacity, and
depth to a hardpan and to bedrock

Cropland

Commonly grown crops: Irrigated wheat, barley, sugar
beets, potatoes, and corn
Major management considerations:
Irrigation water management is needed to overcome
the low available water capacity.
Excavation for irrigation mainlines and ditches is
limited by the depth to bedrock and to the hardpan in
the Jestrick soil.
Suitable management practices are needed to
overcome the hazard of wind erosion on the Kecko
soil and the hazards of wind and water erosion on the
Jestrick soil.
Sprinkler irrigation is the most suitable method of
applying water.

Hayland and Pasture

Commonly grown crops: Irrigated alfalfa and pasture
Major management considerations:
Irrigation water management is needed to overcome
the low available water capacity.
Excavation for irrigation mainlines and ditches is
limited by the depth to the hardpan and to bedrock in
the Jestrick soil.
Suitable management practices are needed to
overcome the hazard of wind erosion on the Kecko
soil and the hazards of wind and water erosion on the
Jestrick soil.
Sprinkler irrigation is the most suitable method of
applying water.

Interpretive Groups

Capability classification: IIIe, irrigated

2—Jestrick-Kecko-Rock outcrop complex, 2 to 12 percent slopes

Composition

Wako very fine sandy loam and similar inclusions—
10 percent
Kecko very fine sandy loam and similar inclusions—
25 percent

Rock outcrop—20 percent
Contrasting inclusions—15 percent

Setting

Elevation: 3,300 to 3,500 feet
Average annual precipitation: About 10 inches
Average annual air temperature: About 49 degrees F
Frost-free period: About 110 days

Characteristics of the Jestrick Soil

Position on landscape: Convex areas on basalt plains

Typical profile:

0 to 6 inches—brown very fine sandy loam
6 to 18 inches—pale brown and yellowish brown
fine sandy loam
18 to 26 inches—very pale brown cobbly fine
sandy loam
26 to 36 inches—very pale brown, lime- and
silica-cemented hardpan
36 inches—basalt

Depth class: Moderately deep to a hardpan

Drainage class: Somewhat excessively drained

Permeability: Moderately rapid

Available water capacity: Low

Potential rooting depth: 21 to 32 inches

Restriction to rooting depth: Lime- and silica-cemented
hardpan at a depth of 26 inches

Runoff: Slow to rapid

Hazard of erosion: By water—moderate to very
severe; by wind—moderate

Characteristics of the Kecko Soil

Position on landscape: Concave areas on basalt
plains

Slope: 2 to 6 percent

Typical profile:

0 to 9 inches—brown very fine sandy loam
9 to 17 inches—yellowish brown fine sandy loam
17 to 52 inches—pale brown and very pale brown
fine sandy loam
52 to 61 inches—very pale brown loamy fine sand

Depth class: Very deep

Drainage class: Well drained

Permeability: Moderately rapid

Available water capacity: Moderate

Potential rooting depth: 60 inches or more

Runoff: Slow or medium

Hazard of erosion: By water—moderate or severe; by
wind—moderate

Characteristics of the Rock Outcrop

Kind of material: Exposed basalt

Position on landscape: Convex areas and pressure
ridges

Contrasting Inclusions

- Starbuck cobbly silt loam in convex positions (10 percent)
- Quincy fine sand in concave positions (5 percent)

Use and Management

Major uses: Rangeland, cropland, pasture, and hayland

Major management factors: Hazards of wind and water erosion, low available water capacity, and depth to a hardpan and to bedrock

Rangeland

Dominant vegetation in potential natural plant community: Jestricks soil—Wyoming big sagebrush and Thurber needlegrass; Kecko soil—basin big sagebrush and bluebunch wheatgrass

Major management considerations:

- Rangeland seeding is limited by the hazard of erosion and the low available water capacity of the Jestricks soil.
- Brush management is limited by the hazards of wind and water erosion.
- Distribution of livestock, construction of fences, and excavation for stock water pipelines are limited by the depth to the hardpan and to bedrock in the Jestricks soil.

Cropland

Commonly grown crops: Irrigated wheat, barley, sugar beets, potatoes, and corn

Major management considerations:

- Irrigation water management is needed to overcome the low available water capacity of the Jestricks soil.
- Excavation for irrigation mainlines and ditches is limited by the depth to the hardpan and to bedrock in the Jestricks soil.
- Suitable management practices are needed to overcome the hazards of wind and water erosion.
- Commonly used irrigation methods include sprinkler, furrow, and corrugation systems.
- The risk of erosion is increased in areas where furrow or corrugation irrigation systems are used.
- Sprinkler irrigation is the most suitable method of applying water.

Hayland and Pasture

Commonly grown crops: Irrigated alfalfa hay and pasture

Major management considerations:

- Irrigation water management is needed to overcome the low available water capacity of the Jestricks soil.
- Excavation for irrigation mainlines and ditches is

limited by the depth to the hardpan and to bedrock in the Jestricks soil.

- Suitable management practices are needed to overcome the hazards of wind and water erosion.
- Commonly used irrigation methods include sprinkler, furrow, and corrugation systems.
- The risk of erosion is increased in areas where furrow or corrugation irrigation systems are used.
- Sprinkler irrigation is the most suitable method of applying water.

Interpretive Groups

Capability classification: IIIe, irrigated, and VIe, nonirrigated

Range site: Jestricks soil—011XY003ID Loamy 7-10 ARTRW8/ACTH7; Kecko soil—011AY009ID Loamy 8-12 ARTRT/PSPP6

93—Jestricks-Starbuck-Kecko complex, 1 to 6 percent slopes

Composition

Jestricks loamy very fine sand and similar inclusions—
35 percent

Starbuck loamy very fine sand and similar inclusions—
30 percent

Kecko loamy very fine sand and similar inclusions—
20 percent

*Contrasting inclusions—*15 percent

Setting

Elevation: 2,900 to 3,500 feet

Average annual precipitation: About 10 inches

Average annual air temperature: About 49 degrees F

Frost-free period: About 110 days

Characteristics of the Jestricks Soil

Position on landscape: Convex areas on basalt plains

Typical profile:

0 to 9 inches—brown loamy very fine sand

9 to 13 inches—pale brown fine sandy loam

13 to 26 inches—very pale brown cobbly fine sandy loam

26 to 29 inches—white, lime- and silica-cemented hardpan

29 inches—basalt

Depth class: Moderately deep to a hardpan

Drainage class: Somewhat excessively drained

Permeability: Moderately rapid

Available water capacity: Low

Potential rooting depth: 21 to 32 inches

Restriction to rooting depth: Lime- and silica-cemented hardpan at a depth of 26 inches

Table 11.--Construction Materials

(Some terms that describe restrictive soil features are defined in the Glossary. See text for definitions of "good," "fair," and other terms. Absence of an entry indicates that the soil was not rated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation)

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
1----- Ackelton	Fair: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
2: Ackelton-----	Fair: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
Idow-----	Poor: cemented pan, low strength.	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, too clayey, small stones.
3: Ackelton-----	Fair: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
Jestrick----- Rock outcrop.	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
4: Ackelton-----	Fair: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
Recko-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
5: Ackelton-----	Fair: cemented pan, shrink-swell, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
Wako-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, too clayey, large stones.
6, 7: Ackelton-----	Fair: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.
Wako-----	Poor: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Fair: cemented pan, too clayey, small stones.
8: Ackelton-----	Fair: cemented pan.	Improbable: excess fines.	Improbable: excess fines.	Fair: too clayey, small stones.

Table 11.--Construction Materials--Continued

Soil name and map symbol	Roadfill	Sand	Gravel	Topsoil
89----- Jestrick	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Fair: depth to rock, cemented pan, small stones.
90: Jestrick-----	Poor: depth to rock.	Improbable: thin layer.	Improbable: too sandy.	Poor: too sandy.
Fathom-----	Fair: cemented pan, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Poor: too sandy.
91: Jestrick-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Fair: depth to rock, cemented pan, small stones.
Kecko-----	Fair: cemented pan, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, area reclaim, small stones.
92: Jestrick-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Fair: depth to rock, cemented pan, small stones.
Kecko-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
Rock outcrop.				
93: Jestrick-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: small stones.
Starbuck-----	Poor: depth to rock.	Improbable: excess fines.	Improbable: excess fines.	Poor: depth to rock.
Kecko-----	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
94----- Kecko	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
95----- Kecko	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, small stones.
96----- Kecko	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: small stones.
97, 98----- Kecko	Good-----	Improbable: excess fines.	Improbable: excess fines.	Fair: too sandy, small stones.
99----- Kecko	Fair: cemented pan, thin layer.	Improbable: excess fines.	Improbable: excess fines.	Fair: area reclaim, small stones.

Table 12.--Water Management

(Some terms that describe restrictive soil features are defined in the glossary. See text for definitions of "slight," "moderate," and "severe." Absence of an entry indicates that the soil was not evaluated. The information in this table indicates the dominant soil condition but does not eliminate the need for onsite investigation.)

Soil name and map symbol	Limitations for--			Features affecting--		
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions
1:----- Ackelton	Moderate: seepage, cemented pan.	Severe: thin layer.	Severe: no water.	Deep to water	Soil blowing----	Soil blowing----Favorable.
2:----- Ackelton	Moderate: seepage, cemented pan.	Severe: thin layer.	Severe: no water.	Deep to water	Fast intake, soil blowing.	Soil blowing----Favorable.
Idow-----	Moderate: cemented pan.	Moderate: thin layer, piling.	Severe: no water.	Deep to water	Fast intake, cemented pan.	Cemented pan----Too arid, cemented pan.
3:----- Ackelton	Moderate: seepage, cemented pan, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, fast intake, soil blowing.	Soil blowing----Favorable.
Jestrick-----	Severe: seepage, slope.	Severe: piling.	Severe: no water.	Deep to water	Slope, droughty, soil blowing.	Slope, depth to rock, cemented pan. Too arid, slope, droughty.
Rock outcrop.						
4:----- Ackelton	Moderate: seepage, cemented pan, slope.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, fast intake, soil blowing.	Soil blowing----Favorable.
Kach-----	Severe: seepage.	Severe: piling.	Severe: no water.	Deep to water	Slope, fast intake.	Soil blowing----Too arid.
5:----- Ackelton	Severe: seepage.	Severe: thin layer.	Severe: no water.	Deep to water	Slope, fast intake, soil blowing.	Soil blowing----Favorable.

Table 12.--Water Management--Continued

Soil name and map symbol	Limitations for--			Features affecting--			
	Pond reservoir areas	Embankments, dikes, and levees	Aquifer-fed excavated ponds	Drainage	Irrigation	Terraces and diversions	Grassed waterways
88----- Jestrick	Severe: seepage.	Severe: piling.	Severe: no water.	Deep to water	Droughty, soil blowing.	Depth to rock, cemented pan.	Too arid, droughty.
89----- Jestrick	Severe: seepage.	Severe: piling.	Severe: no water.	Deep to water	Soil blowing---	Depth to rock, cemented pan.	Too arid.
90: Jestrick-----	Severe: seepage.	Severe: seepage, piling.	Severe: no water.	Deep to water	Droughty, fast intake.	Depth to rock, cemented pan.	Too arid, droughty.
Fathom-----	Severe: seepage.	Severe: seepage, piling.	Severe: no water.	Deep to water	Droughty, fast intake.	Too sandy, soil blowing.	Too arid, droughty.
91: Jestrick-----	Severe: seepage.	Severe: piling.	Severe: no water.	Deep to water	Slope, soil blowing.	Depth to rock, cemented pan.	Too arid.
Kacko-----	Severe: seepage.	Severe: piling.	Severe: no water.	Deep to water	Slope, fast intake, soil blowing.	Soil blowing---	Too arid.
92: Jestrick-----	Severe: seepage.	Severe: piling.	Severe: no water.	Deep to water	Slope, soil blowing.	Depth to rock, cemented pan.	Too arid.
Kacko-----	Severe: seepage.	Severe: piling.	Severe: no water.	Deep to water	Slope-----	Soil blowing---	Too arid.
Rock outcrop.							
93: Jestrick-----	Severe: seepage.	Severe: piling.	Severe: no water.	Deep to water	Slope, droughty, soil blowing.	Depth to rock, cemented pan.	Too arid, droughty.
Starbuck-----	Severe: depth to rock.	Severe: piling.	Severe: no water.	Deep to water	Slope, fast intake, depth to rock.	Depth to rock, erodes easily.	Too arid, erodes easily.
Kacko-----	Severe: seepage.	Severe: piling.	Severe: no water.	Deep to water	Slope, fast intake.	Soil blowing---	Too arid.

ROBERT E. WILLIAMS

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Facsimile: (208) 324-3135

RECEIVED

JUN 05 2006

DEPT. OF WATER RESOURCES
SOUTHERN REGION

Attorney for Applicant Diamond A. Livestock, Inc.

BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE STATE OF IDAHO

IN THE MATTER OF APPLICATIONS
FOR TRANSFER NOS. 72177 & 72178

DIAMOND A LIVESTOCK, INC.

Applicant

HEIDI OLSON, POLLY ANN HUGGINS,
NICOLE REED, STEVE PAULIN,
LEANN REED, & CHRISTINE DAVIS,

Protestants

SOURCE: Groundwater

County: Gooding

FINAL WITNESS LIST AND EXHIBIT
LIST OF APPLICANT, DIAMOND A
LIVESTOCK, INC.

The Applicant, Diamond A Livestock, Inc., through his attorney, Robert E. Williams, hereby produces its Final List of Witnesses and List of Exhibits pursuant to the Department's Pre-Hearing Order as follows:

WITNESS LIST:

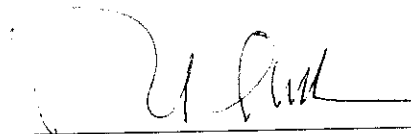
Fred Faulkner
Jay Faulkner
Charles G. Brockway
Robert Ohlensehlen

EXHIBIT LIST:

1. Ariel photo showing application location, protestant wells, and other features.
2. Map showing distance to protestant wells.
3. Map showing site location with respect to the ESRPA.
4. Well interference study.
5. Selected drilling records utilized for analysis.
6. Groundwater quality in the direct vicinity of the applicant's property- nitrate nitrogen.
7. Water Balance Analysis
8. Summary of Water Quality and Nutrient Loadings
9. Diamond A – Truck Wash Facility Permit Application Materials

DATED this 2nd day of June, 2006.

FREDERICKSEN, WILLIAMS, MESERVY & LOTHSPREICH, LLP



ROBERT E. WILLIAMS
Attorney for Applicant

CERTIFICATE OF SERVICE

I HEREBY CERTIFY That on this 2nd day of June, 2006, I served a true and correct copy of the foregoing document on the person(s) whose names and addresses appear below by the method indicated:

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Nicole Reed Le Ann Reed 2094 Hwy 46 Gooding, Idaho 83330	☒ U.S. Mail, postage prepaid ☐ Hand Delivery ☐ Court Folder ☐ Facsimile ☐ Federal Express
Steve Paulin 2185 S 1800 E Gooding, Idaho 83330	☒ U.S. Mail, postage prepaid ☐ Hand Delivery ☐ Court Folder ☐ Facsimile ☐ Federal Express
Christine Davis 2726 S 850 E Hagerman, Idaho 83332	☒ U.S. Mail, postage prepaid ☐ Hand Delivery ☐ Court Folder ☐ Facsimile ☐ Federal Express

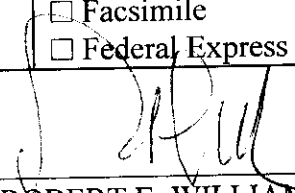

ROBERT E. WILLIAMS

EXHIBIT 7

ANALYSIS OF WATER RIGHT TRANSFER TO DAIRY: 72177 Brockway Engineering, PLLC 6/1/06

*****TYPICAL YEAR Long Term*****

Water rights: Existing commercial right 37-21492 & Irrigation right 37-21491
ET determined from Allen & Brockway (1983) using Jerome station

Alfalfa CIR 920 mm/year
3.02 af/ac

CURRENT

Usage: 2.0 acres irrigation with GW as primary source
plus existing commercial facility w/ land app of waste

Total irrigated area	2.0 acres (g.w.)	Irrigated area	0.0 acres
Crop consumptive irrig req't	3.02 ac-ft/acre	Crop consumptive irrig.req't	3.02 ac-ft/acre
Diversion volume	4.0 ac-ft/acre	Diversion volume for irrig.	4.0 ac-ft/ac
Irrigation Diversion Volume	8 ac-ft/year	Facility diversion volume	10.8 ac-ft/yr
Existing facility diversion volume	2.8 ac-ft/yr	Facility consumptive use*	8.1 ac-ft/yr
Existing facility consumptive use*	2.1 ac-ft/yr	Maximum diversion rate	0.08 cfs
Maximum diversion rate - both rights	0.08 cfs		

Water balance calculation: **(All values in acre-feet)**

Total irrigation water applied to crop	8.0
Total volume used by existing comm. right	2.8
Volume supplied by g.w.	10.8
Total consumptive irrigation req't	6.0
Consumptive use of existing comm. right	2.1
C.U. supplied by g.w.	8.1
Return to aquifer	2.7

Aquifer net gain/loss

-8.1

AFTER TRANSFER

Usage: Proposed facility, land application of waste

Irrigated area	0.0 acres
Crop consumptive irrig.req't	3.02 ac-ft/acre
Diversion volume for irrig.	4.0 ac-ft/ac
Facility diversion volume	10.8 ac-ft/yr
Facility consumptive use*	8.1 ac-ft/yr
Maximum diversion rate	0.08 cfs

Water balance calculation: **(All values in acre-feet)**

Total irrigation water applied to crop	0
Total volume used in facility	10.8
Total volume needed on site	10.8
Volume supplied by g.w.	10.8
Consumptive irrig.req't of crop	0.0
Consumptive use of facility*	8.1
Total consumptive req't	8.1
C.U. supplied by g.w.	8.1
Return to aquifer	2.7

Aquifer net gain/loss

-8.1

Notes:

* Water is land applied, therefore consumptive use is assumed to be 75% of diversion volume based on irrigation efficiency

EXHIBIT 8

Diamond A Livestock Truck Wash Summary of Water Quality and Nutrient Loadings

Brockway Engineering, PLLC
C. G. Brockway, P.E. May 31, 2006

Water sample taken from existing lagoon

Sample Date: May 9, 2006
Laboratory: Magic Valley Labs, Twin Falls, Idaho

Nitrate-N	0.09 mg/l
TKN	50.0 mg/l
Total P	15.5 mg/l
Gasoline	<3 mg/l
Diesel	<23 mg/l
Lube Oil	73.1 mg/l

Nutrient loading

Effluent volume: 10.8 ac-ft/year applied to the land
Crop uptake: 300 lb/acre N and 50 lb/acre P for alfalfa hay
Total annual loading: 1470 lb N and 455 lb P, assuming above nutrient concentrations.
Acreage required for uptake: 4.9 acres for N and 9.1 acres for P

Conclusion: More than adequate land exists for complete renovation of the effluent nutrient content.

MAGIC VALLEY LABS
210 Addison Ave / PO Box 1867
Twin Falls ID 83303-1867
Phone: (208) 733-4250
Fax: (208) 734-2539

RECEIVED

JUN 01 2006

CHUCK BROCKWAY
BROCKWAY ENGINEERING

2016 N. WASHINGTON #4
TWIN FALLS ID 83301

Collection Date 5/9/2006		Received Date 5/10/2006	Location	
Collection Time		Received Time 10:02 AM	DIAMOND A LIVESTOCK LAGOON (TRUCK WASH)	
Sample #	Test / Method Code	Results in mg/L	Date Analyzed	Analyst
613691	GASOLINE	< 3	5/11/2006	GF
613692	DIESEL	< 23	5/11/2006	GF
613693	LUBE OIL	73.1	5/11/2006	GF
613694	NITRATE/N EPA300.0	0.09	5/12/2006	TF
613695	TKN PA1-DK03	50.0	5/18/2006	SK
613696	TOTAL P EPA365.2	15.5	5/25/2006	SK

FECAL COLIFORM = 50 CFU/100ML

Signature

Report Date: Thursday, June 01, 2006

EXHIBIT 9



Solutions for Animals, Plants and People

June 1, 2006

**DIAMOND A - TRUCK WASH FACILITY
PERMIT APPLICATION MATERIALS**

Prepared for Diamond A Livestock

Description of Facilities:

The proposed truck wash facility is located in T-6S R-15E in Section 19. The physical location of the facility is 2.65 miles south of the junction of US Hwy 26 and State Hwy 46 in Gooding, Idaho.

The site also serves as the location of an existing feedlot facility. The feedlot is permitted for 3,500 animal units in Gooding County. Currently the facility is being used for up to 2,750 head of beef and 600 dairy heifers. The beef cattle being fed range in weight from 500 to 1,300 lbs. The feedlot's heaviest use for beef animals will be from weaning time in September/October until the first of March. There may be cattle in the lot through June and the permit allows for the lot to be occupied year round. In addition to the beef cattle in the feedlot, there are up to 600 head of dairy heifers averaging 600 lbs in weight that are housed for short term to year round as well. There are up to an average of 435 head of yearling beef animals that are run on the pasture that is a part of the farming operation. There are also times during the year when mature beef animals may be on the farm to do aftermath grazing. The number and duration of these animals varies greatly.

Refer to the attached information relative to the truck wash to obtain specifics on the assumptions used in determining the water used and the manure which is a part of the plan for the truck wash.

The following pages provide the necessary information to obtain a permit from the State of Idaho for a Commercial Truck Washing Facility.

For questions please feel free to contact me.

Sincerely,

A handwritten signature in cursive script that reads 'Bob Ohlenschlen'.

Bob Ohlenschlen
Certified Nutrient Management Planner
Professional Animal Scientist

Application for Commercial Livestock Truck Washing Facility
In Accordance with IDAPA 02.04.23

1. Name of Owner/Operator of CLTWF

Diamond A Livestock

Owners:

Fred Faulkner
1997 S 1875 E
Gooding, ID 83330
(208) 934-5391

Jay Faulkner
1877 E 2000 S
Gooding, ID 83301
Home Phone: (208) 934-9088
Cell Phone (208) 539-6652

2. Physical Location of the CLTWF

2175 State Highway 46
Gooding, ID 83301
2.65 Miles South of Intersection of US Hwy 26 and State Hwy 46 – on West Side
of Road

3. Scaled Vicinity Map with Site Location

Vicinity Map with Site Location Including the following:

- a. Homes, schools, churches etc within 1 mile – Refer to **Exhibit 1**
- b. Private and community domestic water wells, irrigation wells, existing monitoring wells and injection wells –source IDWR – Refer to **Exhibit 1**
- c. Irrigation canals, irrigation laterals, rivers, streams, springs, lakes, reservoirs and designated wetlands within 1 mile. – Refer to **Exhibit 1**
- d. Location of all land application sites – Refer to **Exhibit 2**
- e. FEMA Flood zones or other appropriate flood data for the CLTWF site and all land application sites – Refer to **Exhibit 3**
- f. Topographic map of the area within one mile of the site – **Exhibit 4**

4. Scaled Site Plan – Showing buildings , process waste water and manure storage areas, piping and roadways. Truck Wash Site – Refer to **Exhibit 5A, 5B, 5C & 5D**

5. Land Application System – A detailed description of the description of the proposed management practices and methods used to make land application including:

- a. Calculations used in determining water and manure containment requirements – Refer to **Exhibit 6A & 6B.**
- b. Timing, frequency and duration of practices. – Refer to **Exhibit 7**
- c. Proximity of land application sites to residential and public use areas. – Refer to **Exhibit 7**

6. **Nutrient Management Plan** – a NMP for all land where manure or process waste water from the CLTWF is land applied. – Refer to **Exhibit 8** Note: Since the facility is associated with a feedlot facility all of the livestock operation is included in the Nutrient Management Plan. The land owned by the applicants is adequate for the manure produced by both the livestock and the truck washing facility.

Signature of Applicants-

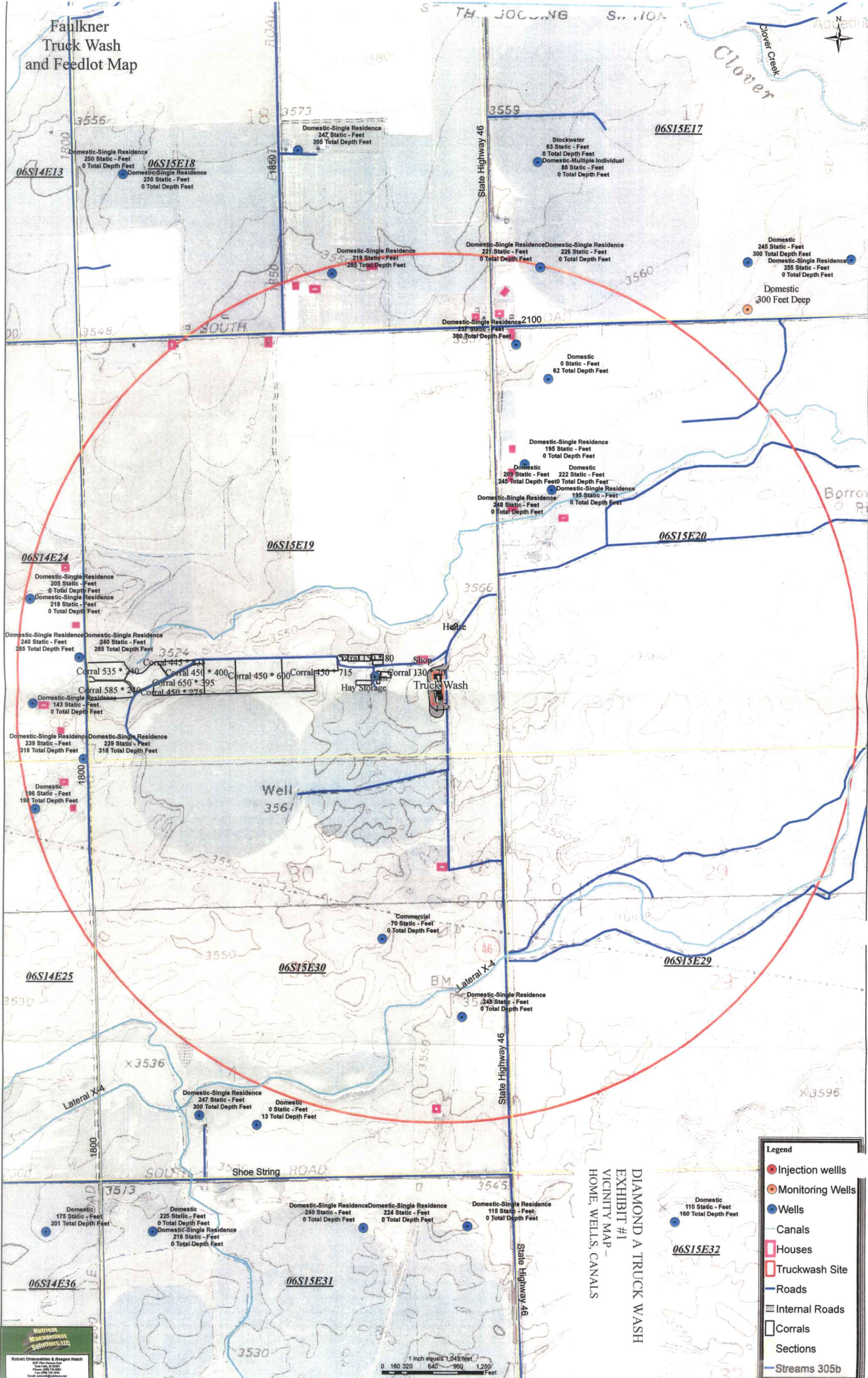
Fred Faulkner

Date

Jay Faulkner

Date

Faulkner
Truck Wash
and Feedlot Map

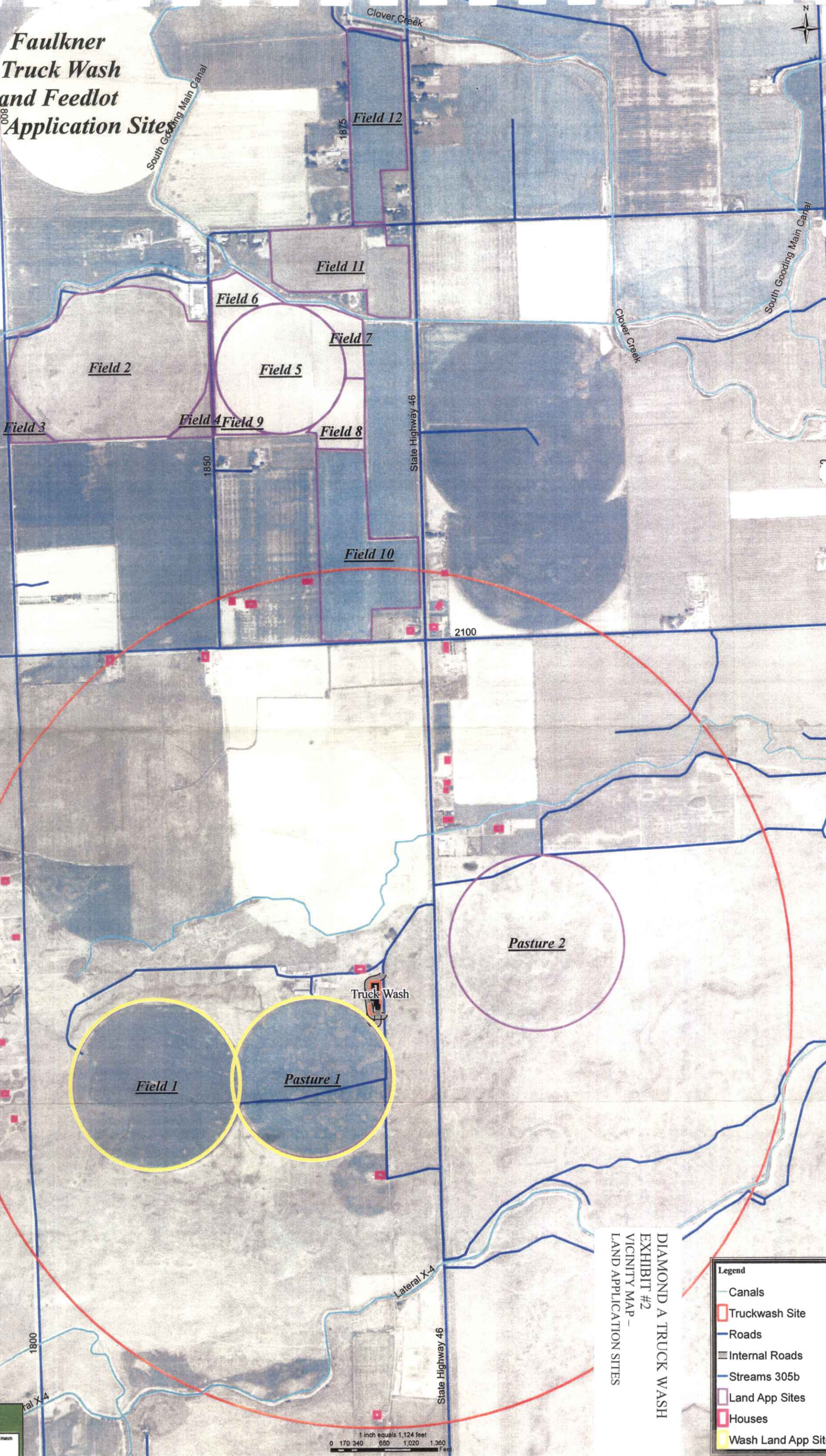


Legend

- Injection wells
- Monitoring Wells
- Wells
- Canals
- Houses
- Truckwash Site
- Roads
- Internal Roads
- Corrals
- Sections
- Streams 305b

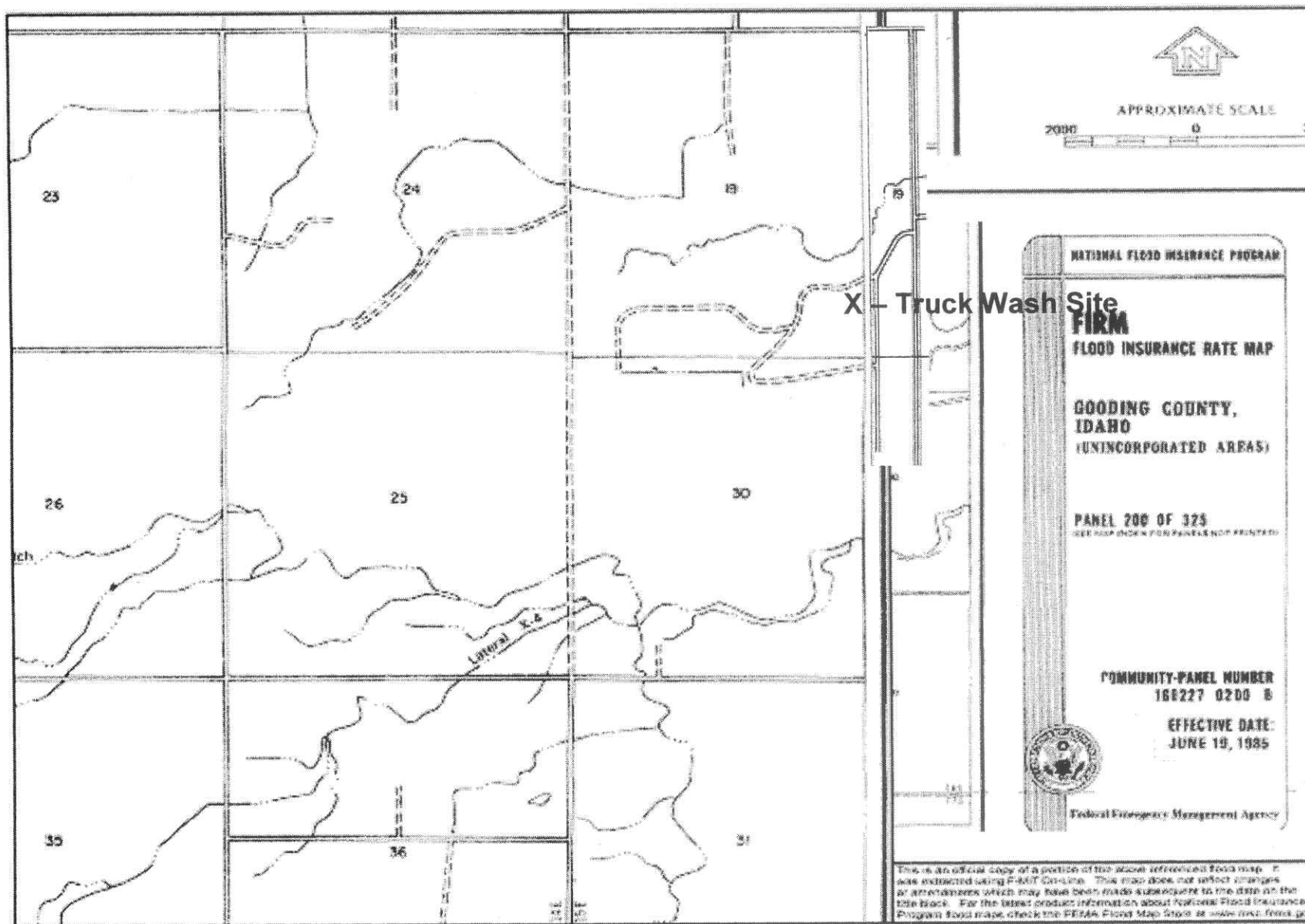
DIAMOND A TRUCK WASH
EXHIBIT #1
VICINITY MAP -
HOME, WELLS, CANALS

Faulkner Truck Wash and Feedlot Land Application Sites



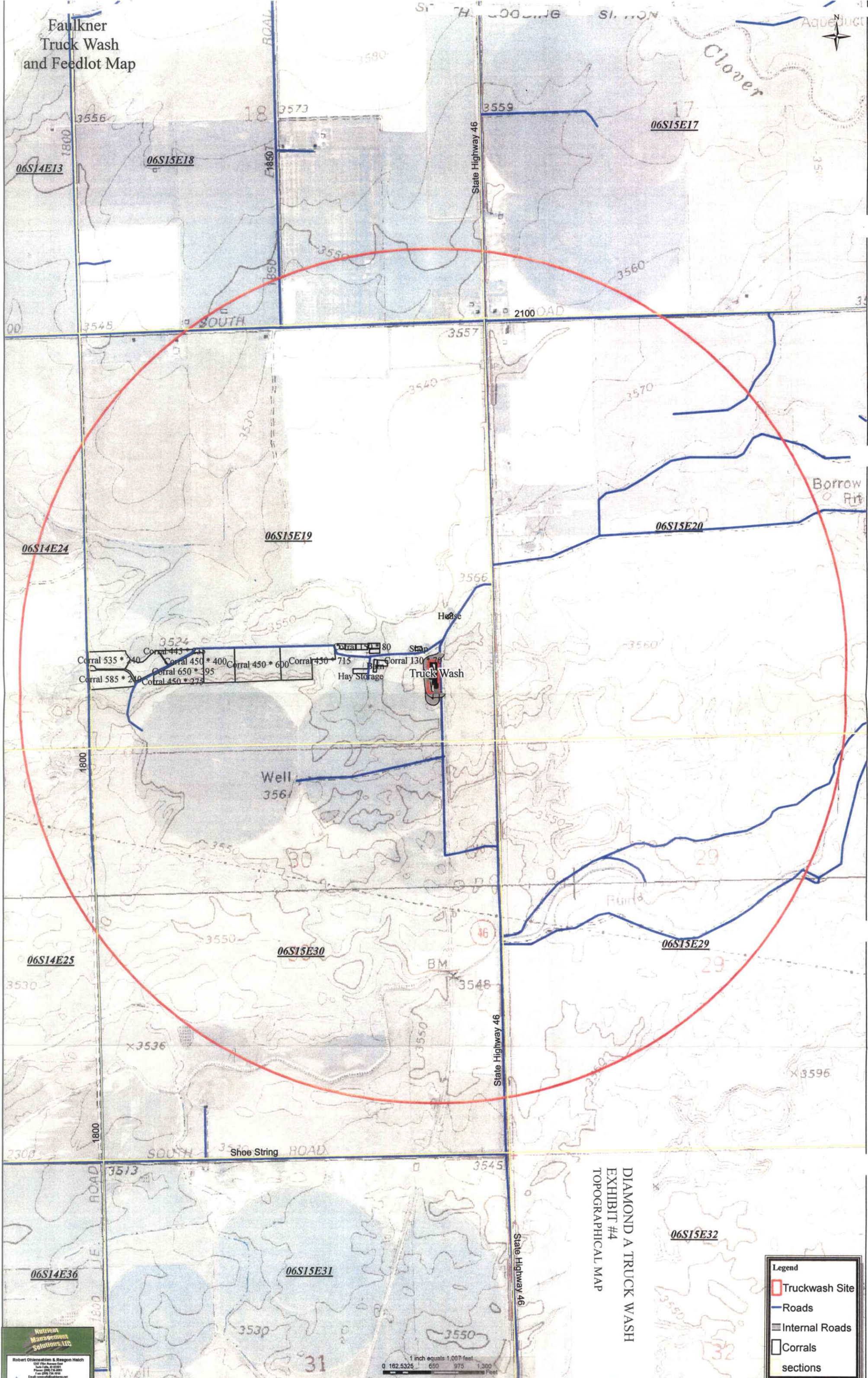
**DIAMOND A TRUCK WASH
EXHIBIT #2
VICINITY MAP -
LAND APPLICATION SITES**

- Legend**
- Canals
 - Truckwash Site
 - Roads
 - Internal Roads
 - Streams 305b
 - Land App Sites
 - Houses
 - Wash Land App Sites



DIAMOND A TRUCK WASH
EXHIBIT #3
FEMA FLOOD ZONE MAP

Faulkner
Truck Wash
and Feedlot Map

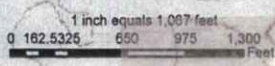


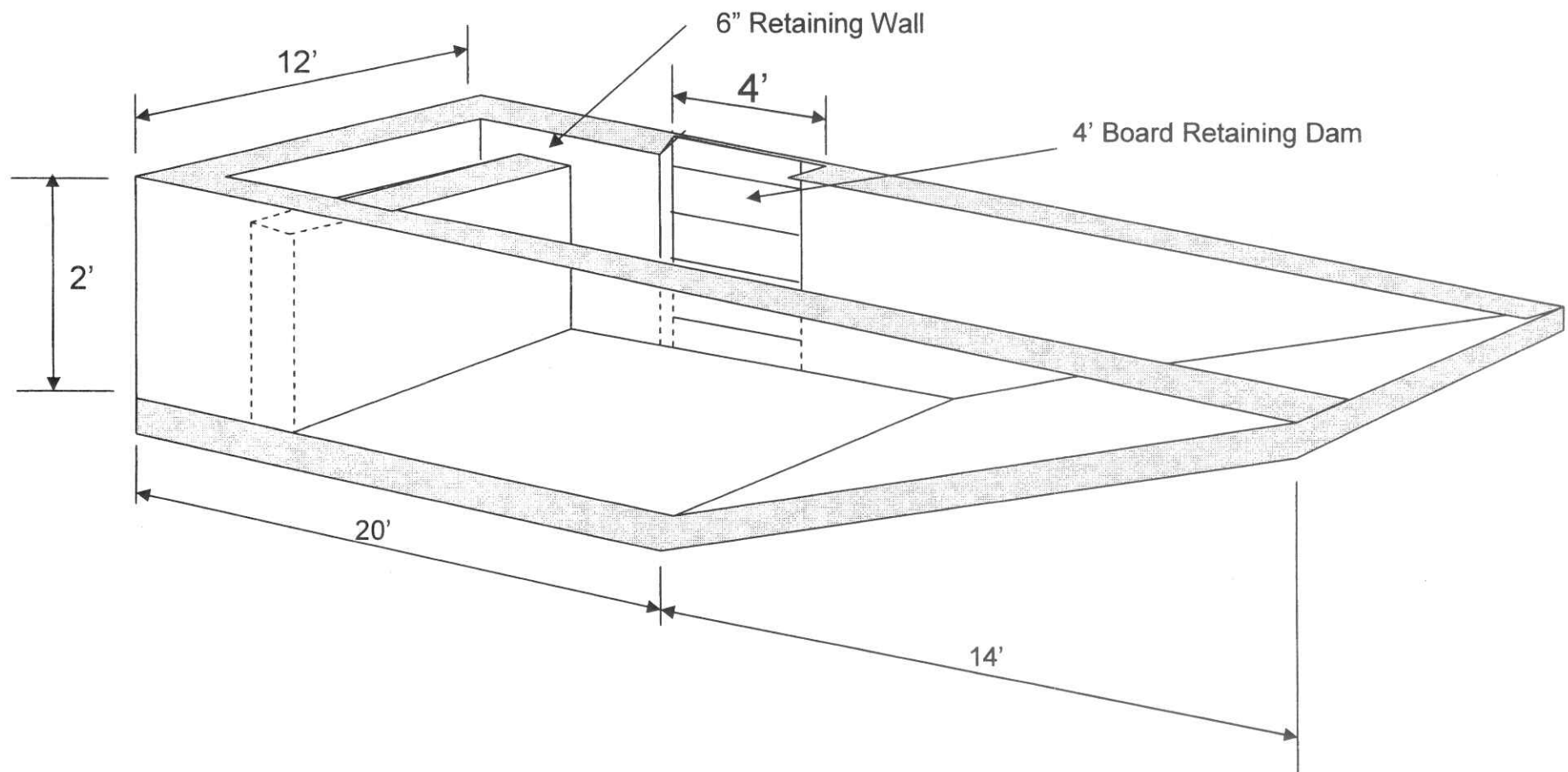
DIAMOND A TRUCK WASH
EXHIBIT #4
TOPOGRAPHICAL MAP

Legend

- Truckwash Site
- Roads
- Internal Roads
- Corrals
- sections

Nutrient Management Solutions, LLC
Robert Oltershausen & Reagan Hatch
1500 E. Highway 46
Tulsa, Oklahoma 74103
Phone: (918) 742-0001
Fax: (918) 742-0002
Email: info@nutrientsolutions.com

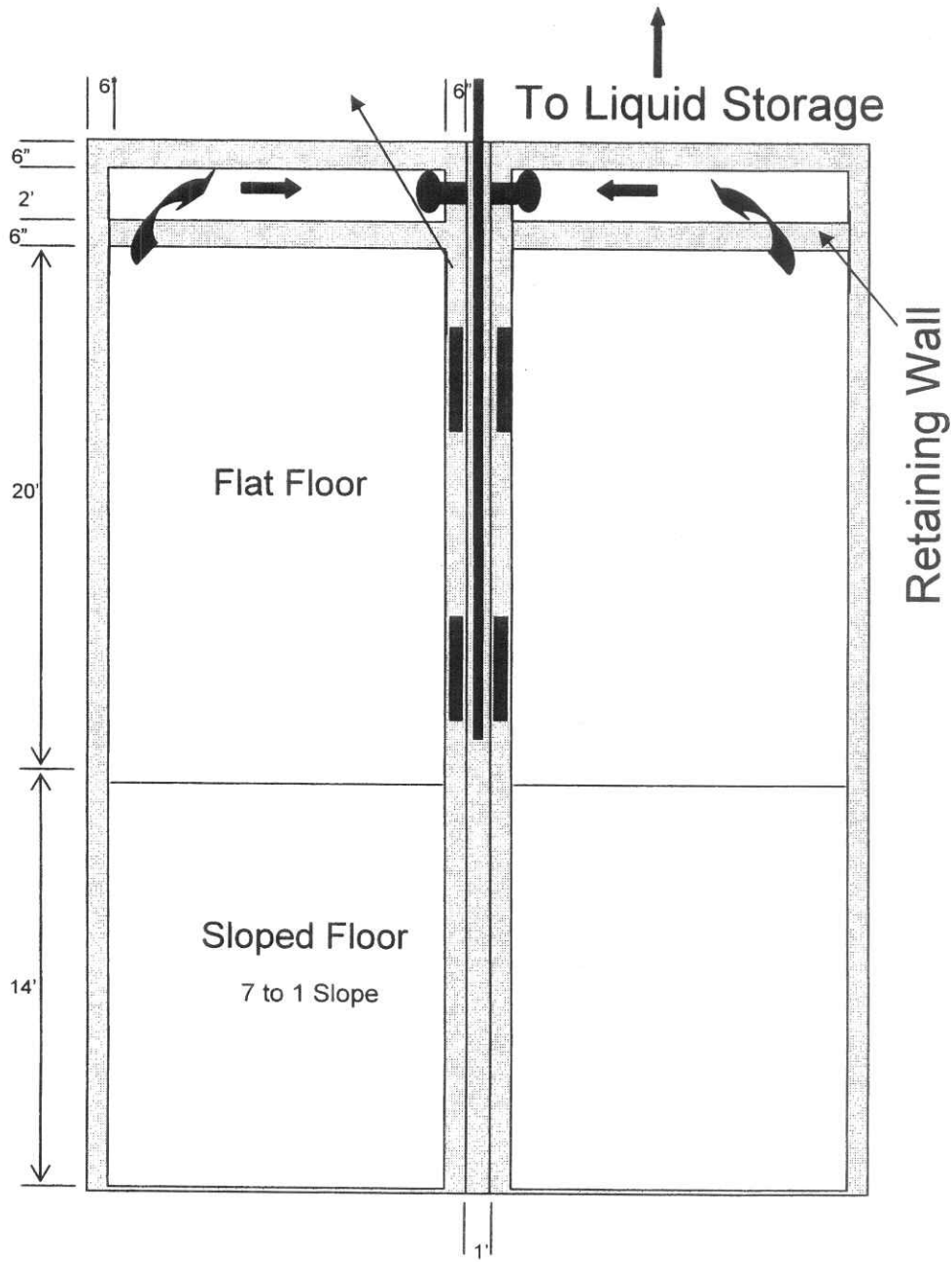




Solid Separator Cell – Side View

DIAMOND A TRUCK WASH
EXHIBIT #5B
SCALED SITE PLAN
SOLID SEPARATOR – SIDE VIEW

DIAMOND A TRUCK WASH
EXHIBIT #5C
SCALED SITE PLAN
SOLID SEPARATOR - TOP VIEW



Solid Separator - 2 cell - Top view

Faulkner Truck Wash and Feedlot Map

DIAMOND A TRUCK WASH
EXHIBIT #5D
SCALED SITE PLAN
TRUCK WASH & FEEDLOT



House

Shop

Truck Wash

Corral 535 * 240

Corral 585 * 240

Corral 450 * 275

Corral 445 * 235

Corral 650 * 395

Corral 450 * 400

Corral 450 * 600

Corral 450 * 715

Building
Corral 150 * 800

Corral 150 * 40

Corral 130 * 70

Corral 130 * 70

Hay Storage

Legend

Truckwash Site

Roads

Internal Roads

Corrals

sections

06S15E30

1 inch equals 287 feet
0 70 140 280 420 560 Feet

Nutrient
Management
Solutions, LLC

Robert Olsen
201 W. 1st St.
Tulsa, Oklahoma 74101
Phone: (918) 736-8891
Fax: (918) 736-8892
Email: r.olsen@nutrientsolutions.net

Fred / Jay Faulkner - Truck Wash Facility**Water Usage**

	High	Low	
Trucks per Day	6	2	
Gallons per Truck	1,500	1,500	Gallons
Wash Time @ 25gpm	60	60	Minutes
Total Daily Water Use....	9,000	3,000	Gallons Per Day

Permitted Water

10.8 Acre Feet Annually
 3,518,951 Gallons Annually
 11,279 Gallons / Day 52 weeks
 6 days per week

Manure To Be Handled

Avg Time on Trucks	4 hour
Average Wt of Cattle	1000 pounds
Average Number of Head	45 Head
Amount of Shavings	120 cuft / truck
% Trucks with Shavings	20%
% of Solids Separated	60%
Time to Store Water	150 days

DIAMOND A TRUCK WASH
 EXHIBIT #6A
 WATER USE CALCS

Waste Water to be Stored

	Daily	Annual		
Average Water Use	6,000	2,190,000	Gallons	6.7 Acre Ft
Water to be Stored		120,321	Cu.Ft.	
Manure from Trucks	53	16,380	Cu.Ft.	10
Solids to Storage Pond	21	6,552	Cu.Ft.	
Separated Solids	32	9,828	Cu.Ft.	

Storage Pond

Storage Required in this Structure	126,873 Cu. Ft.
Number of Cells in the Storage	1
Width of Storage Cells	50 Feet
Length of Storage Cells	530 Feet
Depth of Storage Cells	10 Feet
Freeboard for Storage	1 Feet
Side Slope of Interior Walls	2 to 1
Total Amount of Storage in this Structure...	128,016 Cu. Ft.

Additional Storage Needed **- Cu.Ft.**

Separator Sizing

Number of Times to Clean Annually ..	12	With both cells empty on November 1
Number of Cells	4	the wash will last until
Width of Cells	12 Feet	
Depth of Cells	2 Feet	
Overall Length of Cells	34 Feet	
Freeboard	6 inches	
Slope of Apron	7 to 1	14 Feet Length of Slope
Volume of Separators	1,818 CuFt	20 Feet Rectangular Portion
Volume Needed	1,760 CuFt for	30 days

Livestock Manure Value Used	Nitrogen lb/day	P ₂ O ₅ lb/day	K ₂ O lb /day	Nitrogen lb/cu	P ₂ O ₅ lb/cuft	K ₂ O lb /cuft
1.3 CuFt	0.26	0.19	0.22	0.187	0.137	0.158

			Nitrogen / Day	P ₂ O ₅ / Day	K ₂ O / Day		P ₂ O ₅ / Annual	Acres @ 100 Lbs	Acres @ 80 Lbs
Manure from Trucks Daily.....	53	CuFt	9.82	7.18	8.31				
Manure to Liquid Storage.....	21	CuFt	3.93	2.87	3.32		896	9.0	11.2
Manure Solids Separated.....	32	CuFt	5.89	4.31	4.99		1343	13.4	16.8
							N lb/1000gal	P ₂ O ₅ lb/1000 gal	K ₂ O lb /1000 gal
							0.621	0.454	0.525
							N lb/Ton	P ₂ O ₅ lb/Ton	K ₂ O lb /Ton
							5.94	4.34	5.02

Gallons of Liquids. 2,190,000 Gallons
Tons of Solids..... 310 Tons

DIAMOND A TRUCK WASH
EXHIBIT #6B
MANURE CONTAIN REQUIREMENTS

DIAMOND A TRUCK WASH & FEEDLOT

Land Application System –

The following document provides a detailed description of the proposed management practices of the truck wash and the methods used to make land application including:

a. Calculations used in determining water and manure containment requirements

The calculations used to determine the storage of water and the amount of solids that will be separated from the process water are included in **Exhibit 6**. The expected high number of washes per day is estimated to be 6, while the low is expected to be 2, with the average being 3 per day. The expected water use will be 6,000 gallons per day. Washing the average number of trucks 6 days per week for 52 weeks per year would require a total of 6.7 acre feet of water.

Manure calculations are based on the expected time that animals will be on the truck. Using the manure excretion value for 1,000 lb beef cattle for an average 4-hour trip, the expected manure would be 16.7% of the daily excretion of manure for the 45 animals on an individual truck. In addition to manure, an estimated 20% of the trucks being washed would have shavings in the truck.

To increase the time between sludge removal for the storage pond, a solid separator will be used to remove an estimated 60% of the solids. The separated manure and bedding solids will be stored adjacent to the separator cells until they are land applied in the spring and fall on cropland in accordance with the NMP. Any runoff from the storage area will be either contained with berms or it will be allowed to drain into the storage pond.

The truck wash facility is designed to be operated 6 days per week for 52 weeks per year. In reality there is little likelihood it will be operated in the winter months of December and January, or at the least, the frequency of use will be substantially below the calculated average. The reduced operation during times of the year such as the winter will result in a system being constructed that exceeds the needs based on actual usage.

b. Timing, frequency and duration of practices. – Refer to Exhibit 7

The application of liquids will occur during the growing season. The land to which the liquids will be applied is in permanent irrigated grass pasture. Since the land is in permanent pasture the growing season would be extended beyond that normally expected where row crops are produced. As such the length of containment used for containment of process water used was 150 days. The required land to apply the liquids based on the application of phosphorus would be between 9 & 11.2 acres, depending on the productivity of the pasture. The land application site which is designated on the land application maps as Pasture 1 is 72 acres in area.

Additional land is required for the application of solids. The amount of land needed for solids application is 13.4 – 16.8 acres, again depending on the productivity of the crop being raised. Clearly the pasture and cropland designated as Field 1 are more than adequate to accommodate the nutrients found in the material generated by the truck wash.

The timing of application of liquids would be expected to occur as needed from April 1 through November 1. The pond will be kept at a minimum level during the warm months to provide a reduction in the potential for odors. The application of liquids will be done using gated pipe; this practice will also be a deterrent to odors.

Application of the solids will occur in the spring prior to planting and in the fall after harvest on cropland. Solids applied to cropland will be incorporated as soon as is practical after application, generally within one week of application.

c. Proximity of land application sites to residential and public use areas. – Refer to Exhibit 7

The nearest home is 440' from the pasture where liquids will be applied; however, the liquids will be likely be applied on the north side of the pasture which would increase the distance to 1,365' or farther. The next nearest home is located 2,860' to the northwest of the pasture where liquids will be applied. The application of solids will be made to the pasture and to the cropland designated as Field 1, which is located farther from these two homes, but is located 750 feet to the west of another home.

There is also a veterinary clinic which is located 2,250' northeast of the wash facility and 2,340' northwest of the liquid application site.

Exhibit 7 shows the application areas for the truck wash specifically as well as for the rest of the nutrients being applied from the feedlot facility.

Diamond A
Truck Wash & Feedlot
Nutrient Management Plan

DIAMOND A TRUCK WASH
EXHIBIT #8
NUTRIENT MANAGEMENT PLAN

Agriculture . . .
Launching into
the Future



Nutrient Management Plan Prepared For:

Fred Faulkner
(208) 934-5391

Jay Faulkner
(208) 934-9088

Faulkner Truck Wash

Certified Planner:

Robert Ohlensehlen

Certified Nutrient Management Planner, Nutrient Management Solutions

(208) 736-6081

Producer Signature: _____

Certified Planner Signature: _____

Date Completed: 5/24/06

The information provided by those using the "Idaho OnePlan" shall be deemed to be trade secrets, production records, or other proprietary information and shall be kept confidential and shall be exempt from disclosure pursuant to section 9-340D, Idaho Code. (Title 22 Chapter 27.17D6)

PRODUCER SUMMARY

Facility Summary – This plan is prepared to meet the requirements for a new truck wash facility permit. The facility is located at T-6S R-15E in Section 19. The site is also the location of an existing feedlot facility. The feedlot is permitted for 3500 animal units in Gooding County. Currently the facility is being used for up to 2750 head of beef animals. The beef cattle being fed range in weight from 500 to 1300lbs. The feedlot is most heavily used from weaning time in September/October until the first of March. There may be cattle in the lot through June and the permit allows for the lot to be occupied year round. In addition to the beef cattle in the feedlot, there are up to 600 head of dairy heifers that are housed from short term to year round as well. There are up to an average of 435 head of yearling beef animals that are run on the pasture that is a part of the farming operation. There are also times during the year when mature beef animals may be on the farm to do aftermath grazing. The number and duration of these animals varies greatly.

Refer to the attached information relative to the truck wash to obtain specifics on the assumptions used in determining the water used and the manure which is a part of the plan for the truck wash.

Manure Application

The amount of land is more than sufficient to handle the nutrients produced from those animals that graze the pasture and the aftermath grazing as well as the normal operation of the feedlot and the truck wash. The corrals are rarely cleaned but for the purposes of this plan the estimate is that 50% of the manure in the corrals is hauled out and land applied annually. Liquid manure from the truck wash will be applied to the pasture adjacent to the wash facility using gated pipe. The land available for the application will accommodate the application with out any risk of runoff from the owned property.

Resource Concerns

The following table lists the resource concerns for the cropland that will be used for land application of solid and liquid waste.

Field	Resource Concern	P Threshold (ppm)	P Threshold Soil Test Depth
Field 1	Groundwater < 5'	20	18 - 24"
Pasture 1	Groundwater < 5'	20	18 - 24"
Pasture 2	Groundwater < 5'	20	18 - 24"
Field 2	Surface Water	40	0 - 12"
Field 3	Surface Water	40	0 - 12"
Field 4	Surface Water	40	0 - 12"
Field 5	Surface Water	40	0 - 12"
Field 6	Surface Water	40	0 - 12"
Field 7	Surface Water	40	0 - 12"
Field 8	Surface Water	40	0 - 12"
Field 9	Surface Water	40	0 - 12"
Field 10	Surface Water	40	0 - 12"
Field 11	Surface Water	40	0 - 12"
Field 12	Surface Water	40	0 - 12"

All fields, except for field 11, are sprinkler irrigated; however, several of the fields may have runoff occur due to slopes or drainages that run through the field. The fields where runoff is a concern are classed as having a surface water concern; those having no runoff are classed as ground water concern.

Fields having a shallow water table or a limiting layer will have a threshold of 20ppm while those with greater than 5 feet to water will have a threshold of 30 ppm. It is important to understand that the depth to water is impacted by the underlying soils and layers. Cobbles and bedrock can reduce the depth to the water table. The fields with surface water concerns will have a phosphorus threshold of 40ppm. Surface water resource concerns require that regulatory soil tests be taken from the 0-12" depth. The farmland with a ground water resource concern will require regulatory soil tests to be taken from the 0-12" depth and from the 18-24" depth. The threshold for ground water concerns in this case would be either 20ppm or 30ppm, as indicated in the table above, using the Olsen Test in the 18-24" sample of soil.

Storage and Handling Plan Requirements

Liquid effluent application is to begin and end with irrigation season. In the fall, liquid effluent accumulated in waste pond after the irrigation season may be applied to a growing crop or crop stubble prior to November 15th. When applying wastewater outside of the application window you are required to contact the Idaho Department of Agriculture, Dairy Bureau (208) 332-8550 prior to application.

Nutrient Management Plan Requirements

The producer will maintain field level records for a minimum of five years and make them available for review at routine waste inspections by ISDA personnel. These records must include.

- Soil tests. The producer must soil test all fields to which nutrients (commercial fertilizer or manure) will be applied that year. If nutrients are not applied to a field, a test will not be required that year. Soil tests will however, be required prior to any future nutrient application. These soil tests should be taken from 0-12 inches and should be used to develop the annual nutrient budget for each field.
 1. For fields that are classified as being a surface water concern, the phosphorus threshold is 40 ppm. If the phosphorus test exceeds 40 ppm, the producer shall not apply phosphorus (commercial fertilizer or manure) in excess of the estimated annual crop phosphorus uptake.
 2. For fields that are classified as being a groundwater concern, soil tests for phosphorus from the 18-24 inch zone are required to track phosphorus trends. The producer is required to test these fields at this zone (18-24 inches) at least every five years. If the phosphorus test exceeds 20 or 30 ppm (depends on soil depth) the producer shall not apply phosphorus (commercial fertilizer or manure) in excess of the estimated annual crop phosphorus uptake.

- Quantities, analyses and sources of nutrients applied.
- Approximate dates and methods nutrients were applied.
- Crops planted, planting and harvest dates, yields, and crop residues removed.
- Dates of annual review and person performing the review and recommendations that resulted from the review.

Facility Testing Requirements

Regulatory soil phosphorus samples are required from each Field every 3-5 years. Samples will be taken from the 0-12" soil depth for surface water concerns, and the 18-24" depth for groundwater concerns. The samples will be reviewed for phosphorus level and compared with previous test data. These tests will indicate compliance with the nutrient management plan. The producer is not responsible to take or analyze these samples. Refer to the Field Phosphorus Threshold table in Resource Concern section of the OnePlan NMP printout for individual field resource concerns and phosphorus threshold.

Irrigation Management Plan Requirements

There are no irrigation management requirements at this time.

Recommendations for Best Management Practices

The following Best Management Practices should be followed:

1. Waste water applied to cropland should be applied during the growing season. Waste water applied outside the growing season must be done in accordance with the water balance in the plan or by obtaining permission from the Idaho Department of Agriculture.
2. Waste water should be mixed with irrigation water at a ratio of 10-to-1 or more to reduce odor and problems associated with applying waste water through irrigation equipment.
3. Irrigation equipment used to apply liquids should be of the type that uses low pressure and has drop nozzles to reduce atomizing the water/waste mix to reduce drift and odor dispersion.
4. Do not over irrigate cropland to conserve water and nutrients. In addition, over irrigation will increase the incidence of nutrients being moved through the crop root zone beyond the reach of plants.
5. Avoid application of liquids on weekends and in the evening as dispersion of odors is poor in the evening creating potential problems with the neighbors. The weekends and holidays are times when neighbors may be more prone to activities that do not tolerate unpleasant odors.
6. Examine manure storage areas frequently to verify that waste is being properly stored and contained. Guard against storing manure where it may have access to surface or ground water sources.

7. When manure is applied to cropland, till it into the soil as soon as possible to reduce nitrogen loss, to prevent runoff and to reduce odors.
8. Keep accurate records of the following:
 - a. Crop rotations
 - b. Crop yields
 - c. Date of manure application
 - d. Amount of manure applied
 - e. Type of manure applied (liquids - solids)
 - f. Weather conditions before, during and after application
 - g. Tillage dates and methods used for incorporation
9. Records must also include the exported manure. At a minimum the records must include the name of the recipient of the manure, the amount exported and the date on which it was exported.

Manure Application Rate Requirement By Year**FIELD:** Field 1 87 acres

Name	Man App		Solid Stack(s)	Truck Wash Solids	Mineralization		Total
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2006)	Y		11 T/ac	2 T/ac			
		N	21	5	N	0	N 26
		P	61	8			P 69
		K	92	9			K 101
Corn, Field, Silage, S-ID, Irrigated(2007)	Y		17 T/ac	0 T/ac			
		N	33	0	N	14	N 47
		P	94	0			P 94
		K	143	0			K 143
Sugarbeets, S-ID, Irrigated(2008)	Y		17 T/ac	0 T/ac			
		N	33	0	N	3	N 36
		P	94	0			P 94
		K	143	0			K 143
Corn, Field, Silage, Double Cropped, S-ID, Irrigated(2009)	Y		17 T/ac	0 T/ac			
		N	33	0	N	18	N 51
		P	94	0			P 94
		K	143	0			K 143
Potatoes, S-ID, Irrigated(2010)	Y		17 T/ac	0 T/ac			
		N	33	0	N	18	N 51
		P	94	0			P 94
		K	143	0			K 143
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2011)	Y		17 T/ac	0 T/ac			
		N	33	0	N	18	N 51
		P	94	0			P 94
		K	143	0			K 143
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2012)	Y		17 T/ac	0 T/ac			
		N	33	0	N	18	N 51
		P	94	0			P 94
		K	143	0			K 143
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2013)	Y		17 T/ac	0 T/ac			
		N	33	0	N	18	N 51
		P	94	0			P 94
		K	143	0			K 143
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2014)	Y		17 T/ac	0 T/ac			
		N	33	0	N	18	N 51
		P	94	0			P 94
		K	143	0			K 143

FIELD: Pasture 1 72 acres

Name	Man App		Pasture(s)	Solid Stack(s)	Truck Wash Liquids	Truck Wash Solids	Mineralization		Total	
Pasture, Good Condition- Root Depth 4 feet, S-ID, Irrigated(2006)	Y		8 T/ac	2 T/ac	100 %	0 T/ac				
		N	5	4	14	0	N	0	N	23
		P	60	12	14	0			P	86
		K	69	19	16	0			K	104
Pasture, Good Condition- Root Depth 4 feet, S-ID, Irrigated(2007)	Y		8 T/ac	0 T/ac	102 %	4 T/ac				
		N	5	0	14	12	N	13	N	44
		P	60	0	14	19			P	93
		K	69	0	16	22			K	107
Pasture, Good Condition- Root Depth 4 feet, S-ID, Irrigated(2008)	Y		8 T/ac	0 T/ac	102 %	4 T/ac				
		N	5	0	14	12	N	17	N	48
		P	60	0	14	19			P	93
		K	69	0	16	22			K	107
Pasture, Good Condition- Root Depth 4 feet, S-ID, Irrigated(2009)	Y		8 T/ac	0 T/ac	102 %	4 T/ac				
		N	5	0	14	12	N	17	N	48
		P	60	0	14	19			P	93
		K	69	0	16	22			K	107

FIELD: Pasture 2 85 acres

Name	Man App		Pasture(s)	Mineralization		Total	
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2005)	Y		7 T/ac				
		N	4	N	0	N	4
		P	56			P	56
		K	64			K	64
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2006)	Y		6 T/ac				
		N	4	N	2	N	6
		P	46			P	46
		K	53			K	53
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2007)	Y		6 T/ac				
		N	4	N	2	N	6
		P	46			P	46
		K	53			K	53

FIELD: Field 2 95 acres

Name	Man App		Feedlot Solids	Mineralization		Total	
Corn, Field, Silage, S-ID, Irrigated(2005)	Y		21 T/ac				
		N	56	N	0	N	56
		P	91			P	91
		K	105			K	105
Corn, Field, Silage, S-ID, Irrigated(2006)	Y		21 T/ac				
		N	56	N	21	N	77
		P	91			P	91
		K	105			K	105
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2007)	Y		21 T/ac				
		N	56	N	21	N	77
		P	91			P	91
		K	105			K	105
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2008)	Y		21 T/ac				
		N	56	N	31	N	87
		P	91			P	91
		K	105			K	105
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2009)	Y		21 T/ac				
		N	56	N	31	N	87
		P	91			P	91
		K	105			K	105

Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2010)	Y		21 T/ac				
		N	56	N	31	N	87
		P	91			P	91
		K	105			K	105
Barley, Spring, S-ID(2011)	Y		21 T/ac				
		N	56	N	76	N	132
		P	91			P	91
		K	105			K	105
Barley, Spring, S-ID(2012)	Y		21 T/ac				
		N	56	N	76	N	132
		P	91			P	91
		K	105			K	105
Corn, Field, Silage, S-ID, Irrigated(2013)	Y		21 T/ac				
		N	56	N	31	N	87
		P	91			P	91
		K	105			K	105

FIELD: Field 3 4 acres

Name	Man App		Feedlot Solids	Mineralization		Total
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2005)	Y		18 T/ac			
		N	48	N	0	N 48
		P	78			P 78
		K	90			K 90
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2006)	Y		18 T/ac			
		N	48	N	27	N 75
		P	78			P 78
		K	90			K 90
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2007)	Y		18 T/ac			
		N	48	N	27	N 75
		P	78			P 78
		K	90			K 90
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2008)	Y		18 T/ac			
		N	48	N	27	N 75
		P	78			P 78
		K	90			K 90
Barley, Spring, S-ID(2009)	Y		18 T/ac			
		N	48	N	72	N 120
		P	78			P 78
		K	90			K 90

Barley, Spring, S-ID(2010)	Y		18 T/ac				
		N	48	N	72	N	120
		P	78			P	78
		K	90			K	90
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2011)	Y		18 T/ac				
		N	48	N	27	N	75
		P	78			P	78
		K	90			K	90

FIELD: Field 4 4 acres

Name	Man App		Feedlot Solids	Mineralization		Total	
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2005)	Y		18 T/ac				
		N	48	N	0	N	48
		P	78			P	78
		K	90			K	90
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2006)	Y		18 T/ac				
		N	48	N	27	N	75
		P	78			P	78
		K	90			K	90
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2007)	Y		18 T/ac				
		N	48	N	27	N	75
		P	78			P	78
		K	90			K	90
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2008)	Y		18 T/ac				
		N	48	N	27	N	75
		P	78			P	78
		K	90			K	90
Barley, Spring, S-ID(2009)	Y		18 T/ac				
		N	48	N	72	N	120
		P	78			P	78
		K	90			K	90
Barley, Spring, S-ID(2010)	Y		18 T/ac				
		N	48	N	72	N	120
		P	78			P	78
		K	90			K	90
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2011)	Y		18 T/ac				
		N	48	N	27	N	75
		P	78			P	78
		K	90			K	90

FIELD: Field 5 62 acres

Name	Man App		Feedlot Solids	Mineralization		Total
Corn, Field, Silage, S-ID, Irrigated(2005)	Y		21 T/ac			
		N	56	N	0	N 56
		P	91			P 91
		K	105			K 105
Corn, Field, Silage, S-ID, Irrigated(2006)	Y		21 T/ac			
		N	56	N	21	N 77
		P	91			P 91
		K	105			K 105
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2007)	Y		21 T/ac			
		N	56	N	21	N 77
		P	91			P 91
		K	105			K 105
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2008)	Y		21 T/ac			
		N	56	N	31	N 87
		P	91			P 91
		K	105			K 105
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2009)	Y		21 T/ac			
		N	56	N	31	N 87
		P	91			P 91
		K	105			K 105
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2010)	Y		21 T/ac			
		N	56	N	31	N 87
		P	91			P 91
		K	105			K 105
Barley, Spring, S-ID(2011)	Y		21 T/ac			
		N	56	N	76	N 132
		P	91			P 91
		K	105			K 105
Barley, Spring, S-ID(2012)	Y		21 T/ac			
		N	56	N	76	N 132
		P	91			P 91
		K	105			K 105
Corn, Field, Silage, S-ID, Irrigated(2013)	Y		21 T/ac			
		N	56	N	31	N 87
		P	91			P 91
		K	105			K 105

FIELD: Field 6 5 acres

Name	Man App		Feedlot Solids	Pasture(s)	Mineralization	Total
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2005)	Y		0 T/ac	14 T/ac		
		N	0	7	N	0
		P	0	92		P 92
		K	0	105		K 105
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2006)	Y		0 T/ac	14 T/ac		
		N	0	7	N	4
		P	0	92		P 92
		K	0	105		K 105
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2007)	Y		0 T/ac	14 T/ac		
		N	0	7	N	4
		P	0	92		P 92
		K	0	105		K 105
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2008)	Y		0 T/ac	14 T/ac		
		N	0	7	N	4
		P	0	92		P 92
		K	0	105		K 105

FIELD: Field 7 3 acres

Name	Man App		Feedlot Solids	Pasture(s)	Mineralization	Total
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2005)	Y		0 T/ac	14 T/ac		
		N	0	7	N	0
		P	0	92		P 92
		K	0	105		K 105
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2006)	Y		0 T/ac	14 T/ac		
		N	0	7	N	4
		P	0	92		P 92
		K	0	105		K 105
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2007)	Y		0 T/ac	14 T/ac		
		N	0	7	N	4
		P	0	92		P 92
		K	0	105		K 105
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2008)	Y		0 T/ac	14 T/ac		
		N	0	7	N	4
		P	0	92		P 92
		K	0	105		K 105

FIELD: Field 8 8 acres

Name	Man App		Feedlot Solids	Pasture(s)	Mineralization	Total
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2005)	Y		0 T/ac	14 T/ac		
		N	0	7	N	0 N 7
		P	0	92		P 92
		K	0	105		K 105
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2006)	Y		0 T/ac	14 T/ac		
		N	0	7	N	4 N 11
		P	0	92		P 92
		K	0	105		K 105
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2007)	Y		0 T/ac	14 T/ac		
		N	0	7	N	4 N 11
		P	0	92		P 92
		K	0	105		K 105
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2008)	Y		0 T/ac	14 T/ac		
		N	0	7	N	4 N 11
		P	0	92		P 92
		K	0	105		K 105

FIELD: Field 9 4 acres

Name	Man App		Feedlot Solids	Pasture(s)	Mineralization	Total
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2005)	Y		0 T/ac	14 T/ac		
		N	0	7	N	0 N 7
		P	0	92		P 92
		K	0	105		K 105
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2006)	Y		0 T/ac	14 T/ac		
		N	0	7	N	4 N 11
		P	0	92		P 92
		K	0	105		K 105
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2007)	Y		0 T/ac	14 T/ac		
		N	0	7	N	4 N 11
		P	0	92		P 92
		K	0	105		K 105
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2008)	Y		0 T/ac	14 T/ac		
		N	0	7	N	4 N 11
		P	0	92		P 92
		K	0	105		K 105

FIELD: Field 10 48 acres

Name	Man App		Feedlot Solids	Mineralization	Total
Barley, Spring, S-ID(2005)	Y		15 T/ac		
		N	40	N	45 N 85
		P	65		P 65
		K	75		K 75
Barley, Spring, S-ID(2006)	Y		15 T/ac		
		N	40	N	43 N 83
		P	65		P 65
		K	75		K 75
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2007)	Y		15 T/ac		
		N	40	N	-2 N 38
		P	65		P 65
		K	75		K 75
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2008)	Y		15 T/ac		
		N	40	N	22 N 62
		P	65		P 65
		K	75		K 75
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2009)	Y		15 T/ac		
		N	40	N	22 N 62
		P	65		P 65
		K	75		K 75
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2010)	Y		15 T/ac		
		N	40	N	22 N 62
		P	65		P 65
		K	75		K 75
Barley, Spring, S-ID(2011)	Y		15 T/ac		
		N	40	N	67 N 107
		P	65		P 65
		K	75		K 75

FIELD: Field 11 36 acres

Name	Man App		Feedlot Solids	Pasture(s)	Mineralization	Total
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2005)	Y		0 T/ac	14 T/ac		
		N	0	7	N	0 N 7
		P	0	92		P 92
		K	0	105		K 105
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2006)	Y		0 T/ac	14 T/ac		
		N	0	7	N	4 N 11
		P	0	92		P 92
		K	0	105		K 105
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2007)	Y		0 T/ac	14 T/ac		
		N	0	7	N	4 N 11
		P	0	92		P 92
		K	0	105		K 105
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated(2008)	Y		0 T/ac	14 T/ac		
		N	0	7	N	4 N 11
		P	0	92		P 92
		K	0	105		K 105

FIELD: Field 12 34 acres

Name	Man App		Feedlot Solids	Mineralization	Total
Barley, Spring, S-ID(2005)	Y		15 T/ac		
		N	39	N	45 N 84
		P	63		P 63
		K	73		K 73
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2006)	Y		15 T/ac		
		N	39	N	22 N 61
		P	63		P 63
		K	73		K 73
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2007)	Y		15 T/ac		
		N	39	N	22 N 61
		P	63		P 63
		K	73		K 73
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2008)	Y		15 T/ac		
		N	39	N	22 N 61
		P	63		P 63
		K	73		K 73

Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated(2009)	Y		15 T/ac				
		N	39	N	22	N	61
		P	63			P	63
		K	73			K	73
Barley, Spring, S-ID(2010)	Y		15 T/ac				
		N	39	N	67	N	106
		P	63			P	63
		K	73			K	73
Sugarbeets, S-ID, Irrigated(2011)	Y		15 T/ac				
		N	39	N	22	N	61
		P	63			P	63
		K	73			K	73
Barley, Spring, S-ID(2012)	Y		15 T/ac				
		N	39	N	67	N	106
		P	63			P	63
		K	73			K	73
Potatoes, S-ID, Irrigated(2013)	Y		15 T/ac				
		N	39	N	22	N	61
		P	63			P	63
		K	73			K	73
Barley, Spring, S-ID(2014)	Y		15 T/ac				
		N	39	N	67	N	106
		P	63			P	63
		K	73			K	73

Minimum Acres Required for Manure Application

Manure Group	Acres
Bedded Pack	330
Pasture(s)	120
Solid Stack(s)	330
Truck Wash Liquids	10
Truck Wash Solids	13

The acreage in the table is based on an average crop uptake of 100 lbs P₂O₅ per acre. These acreage numbers are for estimating export acreage needed.

Hydraulic Balance

Wastewater applications should begin and end with the irrigation season. Depending on weather and soil conditions, applications outside of this window may be allowed. Lagoons must be emptied in the fall. Fall application of effluent must be completed prior to November 15th. No

application will be allowed to frozen or snow covered ground. Spring applications prior to the start of the irrigation season may be allowed if moisture or nutrients are needed to enhance crop production. You must contact the Department of Agriculture, Dairy Bureau (208) 332-8550 prior to any wastewater application outside of the irrigation season. The need for wastewater application outside of the irrigation season will be evaluated on a case by case basis. Factors considered in granting approval will be but are not limited to the following; date, existing and forecasted weather conditions, moisture content of the soil, water holding capacity of the soil, frost layers in the soil, and crop needs.

Annual Soil Test

Annual soils tests must be taken every year from every field to determine a commercial fertilization rate. If commercial fertilizer isn't applied (for a perennial crop), annual soil samples are not required. If you do not apply commercial fertilizer, a complete soil analysis will need to be conducted initially to determine the nutrient baseline.

Faulkner Truck Wash ANALYSIS OF RESOURCE CONCERNS

INTRODUCTION

The purpose of this nutrient management plan is to meet agricultural production goals and to certify that manure and nutrients are properly managed to minimize adverse impact to surface or groundwater. Plans are written in cooperation with the producer to:

- 1) Assure proper containment of animal manure and process waste water.
- 2) Assess resource concerns which exist on the property.
- 3) Budget nutrient sources to optimize crop water and nutrient needs. Nutrient sources include commercial fertilizers, animal manure, mineralization of previous crop soil organic matter, accounting of residues, and irrigation water.
- 4) When applicable, assess irrigation water management to minimize movement of nutrients beyond the root zone or with runoff.

If animal manure and/or commercial fertilizers are not properly managed, contaminants may negatively impact surface and/or groundwater. Some water resource contaminants associated with poorly managed animal manure and fertilizers are:

Phosphorus in the soil readily adsorbs to soil particles; thus, erosion of soil by surface runoff is the general mode of phosphorus transport. Even at very low concentrations, phosphorus can result in plant and algae blooms in surface water bodies. Alga blooms are a nuisance to boaters, irrigators, and others. Toxins released by certain algae can be lethal

to livestock or other animals that drink the water. Dissolved oxygen in the water is depleted as algae die and decompose, sometimes causing fish kills.

Nitrogen in the form of nitrate (NO_3^-) is highly water-soluble and will move with water, particularly down the soil profile past the root zone if not utilized by plants (thus becoming a groundwater contamination issue). Nitrates are toxic to infants under 6 months, and to livestock at high concentrations. In surface water, excess nitrogen, like phosphorus, can result in nuisance plant and algae growth.

Organic matter in high load decreases dissolved oxygen in a surface water body when it decomposes. Low levels of dissolved oxygen is harmful or even fatal to fish and other aquatic life.

Bacteria and microorganism illnesses (pathogens) potentially transmitted through water by animal manure include Giardia, Typhoid Fever, Cryptosporidium, and Cholera. Pathogens from animal waste can negatively impact surface and groundwater quality.

FACILITY DESCRIPTION

Owner Information

Owner (1): Diamond A - Fred Faulkner
Address: 1997 S 1875 E, Gooding, ID 83330
Phone: (208) 934-5391

Owner (2): Jay Faulkner **Address:** 1877 E 2000 S, Gooding, ID 83301
Phone: (208) 934-9088 Home Phone (208) 539-6652 Cell Phone

Location

Site Map: Facility site plan illustrated in Figure 1

Soil Conservation District: Gooding

County: Gooding

Watershed Basin: Big Wood (USGS Hydrologic Unit Code # 17040219)

ANALYSIS OF RESOURCE CONCERNS

Farm Resource Concerns

Faulkner Truck Wash is located in a watershed containing water quality limited stream segments listed according to the Clean Water Act. Stream segments are listed because a water quality parameter prevents the attainment of the "Fishable/Swimmable" goal of the Clean Water Act.

WATERBODY	BOUNDARIES	BACT	CHAN STAB	DO	FLOW ALT	HAB ALT	MET HG	MET	NH3	NUTR	O ₂	ORG	PEST	PH	SAL	SED	TDG	TEMP	UNKN	*
Baker Creek	Headwaters to Norton Creek	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	✓
Big Wood River	Glendale Diversion to TINR18ES35	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	✓
Big Wood River	Highway 75 to Little Wood River	1	0	1	1	0	0	0	1	1	0	0	0	0	0	1	0	0	0	✓
Big Wood River	Little Wood River to Interstate	1	0	1	1	0	0	0	1	1	0	0	0	0	0	1	0	0	0	✓
Big Wood River	Magic Reservoir to Highway 75	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	✓
Big Wood River	Trail Creek to Glendale Diversion	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	✓
Cove Creek	Headwaters to East Fk Wood River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	✓
Croy Creek	Elk Creek to Big Wood River	0	0	0	1	0	0	0	0	1	0	0	0	0	0	1	0	0	0	✓
Eagle Creek	Headwaters to Big Wood River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	✓
East Fork Rock	Headwaters to Rock Creek	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	✓
East Fork Wood	Headwaters to Blind Canyon	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	✓
Greenhorn Cree	Headwaters to Big Wood River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	✓

Horse Creek	Headwaters to Big Wood River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	┐
Lake Creek	Headwaters to Big Wood River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	┐
Owl Creek	Headwaters to Big Wood River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	┐
Placer Creek	Headwaters to Warm Springs Creek	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	┐
Quigley Creek	Headwaters to mouth	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	┐
Rock Creek	Headwaters to Magic Reservoir	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	1	0	┐
Seamans Creek	Headwaters to Big Wood River	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	┐
Thorn Creek	Thorn Reservoir to Schooler Creek	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	┐

Faulkner Truck Wash is not located in a critical Nitrate-Nitrogen management area. Nitrate Management Areas are designated based upon ground water quality sampling results. Two priority groups exist as follows:

Priority 1 is designated because at least 25% of the ground water sampling locations within the area exceed 5-milligrams/liter nitrate. This is one-half of the maximum contaminant level of 10-milligrams/liter nitrate. This nitrate concentration is considered evidence of significant degradation. Public drinking water systems are required to increase monitoring frequency when this level is reached.

Priority 2 is designated because at least 50% of the ground water sampling locations within the area exceed 2-milligrams/liter nitrate. This concentration threshold provides an indication of human-caused (anthropogenic) impacts. The upper limit for naturally occurring (background) concentrations of nitrate is considered to be about 2 mg/l.

Faulkner Truck Wash is located in a sole source aquifer area - Eastern Snake River Plain Aquifer.

Field Resource Concerns

- No Resource Concerns -

Depth Limiting Subsurface Features

Field Name	Subsurface Feature	Depth from Surface (in)
Field 1	Fractured Bedrock	25
	Water Table	>72
Pasture 1	Fractured Bedrock	25
	Water Table	>72
Pasture 2	Fractured Bedrock	25
	Water Table	>72
Field 2	Hard Pan	20
	Fractured Bedrock	21
	Water Table	>72

Field 3	Hard Pan	20
	Fractured Bedrock	21
	Water Table	>72
Field 4	Water Table	>72
Field 5	Hard Pan	20
	Fractured Bedrock	21
	Water Table	>72
Field 6	Hard Pan	20
	Fractured Bedrock	21
	Water Table	>72
Field 7	Hard Pan	20
	Fractured Bedrock	21
	Water Table	>72
Field 8	Hard Pan	22
	Fractured Bedrock	20
	Water Table	>72
Field 9	Water Table	>72
Field 10	Hard Pan	22
	Fractured Bedrock	20
	Water Table	>72
Field 11	Hard Pan	20
	Fractured Bedrock	21
	Water Table	>72
Field 12	Water Table	>72

Well Testing Results:

Well	Date	Hardness	EC	PH	K	Nitrates	Nitrites	NH3	Na	Carbonate	Bicarbonate
No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data	No Data

ISDA REGULATIONS AND THE IDAHO NUTRIENT MANAGEMENT STANDARD

Nutrient management plans for animal agricultural operations regulated by the Idaho State Department of Agriculture (ISDA) must be approved by the Idaho State Department of Agriculture and must follow the Natural Resource Conservation Service (NRCS) Agriculture Waste Management Field Handbook and the Idaho Nutrient Management Standard. ISDA regulation and the Standard use soil test phosphorus as the indicator for environmental impact from agricultural production practices. The Idaho Nutrient Management Standard is based on a threshold soil test phosphorus level (TH), above which there is no agronomic advantage to application of phosphorus.

The Idaho Nutrient Management Standard categorizes fields as a surface water concern or a groundwater concern. A surface water concern indicates that runoff leaves the contiguous operating unit from normal storm events, rain on snow, frozen ground, or irrigation. The soil phosphorus threshold for a field with a surface water concern is 40 ppm phosphorus for basic soils ($\text{pH} > 7$) tested with the Olsen method; 60 ppm phosphorus for acidic soils ($\text{pH} < 7$) tested with the Bray method; and 6 ppm phosphorus for acidic soils tested with the Morgan method (0-12" Soil Sample Depth).

A groundwater resource concern indicates that runoff does not leave the contiguous operating unit from normal storm events, rain on snow, frozen ground, or irrigation. There are two sub-categories for fields identified as having a groundwater concern. The first category applies to fields with a resource concern within the first five feet of the soil profile. A resource concern could be shallow soils, gravel, cobble, bedrock, high groundwater table, or a drained field. These fields are indicated as a groundwater concern $< 5'$. The soil phosphorus threshold for a field with a groundwater concern $< 5'$ is 20 ppm phosphorus for soils tested with the Olsen method; 25 ppm phosphorus for soils tested with the Bray method and 2.5 ppm phosphorus for soils tested with the Morgan method (18-24" Soil Sample Depth).

If a field is not classified as having a surface water concern or a groundwater $< 5'$ concern, by default it is classified as having a groundwater concern $> 5'$. The soil phosphorus threshold for a field with a groundwater concern $> 5'$ is 30 ppm phosphorus for soils tested with the Olsen method; 45 ppm phosphorus for soils tested with the Bray method; and 4.5 ppm phosphorus for soils tested with the Morgan method (18-24" Soil Sample Depth).

Field Phosphorus Threshold

Field	Resource Concern	P Threshold (ppm)	P Threshold Soil Test Depth
Field 1	Groundwater $< 5'$	20	18 - 24"
Pasture 1	Groundwater $< 5'$	20	18 - 24"
Pasture 2	Groundwater $< 5'$	20	18 - 24"
Field 2	Surface Water	40	0 - 12"
Field 3	Surface Water	40	0 - 12"
Field 4	Surface Water	40	0 - 12"
Field 5	Surface Water	40	0 - 12"
Field 6	Surface Water	40	0 - 12"
Field 7	Surface Water	40	0 - 12"
Field 8	Surface Water	40	0 - 12"
Field 9	Surface Water	40	0 - 12"
Field 10	Surface Water	40	0 - 12"
Field 11	Surface Water	40	0 - 12"
Field 12	Surface Water	40	0 - 12"

Farm Location

Idaho Transverse Mercator

Coordinates of the farm center (meters): X = 2440941.89727008, Y = 1297846.43035188

Map Scale: 1 : 38

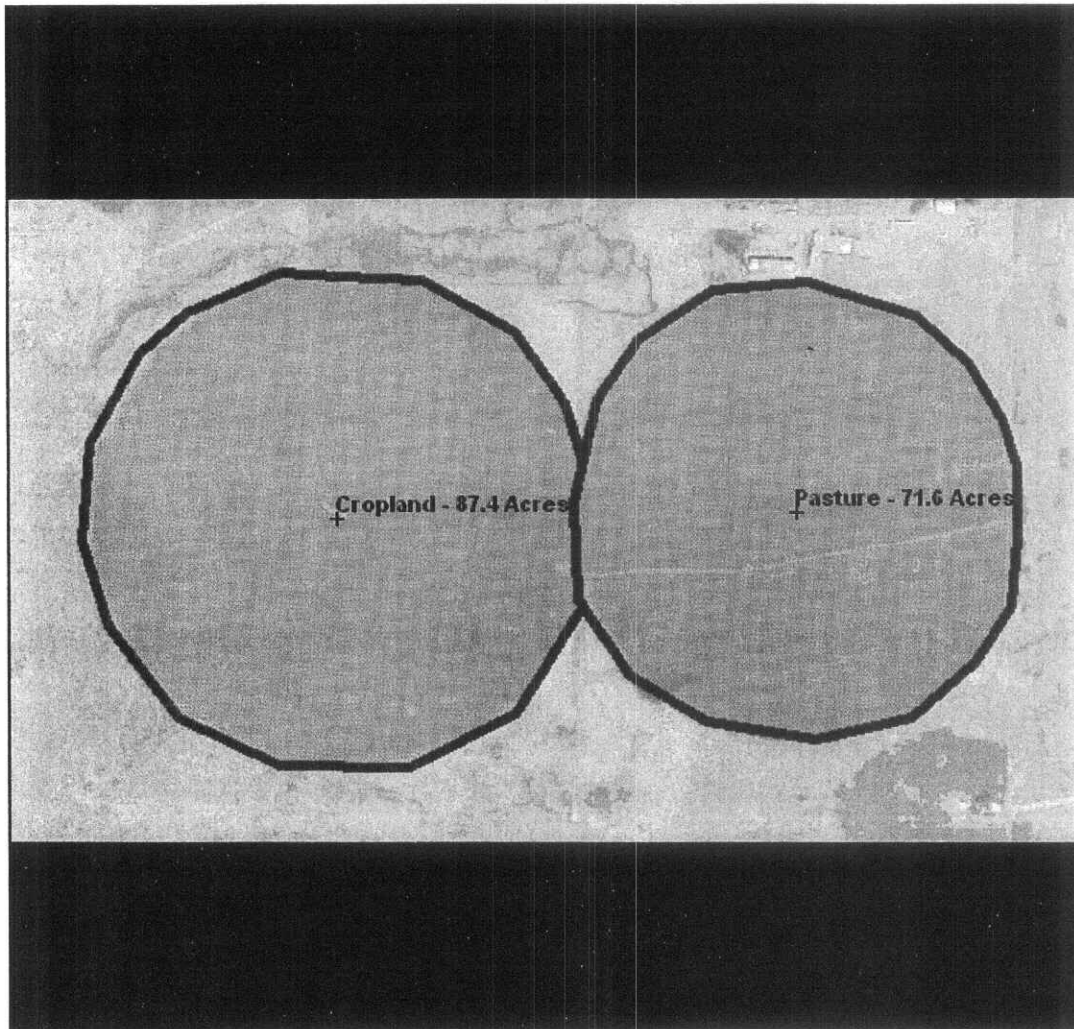
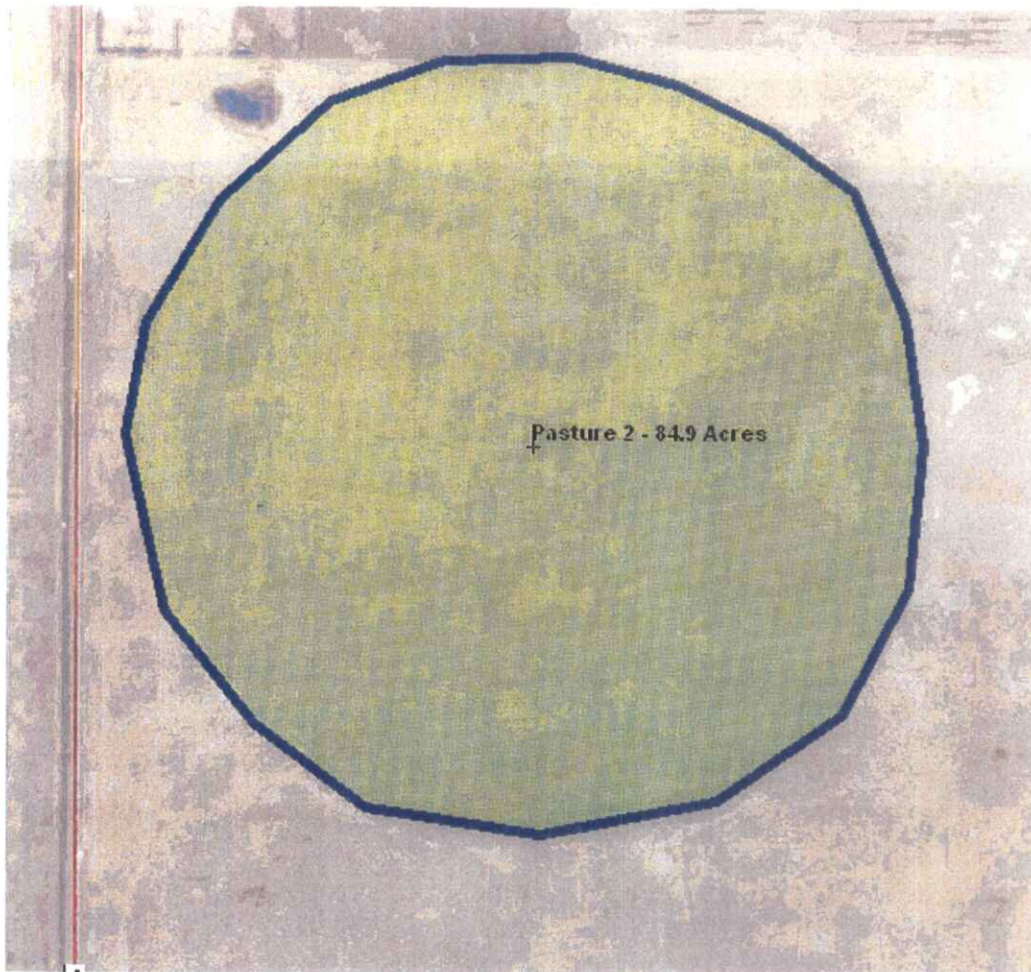
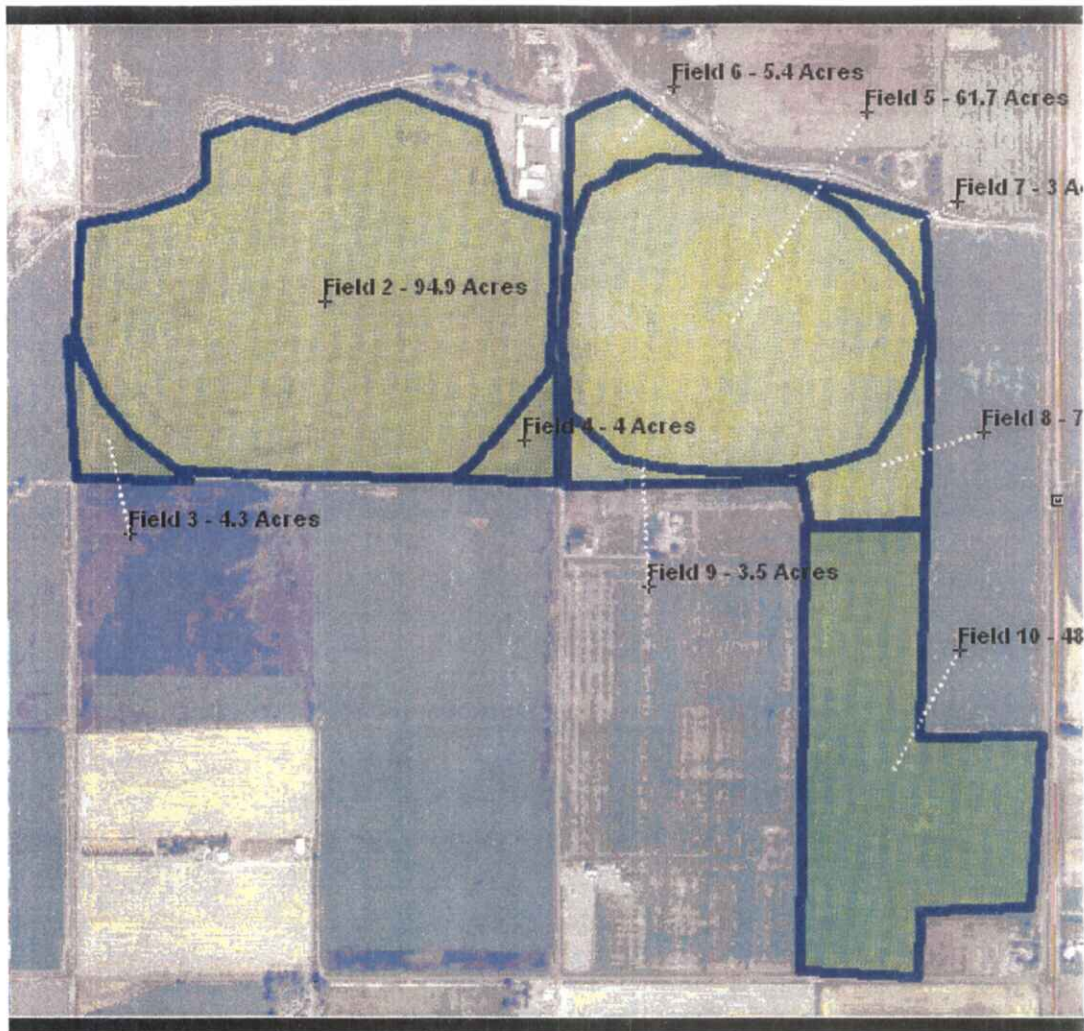
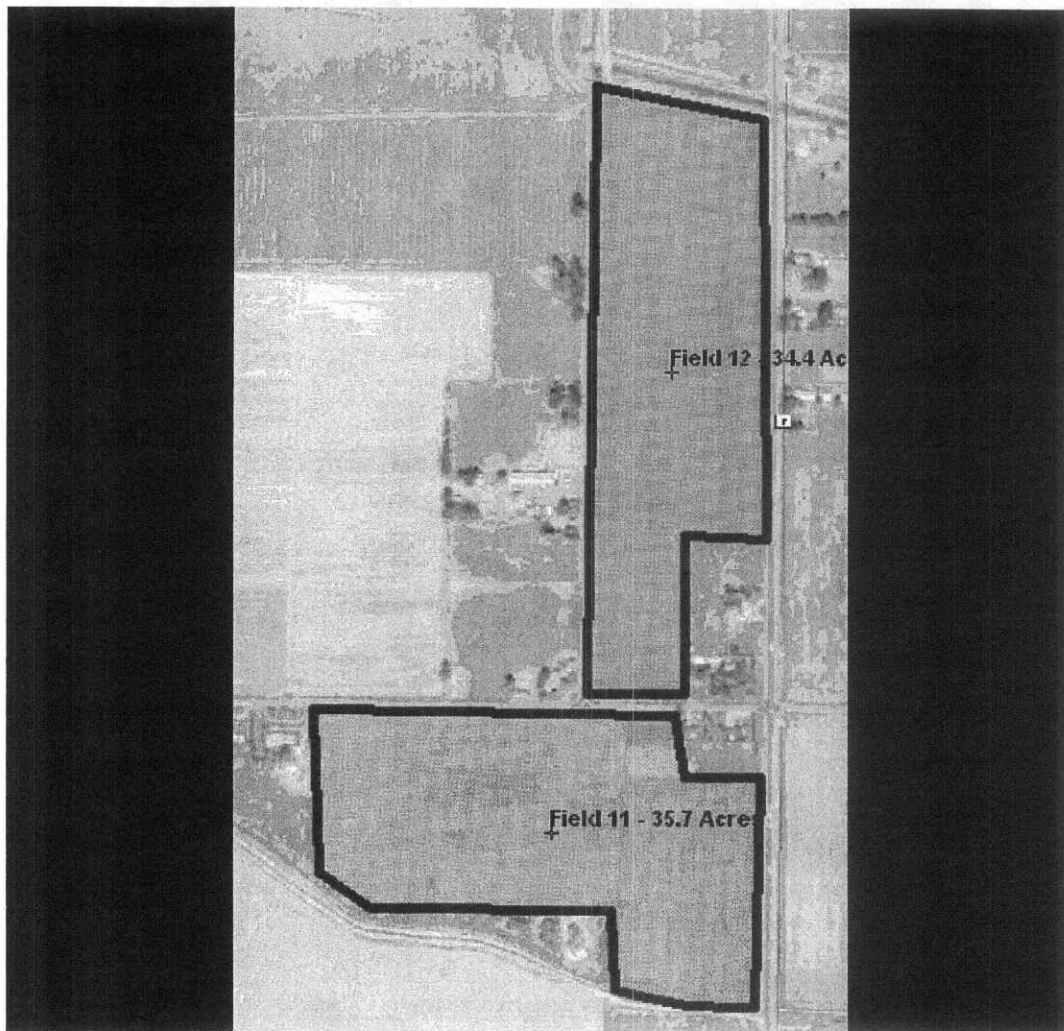


Figure 1. Base Map



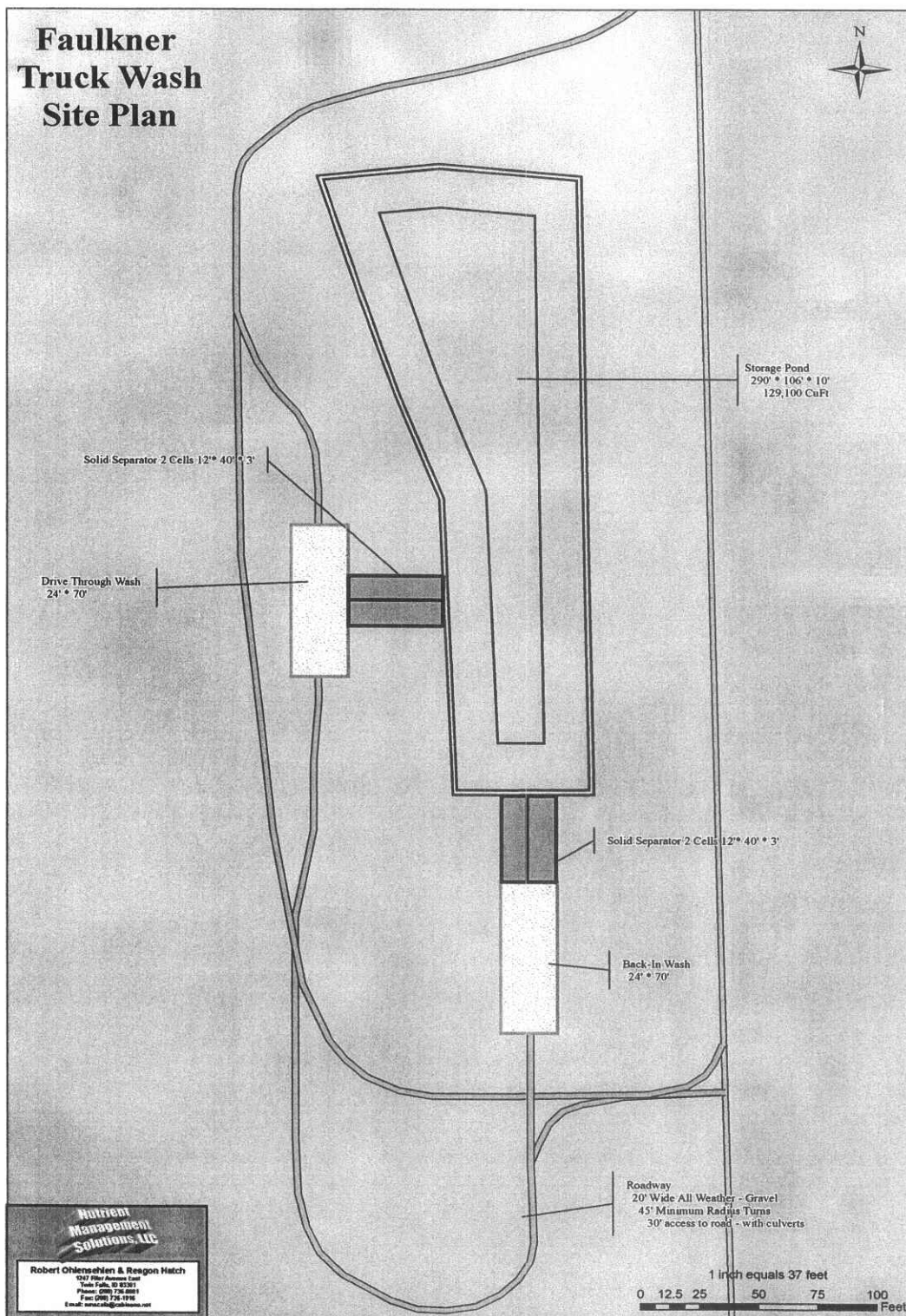


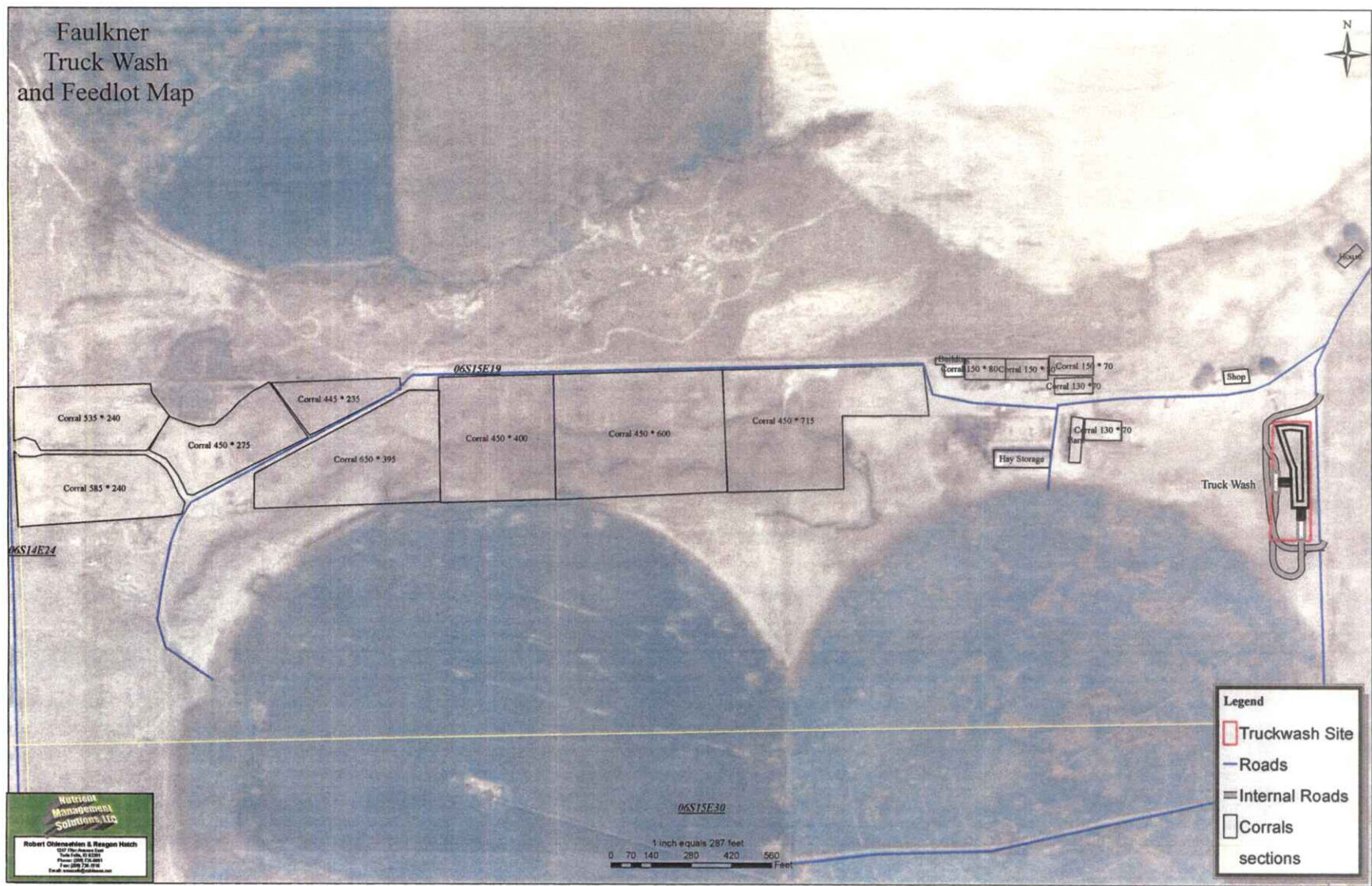


Farm Location**Idaho Transverse Mercator**

Coordinates of the farm center (meters): X = 2440941.89727008, Y = 1297846.43035188

Map Scale: 1 :

**Figure 2. Farmstead Map**



ANNUAL NUTRIENT BUDGET

The following crop nutrient budget is based on soil test data and cropping information. It is for one year for the following field and specified crop information:

Nutrient Budget Summary

Field: Field 1 **Crop:** Corn, Field, Silage, S-ID, Irrigated

Yield: 32

	N	P205	K20
Crop Nutrient Requirement	250	128	293
Nutrients From Soil	?		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	14		
from Irrigation Water	0		0
Nutrient Balance from above *	236.2	128.2	293
Solid Stack(s)	28	79	119
Truck Wash Solids	0	0	0
Estimated Remaining Nutrients Required *	208	49	174
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance *	208	49	174

* Positive values indicate additional nutrients are required; negative values indicate a nutrient surplus
Acceptable: Sustainable agronomic rate.

Field: Pasture 1 **Crop:** Pasture, Good Condition-Root Depth 4 feet **Yield:** 5

	N	P205	K20
Crop Nutrient Requirement	150	92	259
Nutrients From Soil	?		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	13		
from Irrigation Water	0		0
Nutrient Balance from above *	137.5	91.6	259.2
Pasture(s)	0	0	0
Solid Stack(s)	32	92	139
Truck Wash Liquids	0	0	0
Truck Wash Solids	0	0	0
Estimated Remaining Nutrients Required *	106	0	120
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance *	106	0	120

* Positive values indicate additional nutrients are required; negative values indicate a nutrient surplus
Acceptable: Sustainable agronomic rate.

Field: Pasture 2 **Crop:** Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated **Yield:** 4

	N	P205	K20
Crop Nutrient Requirement	150	73	207
Nutrients From Soil	?		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	8		
from Irrigation Water	0		0
Nutrient Balance from above *	141.5	73.3	207.4
Feedlot Solids	19	30	35
Pasture(s)	4	46	53
Estimated Remaining Nutrients Required *	119	-3	119
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance *	119	-3	119

* Positive values indicate additional nutrients are required; negative values indicate a nutrient surplus

Acceptable: Sustainable agronomic rate.

Field: Field 2 **Crop:** Corn, Field, Silage, S-ID, Irrigated **Yield:** 32

	N	P205	K20
Crop Nutrient Requirement	250	128	293
Nutrients From Soil	?		
from Mineralized Nitrogen	0		
from Prior Crops	-10		
from Prior Bio-Nutrients	31		
from Irrigation Water	0		0
Nutrient Balance from above *	228.7	128.2	293
Feedlot Solids	56	91	105
Estimated Remaining Nutrients Required *	173	37	188
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance *	173	37	188

* Positive values indicate additional nutrients are required; negative values indicate a nutrient surplus

Acceptable: Sustainable agronomic rate.

Field: Field 3 **Crop:** Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated **Yield:** 7.5

	N	P205	K20
Crop Nutrient Requirement	399	93	383
Nutrients From Soil	?		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	27		
from Irrigation Water	0		0
Nutrient Balance from above *	372	92.7	383.4
Feedlot Solids	48	78	90
Estimated Remaining Nutrients Required *	324	15	293
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance *	324	15	293

* Positive values indicate additional nutrients are required; negative values indicate a nutrient surplus

Acceptable: Sustainable agronomic rate.

Field: Field 4 **Crop:** Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated **Yield:** 7.5

	N	P205	K20
Crop Nutrient Requirement	399	93	383
Nutrients From Soil	?		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	27		
from Irrigation Water	0		0
Nutrient Balance from above *	372	92.7	383.4
Feedlot Solids	48	78	90
Estimated Remaining Nutrients Required *	324	15	293
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance *	324	15	293

* Positive values indicate additional nutrients are required; negative values indicate a nutrient surplus

Acceptable: Sustainable agronomic rate.

Field: Field 5 **Crop:** Corn, Field, Silage, S-ID, Irrigated **Yield:** 32

	N	P205	K20
Crop Nutrient Requirement	250	128	293
Nutrients From Soil	?		
from Mineralized Nitrogen	0		
from Prior Crops	-10		
from Prior Bio-Nutrients	31		
from Irrigation Water	0		0
Nutrient Balance from above *	228.7	128.2	293
Feedlot Solids	56	91	105
Estimated Remaining Nutrients Required *	173	37	188
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance *	173	37	188

* Positive values indicate additional nutrients are required; negative values indicate a nutrient surplus

Acceptable: Sustainable agronomic rate.

Field: Field 6 **Crop:** Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated **Yield:** 5

	N	P205	K20
Crop Nutrient Requirement	150	92	259
Nutrients From Soil	?		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	4		
from Irrigation Water	0		0
Nutrient Balance from above *	146	91.6	259.2
Feedlot Solids	0	0	0
Pasture(s)	7	92	105
Estimated Remaining Nutrients Required *	139	0	154
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance *	139	0	154

* Positive values indicate additional nutrients are required; negative values indicate a nutrient surplus

Acceptable: Sustainable agronomic rate.

Field: Field 7 **Crop:** Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated **Yield:** 5

	N	P205	K20
Crop Nutrient Requirement	150	92	259
Nutrients From Soil	?		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	4		
from Irrigation Water	0		0
Nutrient Balance from above *	146	91.6	259.2
Feedlot Solids	0	0	0
Pasture(s)	7	92	105
Estimated Remaining Nutrients Required *	139	0	154
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance *	139	0	154

* Positive values indicate additional nutrients are required; negative values indicate a nutrient surplus

Acceptable: Sustainable agronomic rate.

Field: Field 8 **Crop:** Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated **Yield:** 5

	N	P205	K20
Crop Nutrient Requirement	150	92	259
Nutrients From Soil	?		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	4		
from Irrigation Water	0		0
Nutrient Balance from above *	146	91.6	259.2
Feedlot Solids	0	0	0
Pasture(s)	7	92	105
Estimated Remaining Nutrients Required *	139	0	154
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance *	139	0	154

* Positive values indicate additional nutrients are required; negative values indicate a nutrient surplus

Acceptable: Sustainable agronomic rate.

Field: Field 9 **Crop:** Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated **Yield:** 5

	N	P205	K20
Crop Nutrient Requirement	150	92	259
Nutrients From Soil	?		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	4		
from Irrigation Water	0		0
Nutrient Balance from above *	146	91.6	259.2
Feedlot Solids	0	0	0
Pasture(s)	7	92	105
Estimated Remaining Nutrients Required *	139	0	154
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance *	139	0	154

- Positive values indicate additional nutrients are required; negative values indicate a nutrient surplus

Acceptable: Sustainable agronomic rate.

Field: Field 10 **Crop:** Barley, Spring, S-ID **Yield:** 130

	N	P205	K20
Crop Nutrient Requirement	210	49	32
Nutrients From Soil	?		
from Mineralized Nitrogen	45		
from Prior Crops	-24		
from Prior Bio-Nutrients	22		
from Irrigation Water	0		0
Nutrient Balance from above *	166.5	48.6	32.2
Feedlot Solids	40	65	75
Estimated Remaining Nutrients Required *	126	-16	-43
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance *	126	-16	-43

* Positive values indicate additional nutrients are required; negative values indicate a nutrient surplus

Rate may result in crop nutrient deficit or a potential resource concern.

Acceptable: Sustainable agronomic rate.

Field: Field 11 **Crop:** Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated **Yield:** 5

	N	P205	K20
Crop Nutrient Requirement	150	92	259
Nutrients From Soil	?		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	2		
from Irrigation Water	0		0
Nutrient Balance from above *	147.6	91.6	259.2
Pasture(s)	4	54	63
Estimated Remaining Nutrients Required *	144	38	196
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance *	144	38	196

* Positive values indicate additional nutrients are required; negative values indicate a nutrient surplus

Acceptable: Sustainable agronomic rate.

Field: Field 12 **Crop:** Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated **Yield:** 7.5

	N	P205	K20
Crop Nutrient Requirement	399	93	383
Nutrients From Soil	?		
from Mineralized Nitrogen	0		
from Prior Crops	0		
from Prior Bio-Nutrients	22		
from Irrigation Water	0		0
Nutrient Balance from above *	377.2	92.7	383.4
Feedlot Solids	39	63	73
Estimated Remaining Nutrients Required *	338	30	310
Commercial Fertilizer Application	0	0	0
Final Nutrient Balance *	338	30	310

Positive values indicate additional nutrients are required; negative values indicate a nutrient surplus

- Acceptable: Sustainable agronomic rate.

ANALYSIS OF ANIMAL SYSTEM

WASTE STORAGE AND HANDLING

Livestock Unit Waste Characteristics

Description	Animal	Number	Average Animal Weight	Days Collected	Housing	Bedding Type	Bedding (tons)	Waste (tons)
Feedlot	Beef - High forage diet	2,750	650	120	Open Lot	Long Straw	997	6,757
Beef Yearlings	Beef - High forage diet	435	650	170	Open Lot	None	0	1,498
Dairy Heifers	Dairy Heifer	600	600	365	Open Lot	Long Straw	611	5,887

Manure/Biosolid Groups

Manure Group	Storage Type	Application Method	Days to Incorporation	Nitrogen Retention (%)	Annual Volume (ft3)	Annual Weight (tons)
Bedded Pack	Manure Stored in Open Lot, Arid Region	Broadcast, Incorporated deeper than 3 inches	4-7 days	48	187,509	6,322
Pasture(s)	Pasture	Broadcast, no incorporation, with containment	>7 days	14	49,237	1,498
Solid Stack(s)	Manure Stored in Open Lot, Arid Region	Broadcast, Incorporated deeper than 3 inches	4-7 days	48	187,509	6,322
Truck Wash Liquids	Waste Storage Pond, Diluted > 50%	Irrigation	N/A	75	6,552	192
Truck Wash Solids	Manure Stored in Open Lot, Arid Region	Broadcast, Incorporated deeper than 3 inches	4-7 days	80	74,519	310

*in Nitrogen Retention % Column means "Overridden Nitrogen Values"
Assisted Mode has been turned off.

Manure Group		Dairy Heifers	Feedlot	Beef Yearlings
Solid Stack(s)	% To Group	50	50	
Pasture(s)	% To Group	N/A		100
Bedded Pack	% To Group	50	50	

Annual Production of Nutrients

The nutrient values were calculated based on animal weight and nitrogen loss estimates as described in the NRCS Agricultural Waste Management Field Handbook guidelines (1996). The calculations are estimates, and manure testing is recommended for more accuracy, as manure nutrient content varies widely among operations.

Nutrient Distribution on Facility					
	Total Tons	Pounds N	Pounds P ₂ O ₅	Pounds K ₂ O	% of Total
Total Nutrients Produced	14,644	57,586	80,326	115,979	
Bedded Pack Heifers & Dry Cows	6,322	25,735	33,006	50,017	41.1%
Pasture(s)	1,498	2,066	11,975	13,239	14.9%
Separated Solid Truck Wash	310	1,860	1,345	1,556	1.7%
Solid Stack(s)	6,322	25,735	33,006	50,017	41.1%
Waste Storage Pond Truck Wash	192	2,190	994	1,150	1.2%

No Comments

Dairy Water Values

Bulk Tank(s)		
Bulk Tank ID	Size	Volume
1	0	0

Comments

No Comments

MANURE STORAGE SUMMARY

Total Annual Liquid Capacity Required				
Bio-Nutrient Group	Recommended Capacity Cubic Feet	% Contained	Storage Days	Storage Vol. Cubic Feet
Truck Wash Liquids	6,552	100%	150	6,552
Process Water	120,321	100%	150	120,321

Total Annual Solid Capacity		
Bio-Nutrient Group	Recommended Capacity Cubic Feet	% Contained
Solid Stack(s)	187,509	0%
Pasture(s)	17,062	0%
Truck Wash Solids	74,519	100%
Bedded Pack	187,509	0%
Feedlot	225,129	0%
Dairy Heifers	137,968	0%

Existing Storage Containers		
Storage Unit Name	Days Stored	No Data
No Data	@[Days Stored]	No Data

New Storage Containers Required		
Storage Unit Name	Days Stored	No Data
Wash Storage	150 Days	No Data

Container Name	Volume (ft3)	Storage Period (Days)	Length	Width	Depth	Slope	Diameter	Existing	Proposed
Wash Storage	128,016	150	530	50	10	2	NA	No	Yes

Containment of Housing Facility Waste and Corral Runoff

It is important that water from housing facilities and contaminated runoff from corrals be contained and/or diverted to the lagoon storage system. As stated in the Idaho State Department of Agriculture (ISDA) regulation, a discharge is allowed only under large precipitation events (>25yr, 24hr storm event). Lagoon structures must be properly designed, operated, and maintained to contain all barn wastewater and contaminated runoff from a 25-year, 24-hour rainfall event for the site location and maintained to contain all runoff from accumulation of winter precipitation from a one in five-year winter. Animals confined in the CAFO may not have direct contact with canals, streams, lakes, or other surface waters.

Comments

No Comments

BIO-NUTRIENT EXPORT INFO

Exported Bio-Nutrient Summary					
Bio-Nutrient Group Name	Amount	Consumer	Consumer's Address	Telephone	Acres
No Data	No Data	No Data	No Data	No Data	No Data

ANALYSIS OF CROPPING SYSTEM

Farming Operation

Total Acres: 549.7

Crop Production History

THIS IS NOT A FERTILIZER RECOMMENDATION

Crop Rotation Name: Corn/Alf/Potato

Crop	Yield	Yield Units	N Requirement	P ₂ O ₅ uptake	K ₂ O Requirement
Corn, Field, Silage, S-ID, Irrigated	32	tons/acre	250	128.2	240
Sugarbeets, S-ID, Irrigated	28	tons/acre	210	38.5	240
Corn, Field, Silage, Double Cropped, S-ID, Irrigated	32	tons/acre	250	153.9	240
Potatoes, S-ID, Irrigated	450	cwt/acre	260	61.8	725
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated	7.5	tons/acre	0	92.7	360
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated	7.5	tons/acre	0	92.7	360
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated	7.5	tons/acre	0	92.7	360
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated	7.5	tons/acre	0	92.7	360
Average				94	

* Nitrogen and Potassium Requirements assume zero credits.

THIS IS NOT A FERTILIZER RECOMMENDATION**Crop Rotation Name: Pasture**

Crop	Yield	Yield Units	N Requirement	P₂O₅ uptake	K₂O Requirement
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated	5	tons/acre	150	91.6	200
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated	5	tons/acre	150	91.6	200
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated	5	tons/acre	150	91.6	200
Average				92	

*Nitrogen and Potassium Requirements assume zero credits.

Crop Rotation Name: Alf/Grain/SugarBeet/Pot

Crop	Yield	Yield Units	N Requirement	P₂O₅ uptake	K₂O Requirement
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated	7.5	tons/acre	0	92.7	360
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated	7.5	tons/acre	0	92.7	360
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated	7.5	tons/acre	0	92.7	360
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated	7.5	tons/acre	0	92.7	360
Barley, Spring, S-ID	130	bu/acre	210	48.6	240
Sugarbeets, S-ID, Irrigated	26.8	tons/acre	190	36.8	240
Barley, Spring, S-ID	130	bu/acre	210	48.6	240
Potatoes, S-ID, Irrigated	400	cwt/acre	240	55	700
Barley, Spring, S-ID	130	bu/acre	210	48.6	240

Crop Rotation Name: Pasture

Average				122	
Crop	Yield	Yield Units	N Requirement	P205 uptake	K20 Requirement
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated	4	tons/acre	150	73.3	200
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated	4	tons/acre	150	73.3	200
Average				73	

Crop Rotation Name: Alf/Grain

Crop	Yield	Yield Units	N Requirement	P ₂ O ₅ uptake	K ₂ O Requirement
Barley, Spring, S-ID	130	bu/acre	210	48.6	240
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated	7.5	tons/acre	0	92.7	360
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated	7.5	tons/acre	0	92.7	360
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated	7.5	tons/acre	0	92.7	360
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated	7.5	tons/acre	0	92.7	360
Barley, Spring, S-ID	130	bu/acre	210	48.6	240
Average				156	

* Nitrogen and Potassium Requirements assume zero credits.

THIS IS NOT A FERTILIZER RECOMMENDATION

Crop Rotation Name: Grain/Corn/Alf

Crop	Yield	Yield Units	N Requirement	P ₂ O ₅ uptake	K ₂ O Requirement
Corn, Field, Silage, S-ID, Irrigated	32	tons/acre	250	128.2	240
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated	7.5	tons/acre	0	92.7	360
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated	7.5	tons/acre	0	92.7	360
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated	7.5	tons/acre	0	92.7	360
Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated	7.5	tons/acre	0	92.7	360
Barley, Spring, S-ID	130	bu/acre	210	48.6	240
Barley, Spring, S-ID	130	bu/acre	210	48.6	240
Corn, Field, Silage, S-ID, Irrigated	32	tons/acre	250	128.2	240
Average				145	

* Nitrogen and Potassium Requirements assume zero credits.

THIS IS NOT A FERTILIZER RECOMMENDATION**Crop Rotation Name: Pasture**

Crop	Yield	Yield Units	N Requirement	P ₂ O ₅ uptake	K ₂ O Requirement
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated	5	tons/acre	150	91.6	200
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated	5	tons/acre	150	91.6	200
Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated	5	tons/acre	150	91.6	200
Average				92	

* Nitrogen and Potassium Requirements assume zero credits.

Mapped Resource Concern(s)

Field Name	Acres	Resource Concern(s)
No Data	No Data	No Data

ANALYSIS OF IRRIGATION PRACTICES

Irrigation Management

Proper irrigation management depends on factors such as the following.

Irrigation Efficiency: The efficiency with which the irrigation wets the entire crop root zone. This takes losses that occur from evaporation, runoff and deep percolation.

Crop Evapotranspiration Rate (ET): The combined rate at which water from the soil profile is evaporated into the atmosphere and transpired from the crop. The rate is expressed in units of inches/day.

Management Allowable Depletion (MAD): The percentage of water, which can be depleted from the soil before the crop, experiences water deficiency stress.

Available Water Holding Capacity in the Soil (AWH): The amount of water the pores in the soil profile can hold against gravity. The AWH is expressed as inches of water per inch of soil.

Crop Rooting Depth: The depth in the soil profile to which the crop roots can penetrate.

APPENDIX A: ANALYSIS OF SOIL CHARACTERISTICS

Soil Survey (USDA NRCS) information was used to describe the soil variations across each field. **This is not absolute** and may vary for each specific situation. The soil map has broad areas that have distinctive pattern of soils, relief, and drainage. Each map unit on the soil map is a unique natural landscape. Typically, it consists of one or more major soils or miscellaneous areas and some minor soils or miscellaneous areas. It is named for the major soils or miscellaneous areas. Because the minor soils are not described in the following summary, the combined acreage for all major soils will be less than the acreage for each field.

Table 1. Soil type across each field

Field Name	Soil Type	Percentage	Approximate Acreage	Surface Texture ¹
Field 1	ROCK OUTCROP	20	14.77	
	KECKO	25	18.46	VFSL
	JESTRICK	40	29.54	VFSL
	ROCK OUTCROP	15	2.03	
	JESTRICK	35	4.74	LFS
	ACKELTON	40	5.42	LFS
Pasture 1	ROCK OUTCROP	20	2.12	
	KECKO	25	2.65	VFSL
	JESTRICK	40	4.24	VFSL
	ROCK OUTCROP	15	9.15	
	JESTRICK	35	21.36	LFS
	ACKELTON	40	24.41	LFS
Pasture 2	ROCK OUTCROP	15	12.74	
	JESTRICK	35	29.72	LFS
	ACKELTON	40	33.96	LFS
Field 2	POWER	25	3.17	VFSL
	POWER	55	7.31	VFSL
	PURDAM	35	4.65	VFSL
	SNOWMORE	35	4.44	VFSL
	PURDAM	25	3.17	VFSL
	POWER	100	68.95	SIL

Field 3	POWER	25	0.19	VFSL
	PURDAM	25	0.19	VFSL
	SNOWMORE	35	0.26	VFSL
	PURDAM	35	0.59	VFSL
	POWER	100	1.84	SIL
	POWER	55	0.93	VFSL
Field 4	POWER	100	4.02	SIL
Field 5	POWER	25	1.38	VFSL
	POWER	100	56.13	SIL
	SNOWMORE	35	1.93	VFSL
	PURDAM	25	1.38	VFSL
Field 6	SNOWMORE	35	0.44	VFSL
	PURDAM	25	0.31	VFSL
	POWER	25	0.31	VFSL
	POWER	100	4.19	SIL
Field 7	POWER	100	2.85	SIL
	SNOWMORE	35	0.04	VFSL
	PURDAM	25	0.03	VFSL
	POWER	25	0.03	VFSL
Field 8	POWER	100	6.86	SIL
	TICESKA	35	0.22	VFSL
	TAUNTON	25	0.16	VFSL
	MINVENO	20	0.13	VFSL
Field 9	POWER	100	3.46	SIL
Field 10	TAUNTON	25	3.55	VFSL
	TICESKA	35	4.97	VFSL
	POWER	100	34.22	SIL
	MINVENO	20	2.84	VFSL
Field 11	POWER	25	1.32	VFSL
	PURDAM	25	1.32	VFSL
	SNOWMORE	35	1.85	VFSL
	POWER	100	30.36	SIL
Field 12	POWER	100	34.38	SIL

Note: 1- See Appendix A.

Table 2 contains important soil characteristics for each of the fields identified in this plan. Each soil characteristic listed is representative for the entire field based on a weighted average. *(Caution: USDA NRCS Soil Survey information was used to estimate the values reported in Table 2. These are not absolute values and may vary for each specific situation. They are estimated values representative for each field.)* The following includes a brief description of each of those factors:

Dominant Surface Texture -- The predominant texture of the surface layer. Soil texture is the relative proportion, by weight, of the particle separate classes (sand, silt, and clay) finer than 2 mm in equivalent diameter. Soil texture influences engineering works and plant growth and is used as an indicator of how soils formed. (See Appendix A)

Available Water Capacity (AWC) -- The volume of water that should be available to plants if the soil, inclusive of fragments, were at field capacity. It is commonly defined as the difference between the amount of soil moisture at field capacity and the amount at permanent wilting point. Typical Available Water Capacities are 0.6 inches/foot for a Sand and 2.0 inches/foot for a Silt Loam. Available Water Capacity is an important soil property in developing water budgets, predicting droughtiness, designing and operating irrigation systems, designing drainage systems, protecting water resources, and predicting yields.

Surface Soil Erodibility Factor (K) -- A factor which quantifies the susceptibility of soil detachment by water. Factors vary from a low of 0.02 to a high of 0.64.

Soil Loss Tolerance (T) -- The maximum amount of erosion at which the quality of a soil as a medium for plant growth can be maintained.

Slope -- The difference in elevation between two points expressed as a percentage of the distance between those points.

Permeability -- The quality of the soil that enables water or air to move through it.

Permeability Class -- Permeability expressed by classes ranging from very rapid to impermeable. (See Appendix A)

Runoff Class - An index of the likelihood for runoff to occur based on inherent soil and slope characteristic. Runoff classes range from Negligible to Very High. (See Appendix A)

Surface pH -- A numerical expression of the relative acidity or alkalinity of the surface soil layer.

Surface pH Classification -- A general descriptive term for soil pH, acid or alkaline.

Table 3 contains additional important soil characteristics for each of the fields identified in this plan. Each soil characteristic listed represents a potential limiting condition within the soil profile (< 5 feet) across the field. *(Caution: USDA NRCS Soil Survey information was used to estimate*

the values reported in Table 2. These are not absolute values and may vary for each specific situation. They are estimated values representative for each field.) The following includes a brief description of each of those factors:

Soil Layer with > 50 % Gravel, Cobble or Stone -- A layer comprised of more than 50 % gravel, cobbles or stones.

Pan - A compact, dense layer in the soil that impedes the movement of water and the growth of roots. Examples include: *hardpan*, *claypan*, *plowpan*, and *fragipan*. (See Appendix A)

Rock -- A layer of rock in the soil that impedes the movement of water and the growth of roots.

Seasonal High Water Table -- A seasonal water table that exist near the surface.

Drainage Class - Drainage class identifies the natural drainage condition of the soil. It refers to the frequency and duration of wet periods. Alteration of the water regime by humans, either through drainage or irrigation, is not a consideration unless the alterations have significantly changed the morphology of the soil. (See Appendix A)

Hydrologic Group -- A group of soils having similar runoff potential under similar storm and cover conditions.

Table 2. Soil characteristics representative for each field

Field Name	Representative For Entire Field (Weighted Average)											
	Dominant Surface Texture & (Acreage) ¹	Total Available Water Capacity to 5 feet (in)	Surface Soil Erodibility Factor - K	Soil Loss Tolerance - T (tons/acre)	Calculated Sheet and Rill Erosion Rate ² (tons/acre)	Calculated Irrigation Induced Erosion Rate ² (tons/acre)	Slope (%)	Permeability (in/hour)	Permeability Class ^{1,2}	Runoff Class ^{1,2}	Surface pH	Surface pH Classification
Cropland	VFSL(73.85)	4.89	0.2	3	-1	-1	5.85	2.35	Moderately Rapid	L	7.3	Alkaline
Pasture 1	LFS(61.03)	5.02	0.12	3	-1	-1	5.86	2.51	Moderately Rapid	L	7.07	Alkaline
Pasture 2	LFS(93.96)	5.05	0.1	3	-1	-1	5.87	2.54	Moderately Rapid	L	7.02	Alkaline
Field 2	SIL(64.45)	10.03	0.41	5	-1	-1	1.78	0.37	Moderately Slow	L	7.19	Alkaline
Field 3	VFSL(2.44)	9.22	0.38	4	-1	-1	2.07	0.36	Moderately Slow	L	7.12	Alkaline
Field 4	SIL(3.99)	10.95	0.43	5	-1	-1	1.5	0.39	Moderately Slow	L	7.25	Alkaline
Field 5	SIL(58.38)	10.59	0.42	5	-1	-1	1.59	0.38	Moderately Slow	L	7.24	Alkaline
Field 6	SIL(4.19)	10.01	0.41	5	-1	-1	1.73	0.35	Moderately Slow	L	7.22	Alkaline
Field 7	SIL(2.85)	10.78	0.43	5	-1	-1	1.54	0.38	Moderately Slow	L	7.25	Alkaline
Field 8	SIL(6.86)	10.45	0.42	5	-1	-1	1.54	0.46	Moderately Slow	L	7.29	Alkaline
Field 9	SIL(3.48)	10.95	0.43	5	-1	-1	1.5	0.39	Moderately Slow	L	7.25	Alkaline
Field 10	SIL(34.22)	9.21	0.4	4	-1	-1	1.65	0.65	Moderate	L	7.4	Alkaline
Field 11	SIL(30.36)	10.35	0.42	5	-1	0.1	1.65	0.37	Moderately Slow	L	7.23	Alkaline
Field 12	SIL(34.38)	10.95	0.43	5	-1	-1	1.5	0.39	Moderately Slow	L	7.25	Alkaline

NOTES:

1 - See Appendix A.

2 - PERMEABILITY CLASSES: VR = Very Rapid, R = Rapid, MR = Moderately Rapid, M = Moderate, MS = Moderately Slow, S = Slow, VS = Very Slow, I = Impermeable.

3 - RUNOFF CLASS: N = Negligible, LV = Very Low, L = Low, M = Medium, H = High, HV = Very High.

Table 3. Soil characteristics that represent a potential limiting condition within the soil profile (< 5 feet) across the entire field.

Field Name	Depth to Limiting Layer < 5 feet - Soil Layer with > 50 % Gravel, Cobble or Stone					Depth to Limiting Layer < 5 feet - Pan ¹				
	Dominant Condition		Most Limiting Condition			Dominant Condition		Most Limiting Condition		
	Layer Description ^{1,2}	Acres	Layer Description ^{1,2}	Acres	Minimum Depth (in)	Layer Description	Acres	Layer Description	Acres	Minimum Depth (in)
Cropland	None Present	87.41		87.41	0	No Pan Present	87.41	No Pan Present	87.41	0
Pasture	None Present	71.64		71.64	0	No Pan Present	71.64	No Pan Present	71.64	0
Pasture 1	None Present	93.96		93.96	0	No Pan Present	93.96	No Pan Present	93.96	0
Pasture 2	None Present	93.96		93.96	0	No Pan Present	93.96	No Pan Present	93.96	0
Field 2	None Present	89.38		89.38	0	No Pan Present	80.79	Pan Present	8.59	20
Field 3	None Present	4.28		4.28	0	Pan Present	3.4	Pan Present	0.88	20
Field 4	None Present	3.99		3.99	0	Pan Present	3.99	Pan Present	3.99	0
Field 5	None Present	63.98		63.98	0	No Pan Present	62.33	Pan Present	1.65	20
Field 6	None Present	5.44		5.44	0	Pan Present	5.07	Pan Present	0.37	20
Field 7	None Present	2.97		2.97	0	Pan Present	2.93	Pan Present	0.03	20
Field 8	None Present	7.48		7.48	0	Pan Present	7.29	Pan Present	0.2	22
Field 9	None Present	3.48		3.48	0	Pan Present	3.48	Pan Present	3.48	0
Field 10	None Present	48.43		48.43	0	Pan Present	43.99	Pan Present	4.44	22
Field 11	None Present	35.65		35.65	0	Pan Present	34.1	Pan Present	1.56	20
Field 12	None Present	34.38		34.38	0	Pan Present	34.38	Pan Present	34.38	0

Field Name	Depth to Limiting Layer < 5 feet - Rock					Depth to Limiting Layer < 5 feet - Seasonal High Water Table				
	Dominant Condition		Most Limiting Condition			Dominant Condition		Most Limiting Condition		
	Layer Description	Acres	Layer Description	Acres	Minimum Depth (in)	Layer Description	Acres	Layer Description	Acres	Minimum Depth (in)
Field 1	Rock Layer Present	51.77	Rock Layer Present	51.77	25	No Water Table Present	87.41	No Water Table Present	87.41	6
Pasture 1	No Rock Layer Present	36.63	No Rock Layer Present	35.01	N/A	No Water Table Present	71.64	No Water Table Present	71.64	6
Pasture 2	No Rock Layer Present	50.11	No Rock Layer Present	43.85	N/A	No Water Table Present	93.96	No Water Table Present	93.96	6
Field 2	No Rock Layer Present	75.99	No Rock Layer Present	4.8	N/A	No Water Table Present	89.38	No Water Table Present	89.38	6
Field 3	No Rock Layer Present	3.09	No Rock Layer Present	0.31	N/A	Water Table Present	4.28	Water Table Present	4.28	6
Field 4	No Rock Layer Present	3.99	No Rock Layer Present	3.99	N/A	Water Table Present	3.99	Water Table Present	3.99	6
Field 5	No Rock Layer Present	60.02	No Rock Layer Present	2.31	N/A	No Water Table Present	63.98	No Water Table Present	63.98	6
Field 6	No Rock Layer Present	4.56	No Rock Layer Present	0.51	N/A	Water Table Present	5.44	Water Table Present	5.44	6
Field 7	No Rock Layer Present	2.89	No Rock Layer Present	0.05	N/A	Water Table Present	2.97	Water Table Present	2.97	6
Field 8	No Rock Layer Present	7.05	No Rock Layer Present	0.16	N/A	Water Table Present	7.48	Water Table Present	7.48	6
Field 9	No Rock Layer Present	3.48	No Rock Layer Present	3.48	N/A	Water Table Present	3.48	Water Table Present	3.48	6
Field 10	No Rock Layer Present	38.66	No Rock Layer Present	3.55	N/A	Water Table Present	48.43	Water Table Present	48.43	6
Field 11	No Rock Layer Present	31.92	No Rock Layer Present	2.18	N/A	Water Table Present	35.65	Water Table Present	35.65	6
Field 12	No Rock Layer Present	34.38	No Rock Layer Present	34.38	N/A	Water Table Present	34.38	Water Table Present	34.38	6

Field Name	Drainage Class ^{1,3}		Hydrologic Group ¹	
	Dominant Drainage Class	Acres	Dominant Hydrologic Group	Acres
Cropland	Somewhat excessively drained	73.85	B	87.41
Pasture 1	Well drained	61.03	B	71.64
Pasture 2	Well drained	93.96	B	93.96
Field 2	Well drained	89.38	B	77.73
Field 3	Well drained	4.28	B	3.53
Field 4	Well drained	3.99	B	3.99
Field 5	Well drained	63.98	B	58.38
Field 6	Well drained	5.44	B	4.19
Field 7	Well drained	2.97	B	2.85
Field 8	Well drained	7.48	B	6.86
Field 9	Well drained	3.48	B	3.48
Field 10	Well drained	48.43	B	34.22
Field 11	Well drained	35.65	B	30.36
Field 12	Well drained	34.38	B	34.38

NOTES:

1 - See Appendix A.

2 - GRAVEL, COBBLE, or STONE: GRV = Very Gravelly, GRX = Extremely Gravelly, CBV = Very Cobbly, CBX = Extremely Cobbly, STV = Very Stony, STX = Extremely Stony, WB = Weathered Bedrock, and UWB = Unweathered Bedrock.

3 - DRAINAGE CLASS: E = Excessively drained, SE = Somewhat Excessively drained, W = Well drained, MW = Moderately Well drained, SP = Somewhat Poorly drained, P = Poorly drained, VP = Very Poorly drained.

ANALYSIS OF SOIL CHARACTERISTICS LEGEND

Soil Pan

Hardpan – A hardened or cemented layer soil horizon, or layer. The soil material is sandy, loamy, or clayey and is cemented by iron oxide, silica, calcium carbonate, or other substance.

Claypan – A slowly permeable soil horizon that contains much more clay than the horizon above it. A claypan is commonly hard when dry and plastic or stiff when wet.

Plowpan – A compacted layer formed in the soil directly below the plow layer.

Fragipan – A loamy, brittle subsurface horizon low in porosity and content of organic matter and low or moderate in clay but high in silt or very fine sand. A fragipan appears cemented and restrict roots. When dry, it is hard or very hard and has a higher bulk density than the horizon or horizons above. When moist, it tends to rupture suddenly under pressure rather than deform slowly.

Soil Drainage Class

Excessively drained (E). Water is removed very rapidly. The occurrence of internal free water commonly is very rare or very deep. The soils are commonly coarse-textured and have very high hydraulic conductivity or are very shallow. They are not suited to crop production unless irrigated.

Somewhat excessively drained (SE). Water is removed from the soil rapidly. Internal free water occurrence commonly is very rare or very deep. The soils are commonly coarse-textured and have high saturated hydraulic conductivity or are very shallow. Without irrigation, only a narrow range of crops can be grown and yields are low.

Well drained (W). Water is removed from the soil readily but not rapidly. Internal free water occurrence commonly is deep or very deep; annual duration is not specified. Water is available to plants throughout most of the growing season in humid regions. Wetness does not inhibit growth of roots for significant periods during most growing seasons.

Moderately well drained (MW). Water is removed from the soil somewhat slowly during some periods of the year. Internal free water occurrence commonly is moderately deep and transitory through permanent. The soils are wet for only a short time within the rooting depth during the growing season, but long enough that most mesophytic crops are affected. They commonly have a moderately low or lower saturated hydraulic conductivity in a layer within the upper 1 m, periodically receive high rainfall, or both.

Somewhat poorly drained (SP). Water is removed slowly so that the soil is wet at a shallow depth for significant periods during the growing season. The occurrence of internal free water commonly is shallow to moderately deep and transitory to permanent. Wetness markedly restricts the growth of mesophytic crops, unless artificial drainage is provided. The soils commonly have one or more of the following characteristics: low or very low saturated hydraulic conductivity, a high water table, additional water from seepage, or nearly continuous rainfall.

Poorly drained (P). Water is removed so slowly that the soil is wet at shallow depths periodically during the growing season or remains wet for long periods. The occurrence of internal free water is shallow or very shallow and common or persistent. Free water is commonly at or near the surface long enough during the growing season so that most mesophytic crops cannot be grown, unless the soil is artificially drained. The soil, however, is not continuously wet directly below plow-depth. Free water at shallow depth is usually present. This water table is commonly the result of low or very low saturated hydraulic conductivity of nearly continuous rainfall, or of a combination of these.

Very poorly drained (VP). Water is removed from the soil so slowly that free water remains at or very near the ground surface during much of the growing season. The occurrence of internal free water is very shallow and persistent or permanent. Unless the soil is artificially drained, most mesophytic crops cannot be grown. The soils are commonly level or depressed and frequently ponded. If rainfall is high or nearly continuous, slope gradients may be greater.

Soil Hydrologic Group

Group A – Soils that have low runoff potential and high infiltration rates even when thoroughly wetted. They consist chiefly of deep, well to excessively drained sands and gravels. These soils have a high rate of water transmission (greater than 0.30 in/hr).

Group B – Soils that have moderate infiltration rates when thoroughly wetted. They consist chiefly of moderately deep to deep, moderately well to well drained soils with moderately fine to moderately coarse textures. These soils have a moderate rate of water transmission (greater than 0.15 – 0.30 in/hr).

Group C – Soils that have low infiltration rates when thoroughly wetted. They consist chiefly of soils with a layer that impedes downward movement of water and soils with moderately fine to fine texture. These soils have a low rate of water transmission (greater than 0.05 - 0.15 in/hr).

Group D – Soils that have high runoff potential. They have very low infiltration rates when thoroughly wetted. They consist chiefly of clay soils with high swelling potential, soils with a permanent high water table, soils with a claypan or clay layer at or near the surface, and shallow soils over impervious material. These soils have a very low rate of water transmission (greater than 0.0 - 0.05 in/hr).

Soil Permeability Class

Very Rapid:	20.0 to 100.0 inches/hour
Rapid:	6.0 to 20.0 inches/hour
Moderately Rapid:	2.0 to 6.0 inches/hour
Moderate:	0.6 to 2.0 inches/hour
Moderately Slow:	0.2 to 0.6 inches/hour
Slow:	0.06 to 0.20 inches
Very Slow:	0.0015 to 0.06 inches/hour
Impermeable:	0.0000 to 0.0015 inches/hour

Soil Texture Modifiers, Texture Class and Terms Used in Lieu of Texture.

<u>Texture Modifiers</u>	<u>Texture Class</u>	<u>Terms used in lieu of texture</u>
ASHY Ashy	C Clay	BR Bedrock
BY Bouldery	CL Clay loam	BY Boulders
BYV Very bouldery	COS Coarse sand	CB Cobbles
BYX Extremely bouldery	COSL Coarse sandy loam	CN Channers
CB Cobbly	FS Fine sand	DUR Duripan
CBV Very cobbly	FSL Fine sandy loam	FL Flagstones
CBX Extremely cobbly	L Loam	G Gravel
CN Channery	LCOS Loamy coarse sand	HPM Highly Decomposed plant material
CNV Very channery	LFS Loamy fine sand	MAT Material
CNX Extremely channery	LS Loamy sand	MPM Moderately Decomposed plant material
COP Coprogenous	LVFS Loamy very fine sand	MPT Mucky peat
DIA Diatomaceous	S Sand	MUCK Muck
FL Flaggy	SC Sandy clay	OR Ortstein
FLV Very flaggy	SCL Sandy clay loam	PBY Paraboulders
FLX Extremely flaggy	SI Silt	PC Petrocalcic
GR Gravelly	SIC Silty clay	PCB Paracobbles
GRC Coarse gravelly	SICL Silty clay loam	PCN Parachanners
GRF Fine gravelly	SIL Silt loam	PEAT Peat
GRM Medium gravelly	SL Sandy loam	PF Petroferric
GRV Very gravelly	VFS Very fine sand	PFL Paraflagstones
GRX Extremely gravelly	VFSL Very fine sandy loam	PG Paragravel
GS Grassy		PGP Petrogypsic
GYP Gypsiferous		PL Placic
HB Herbaceous		PST Parastones
HYDR Hydrous		SPM Slightly Decomposed plant material
MEDL Medial		ST Stones
MK Mucky		W Water
MR Marly		
MS Mossy		
PBY Parabouldery		
PBYV Very Parabouldery		
PBYX Extremely Parabouldery		
PCB Paracobbly		
PCBV Very Paracobbly		
PCBX Extremely Paracobbly		
PCN Parachannery		
PCNV Very Parachannery		
PCNX Extremely Parachannery		
PF Permanently frozen		
PFL Paraflaggy		
PFLV Very Paraflaggy		

PFLX Extremely Paraflaggy
PGR Paragravelly
PGRV Very Paragravelly
PGRX Extremely Paragravelly
PST Parastony
PSTV Very Parastony
PSTX Extremely Parastony
PT Peaty
ST Stony
STV Very stony
STX Extremely stony
WD Woody

APPENDIX B: NUTRIENT RISK ANALYSIS

Phosphorus Runoff Risk Assessment

FIELD: Field 1

Overall Risk Rating: Medium

Medium potential for phosphorus loss. Some remediation measures should be undertaken to minimize the probability of phosphorus loss.

Soil Test P

Risk Rating: Very High

Soil Test Depth / Phosphorus Concentration 0-12": No Valid Soil Test Data

Soil Test Depth / Phosphorus Concentration 18-24": No Valid Soil Test Data

Idaho Nutr. Management Standard Threshold: 20

Soil Test Type: Olsen

Comments: Soil test P is very high and may be approaching the critical Phosphorus Threshold. Test soils annually to monitor buildup or decline in soil P.

Phosphorus Fertilizer Application Rate

Risk Rating: Very Low or N.A.

Phosphorus Application Rate: 0

Comments: No Data

Phosphorus Fertilizer Application Method

Risk Rating: Medium

Phosphorus Application Method: Incorporated >3 inches (Disking/Chiseling)

Comments: For greatest phosphorus efficiency place commercial fertilizer P with planter or inject > 2".

Manure Phosphorus Application Rate

Risk Rating: Medium

Manure Application Rate: 78.8

Comments: Sufficient soil P may be available for normal agronomic production after fertilization, except for possible response to a starter fertilizer for specific crops like potatoes (see Crop Specific Recommendations). A long range nutrient management plan will assist you in maintaining optimum P levels.

Manure Phosphorus Application Method

Risk Rating: Medium

Manure Application Method: N/A

Comments: For greatest phosphorus efficiency inject organic P > 2" or plow.

Irrigation Runoff Index (Irrigated)

Risk Rating: Very Low or N.A.

Comments: No Data

Surface Irrigation or Overhead Irrigation

Risk Rating: Very Low or N.A.

Comments: No Data

Runoff Best Management Practices

Risk Rating: Very Low or N.A.

List best management practices that mitigate runoff(See Appendix B)

Comments: No Data

Distance to Surface Water Body: 1

Risk Rating: Very Low or N.A.

Comments: No Data

FIELD: Pasture 1

Overall Risk Rating: Medium

Medium potential for phosphorus loss. Some remediation measures should be undertaken to minimize the probability of phosphorus loss.

Soil Test P

Risk Rating: Very High

Soil Test Depth / Phosphorus Concentration 0-12": No Valid Soil Test Data

Soil Test Depth / Phosphorus Concentration 18-24": No Valid Soil Test Data

Idaho Nutr. Management Standard Threshold: 20 Soil Test Type: Olsen

Comments: Soil test P is very high and may be approaching the critical Phosphorus Threshold. Test soils annually to monitor buildup or decline in soil P.

Phosphorus Fertilizer Application Rate

Risk Rating: Very Low or N.A.

Phosphorus Application Rate: 0

Comments: No Data

Phosphorus Fertilizer Application Method

Risk Rating: Very High

Phosphorus Application Method: Surface applied no incorporation with containment

Comments: For greatest phosphorus efficiency place commercial fertilizer P with planter or inject > 2"; otherwise incorporate > 3" by disking, chiseling, etc.

Manure Phosphorus Application Rate

Risk Rating: Medium

Manure Application Rate: 91.6

Comments: Sufficient soil P may be available for normal agronomic production after fertilization, except for possible response to a starter fertilizer for specific crops like potatoes (see Crop Specific Recommendations). A long range nutrient management plan will assist you in maintaining optimum P levels.

Manure Phosphorus Application Method

Risk Rating: Undetermined

Manure Application Method: Incorporated < 3 inches (Harrowing/etc)

Comments: No Data

Irrigation Runoff Index (Irrigated)**Risk Rating:** Very Low or N.A.**Comments:** No Data**Surface Irrigation or Overhead Irrigation****Risk Rating:** Very Low or N.A.**Comments:** No Data**Runoff Best Management Practices****Risk Rating:** Very Low or N.A.

List best management practices that mitigate runoff(See Appendix B)

Comments: No Data**Distance to Surface Water Body: 1****Risk Rating:** Very Low or N.A.**Comments:** No Data**FIELD: Pasture 2****Overall Risk Rating:** Medium

Medium potential for phosphorus loss. Some remediation measures should be undertaken to minimize the probability of phosphorus loss.

Soil Test P**Risk Rating:** Very High**Soil Test Depth / Phosphorus Concentration 0-12":** No Valid Soil Test Data**Soil Test Depth / Phosphorus Concentration 18-24":** No Valid Soil Test Data**Idaho Nutr. Management Standard Threshold:** 20**Soil Test Type:** Olsen**Comments:** Soil test P is very high and may be approaching the critical Phosphorus Threshold. Test soils annually to monitor buildup or decline in soil P.**Phosphorus Fertilizer Application Rate****Risk Rating:** Very Low or N.A.**Phosphorus Application Rate:** 0**Comments:** No Data**Phosphorus Fertilizer Application Method****Risk Rating:** Very High**Phosphorus Application Method:** Surface applied no incorporation with containment**Comments:** For greatest phosphorus efficiency place commercial fertilizer P with planter or inject > 2"; otherwise incorporate > 3" by disking, chiseling, etc.**Manure Phosphorus Application Rate****Risk Rating:** Medium**Manure Application Rate:** 76.6**Comments:** Sufficient soil P may be available for normal agronomic production after fertilization, except for possible response to a starter fertilizer for specific crops like potatoes (see Crop Specific Recommendations). A long range nutrient management plan will assist you in maintaining optimum P levels.

Manure Phosphorus Application Method**Risk Rating:** Very High**Manure Application Method:** N/A**Comments:** For greatest phosphorus efficiency inject Organic P > 2" or plow; otherwise incorporate > 3" by disking, chiseling, etc.**Irrigation Runoff Index (Irrigated)****Risk Rating:** Very Low or N.A.**Comments:** No Data**Surface Irrigation or Overhead Irrigation****Risk Rating:** Very Low or N.A.**Comments:** No Data**Runoff Best Management Practices****Risk Rating:** Very Low or N.A.

List best management practices that mitigate runoff(See Appendix B)

Comments: No Data**Distance to Surface Water Body: 0.5****Risk Rating:** Very Low or N.A.**Comments:** No Data**FIELD: Field 2****Overall Risk Rating:** Very High

Very high potential for phosphorus loss and adverse effects on surface and/or ground waters. All necessary soil and water conservation measures and a phosphorus management plan must be implemented to minimize phosphorus loss. Reference risk assessment below and consult a local resource conservation planning specialist and/or the OnePlan Conservation Planning module to determine appropriate Best Management Practices for this field.

Soil Test P**Risk Rating:** Critical**Soil Test Depth / Phosphorus Concentration 0-12":** No Valid Soil Test Data**Soil Test Depth / Phosphorus Concentration 18-24":** No Valid Soil Test Data**Idaho Nutr. Management Standard Threshold:** 40**Soil Test Type:** Olsen

Comments: Soil test P is above the Idaho Nutrient Management Standard Phosphorus Threshold. Test soils annually to monitor buildup or decline in soil P and to determine if your Nutrient Management Plan is successful in reducing soil P levels.

Phosphorus Fertilizer Application Rate**Risk Rating:** Very Low or N.A.**Phosphorus Application Rate:** 0**Comments:** No Data**Phosphorus Fertilizer Application Method****Risk Rating:** Medium**Phosphorus Application Method:** Incorporated >3 inches (Disking/Chiseling)

Comments: For greatest phosphorus efficiency place commercial fertilizer P with planter or inject > 2".

Manure Phosphorus Application Rate**Risk Rating:****Manure Application Rate:** 144.9

Comments: Sufficient soil P is available for normal agronomic production except for possible response to a starter fertilizer for specific crops like potatoes (see Crop Specific Recommendations). Use crop removal rates or less to reduce soil P down to optimum levels. A long range nutrient management plan should be considered.

Manure Phosphorus Application Method**Risk Rating:** Medium**Manure Application Method:** N/A

Comments: For greatest phosphorus efficiency inject organic P > 2" or plow.

Irrigation Runoff Index (Irrigated)**Risk Rating:** Very Low or N.A.**Comments:** No Data**Surface Irrigation or Overhead Irrigation****Risk Rating:** Very Low or N.A.**Comments:** No Data**Runoff Best Management Practices****Risk Rating:**

List best management practices that mitigate runoff(See Appendix B)

Comments: Consider implementing Conservation Practices on-field and off-field that reduce or eliminate runoff and erosion.

Distance to Surface Water Body: 1**Risk Rating:** Very Low or N.A.**Comments:** No Data**FIELD:** Field 3**Overall Risk Rating:** Very High

Very high potential for phosphorus loss and adverse effects on surface and/or ground waters. All necessary soil and water conservation measures and a phosphorus management plan must be implemented to minimize phosphorus loss. Reference risk assessment below and consult a local resource conservation planning specialist and/or the OnePlan Conservation Planning module to determine appropriate Best Management Practices for this field.

Soil Test P**Risk Rating:** Critical**Soil Test Depth / Phosphorus Concentration 0-12":** No Valid Soil Test Data**Soil Test Depth / Phosphorus Concentration 18-24":** No Valid Soil Test Data**Idaho Nutr. Management Standard Threshold:** 40**Soil Test Type:** Olsen

Comments: Soil test P is above the Idaho Nutrient Management Standard Phosphorus Threshold. Test soils annually to monitor buildup or decline in soil P and to determine if your Nutrient Management Plan is successful in reducing soil P levels.

Phosphorus Fertilizer Application Rate**Risk Rating:** Very Low or N/A.**Phosphorus Application Rate:** 0**Comments:** No Data**Phosphorus Fertilizer Application Method****Risk Rating:** Very Low or N/A.**Phosphorus Application Method:** Not Applied**Comments:** No Data**Manure Phosphorus Application Rate****Risk Rating:** Very Low or N/A.**Manure Application Rate:** N/A**Comments:** No Data**Manure Phosphorus Application Method****Risk Rating:** Medium**Manure Application Method:** N/A**Comments:** For greatest phosphorus efficiency inject organic P > 2" or plow.**Irrigation Runoff Index (Irrigated)****Risk Rating:** Very Low or N/A.**Comments:** No Data**Surface Irrigation or Overhead Irrigation****Risk Rating:** Very Low or N/A.**Comments:** No Data**Runoff Best Management Practices****Risk Rating:**

List best management practices that mitigate runoff(See Appendix B)

Comments: Consider implementing Conservation Practices on-field and off-field that reduce or eliminate runoff and erosion.**Distance to Surface Water Body: 1****Risk Rating:** Very Low or N/A.**Comments:** No Data**FIELD: Field 4****Overall Risk Rating:** Very High

Very high potential for phosphorus loss and adverse effects on surface and/or ground waters. All necessary soil and water conservation measures and a phosphorus management plan must be implemented to minimize phosphorus loss. Reference risk assessment below and consult a local resource conservation planning specialist and/or the OnePlan Conservation Planning module to determine appropriate Best Management Practices for this field.

Soil Test P**Risk Rating:** Critical**Soil Test Depth / Phosphorus Concentration 0-12":** No Valid Soil Test Data**Soil Test Depth / Phosphorus Concentration 18-24":** No Valid Soil Test Data

Idaho Nutr. Management Standard Threshold: 40**Soil Test Type: Olsen**

Comments: Soil test P is above the Idaho Nutrient Management Standard Phosphorus Threshold. Test soils annually to monitor buildup or decline in soil P and to determine if your Nutrient Management Plan is successful in reducing soil P levels.

Phosphorus Fertilizer Application Rate**Risk Rating:** Very Low or N/A.**Phosphorus Application Rate: 0****Comments:** No Data**Phosphorus Fertilizer Application Method****Risk Rating:** Very Low or N/A.**Phosphorus Application Method: Not Applied****Comments:** No Data**Manure Phosphorus Application Rate****Risk Rating:** Very Low or N/A.**Manure Application Rate: N/A****Comments:** No Data**Manure Phosphorus Application Method****Risk Rating:** Medium**Manure Application Method: N/A****Comments:** For greatest phosphorus efficiency inject organic P > 2" or plow.**Irrigation Runoff N/A****Risk Rating:** Low**Comments:** No Data**Surface Irrigation or Overhead Irrigation****Risk Rating:** Very Low or N/A.**Comments:** No Data**Runoff Best Management Practices****Risk Rating:** Low**List best management practices that mitigate runoff(See Appendix B)**

Comments: Consider implementing Conservation Practices on-field and off-field that reduce or eliminate runoff and erosion.

Distance to Surface Water Body: 1**Risk Rating:** Very Low or N/A.**Comments:** No Data

FIELD: Field 5**Overall Risk Rating: Very High**

Very high potential for phosphorus loss and adverse effects on surface and/or ground waters. All necessary soil and water conservation measures and a phosphorus management plan must be implemented to minimize phosphorus loss. Reference risk assessment below and consult a local resource conservation planning specialist and/or the OnePlan Conservation Planning module to determine appropriate Best Management Practices for this field.

Soil Test P**Risk Rating: Critical****Soil Test Depth / Phosphorus Concentration 0-12'':** No Valid Soil Test Data**Soil Test Depth / Phosphorus Concentration 18-24'':** No Valid Soil Test Data**Idaho Nutr. Management Standard Threshold:** 40**Soil Test Type:** Olsen

Comments: Soil test P is above the Idaho Nutrient Management Standard Phosphorus Threshold. Test soils annually to monitor buildup or decline in soil P and to determine if your Nutrient Management Plan is successful in reducing soil P levels.

Phosphorus Fertilizer Application Rate**Risk Rating: Very Low or N.A.****Phosphorus Application Rate:** 0**Comments:** No Data**Phosphorus Fertilizer Application Method****Risk Rating: Very Low or N.A.****Phosphorus Application Method:** Not Applied**Comments:** No Data**Manure Phosphorus Application Rate****Risk Rating: Medium****Manure Application Rate:** 68.5

Comments: Sufficient soil P may be available for normal agronomic production after fertilization, except for possible response to a starter fertilizer for specific crops like potatoes (see Crop Specific Recommendations). A long range nutrient management plan will assist you in maintaining optimum P levels.

Manure Phosphorus Application Method**Risk Rating: Medium****Manure Application Method:** N/A

Comments: For greatest phosphorus efficiency inject organic P > 2" or plow.

Irrigation Runoff Index (Irrigated)**Risk Rating: Very High****Comments:** No Data**Surface Irrigation or Overhead Irrigation****Risk Rating: Very Low or N.A.****Comments:** No Data

Runoff Best Management Practices**Risk Rating:**

List best management practices that mitigate runoff(See Appendix B)

Comments: Consider implementing Conservation Practices on-field and off-field that reduce or eliminate runoff and erosion.**Distance to Surface Water Body:** 1**Risk Rating:** Very Low or N.A.**Comments:** No Data**FIELD:** Field 6**Overall Risk Rating:** Very High

Very high potential for phosphorus loss and adverse effects on surface and/or ground waters. All necessary soil and water conservation measures and a phosphorus management plan must be implemented to minimize phosphorus loss. Reference risk assessment below and consult a local resource conservation planning specialist and/or the OnePlan Conservation Planning module to determine appropriate Best Management Practices for this field.

Soil Test P**Risk Rating:** Critical**Soil Test Depth / Phosphorus Concentration 0-12":** No Valid Soil Test Data**Soil Test Depth / Phosphorus Concentration 18-24":** No Valid Soil Test Data**Idaho Nutr. Management Standard Threshold:** 40**Soil Test Type:** Olsen

Comments: Soil test P is above the Idaho Nutrient Management Standard Phosphorus Threshold. Test soils annually to monitor buildup or decline in soil P and to determine if your Nutrient Management Plan is successful in reducing soil P levels.

Phosphorus Fertilizer Application Rate**Risk Rating:** Very Low or N.A.**Phosphorus Application Rate:** 0**Comments:** No Data**Phosphorus Fertilizer Application Method****Risk Rating:** Very Low or N.A.**Phosphorus Application Method:** Not Applied**Comments:** No Data**Manure Phosphorus Application Rate****Risk Rating:** Medium**Manure Application Rate:** 91.6

Comments: Sufficient soil P may be available for normal agronomic production after fertilization, except for possible response to a starter fertilizer for specific crops like potatoes (see Crop Specific Recommendations). A long range nutrient management plan will assist you in maintaining optimum P levels.

Manure Phosphorus Application Method**Risk Rating:** Very High**Manure Application Method:** N/A

Comments: For greatest phosphorus efficiency inject Organic P > 2" or plow; otherwise incorporate > 3" by disking, chiseling, etc.

Irrigation Runoff Index (Irrigated)**Risk Rating:** Very High**Comments:** No Data**Surface Irrigation or Overhead Irrigation****Risk Rating:** Very Low or N.A.**Comments:** No Data**Runoff Best Management Practices****Risk Rating:**

List best management practices that mitigate runoff(See Appendix B)

Comments: Consider implementing Conservation Practices on-field and off-field that reduce or eliminate runoff and erosion.**Distance to Surface Water Body: 1****Risk Rating:** Very Low or N.A.**Comments:** No Data**FIELD: Field 7****Overall Risk Rating:** Very High

Very high potential for phosphorus loss and adverse effects on surface and/or ground waters. All necessary soil and water conservation measures and a phosphorus management plan must be implemented to minimize phosphorus loss. Reference risk assessment below and consult a local resource conservation planning specialist and/or the OnePlan Conservation Planning module to determine appropriate Best Management Practices for this field.

Soil Test P**Risk Rating:** Critical**Soil Test Depth / Phosphorus Concentration 0-12":** No Valid Soil Test Data**Soil Test Depth / Phosphorus Concentration 18-24":** No Valid Soil Test Data**Idaho Nutr. Management Standard Threshold:** 40**Soil Test Type:** Olsen

Comments: Soil test P is above the Idaho Nutrient Management Standard Phosphorus Threshold. Test soils annually to monitor buildup or decline in soil P and to determine if your Nutrient Management Plan is successful in reducing soil P levels.

Phosphorus Fertilizer Application Rate**Risk Rating:** Very Low or N.A.**Phosphorus Application Rate:** 0**Comments:** No Data**Phosphorus Fertilizer Application Method****Risk Rating:** Very Low or N.A.**Phosphorus Application Method:** Not Applied**Comments:** No Data**Manure Phosphorus Application Rate****Risk Rating:** Medium

Manure Application Rate: 91.6

Comments: Sufficient soil P may be available for normal agronomic production after fertilization, except for possible response to a starter fertilizer for specific crops like potatoes (see Crop Specific Recommendations). A long range nutrient management plan will assist you in maintaining optimum P levels.

Manure Phosphorus Application Method**Risk Rating:** Very High**Manure Application Method: N/A**

Comments: For greatest phosphorus efficiency inject Organic P > 2" or plow; otherwise incorporate > 3" by disking, chiseling, etc.

Irrigation Runoff Index (Irrigated)**Risk Rating:** Very High**Comments:** No Data**Surface Irrigation or Overhead Irrigation****Risk Rating:** Very Low or N.A.**Comments:** No Data**Runoff Best Management Practices****Risk Rating:**

List best management practices that mitigate runoff(See Appendix B)

Comments: Consider implementing Conservation Practices on-field and off-field that reduce or eliminate runoff and erosion.

Distance to Surface Water Body: 1**Risk Rating:** Very Low or N.A.**Comments:** No Data**FIELD: Field 8****Overall Risk Rating: Very High**

Very high potential for phosphorus loss and adverse effects on surface and/or ground waters. All necessary soil and water conservation measures and a phosphorus management plan must be implemented to minimize phosphorus loss. Reference risk assessment below and consult a local resource conservation planning specialist and/or the OnePlan Conservation Planning module to determine appropriate Best Management Practices for this field.

Soil Test P**Risk Rating:** Critical

Soil Test Depth / Phosphorus Concentration 0-12": No Valid Soil Test Data

Soil Test Depth / Phosphorus Concentration 18-24": No Valid Soil Test Data

Idaho Nutr. Management Standard Threshold: 40

Soil Test Type: Olsen

Comments: Soil test P is above the Idaho Nutrient Management Standard Phosphorus Threshold. Test soils annually to monitor buildup or decline in soil P and to determine if your Nutrient Management Plan is successful in reducing soil P levels.

Phosphorus Fertilizer Application Rate**Risk Rating:** Very Low or N.A.

Phosphorus Application Rate: 0**Comments:** No Data**Phosphorus Fertilizer Application Method****Risk Rating:** Very Low or N.A.**Phosphorus Application Method:** Not Applied**Comments:** No Data**Manure Phosphorus Application Rate****Risk Rating:** Medium**Manure Application Rate:** 91.6

Comments: Sufficient soil P may be available for normal agronomic production after fertilization, except for possible response to a starter fertilizer for specific crops like potatoes (see Crop Specific Recommendations). A long range nutrient management plan will assist you in maintaining optimum P levels.

Manure Phosphorus Application Method**Risk Rating:** Very High**Manure Application Method:** N/A

Comments: For greatest phosphorus efficiency inject Organic P > 2" or plow; otherwise incorporate > 3" by disking, chiseling, etc.

Irrigation Runoff Index (Irrigated)**Risk Rating:** Very High**Comments:** No Data**Surface Irrigation or Overhead Irrigation****Risk Rating:** Very Low or N.A.**Comments:** No Data**Runoff Best Management Practices****Risk Rating:**

List best management practices that mitigate runoff(See Appendix B)

Comments: Consider implementing Conservation Practices on-field and off-field that reduce or eliminate runoff and erosion.

Distance to Surface Water Body: 1**Risk Rating:** Very Low or N.A.**Comments:** No Data

FIELD: Field 9**Overall Risk Rating: Very High**

Very high potential for phosphorus loss and adverse effects on surface and/or ground waters. All necessary soil and water conservation measures and a phosphorus management plan must be implemented to minimize phosphorus loss. Reference risk assessment below and consult a local resource conservation planning specialist and/or the OnePlan Conservation Planning module to determine appropriate Best Management Practices for this field.

Soil Test P**Risk Rating: Critical****Soil Test Depth / Phosphorus Concentration 0-12": No Valid Soil Test Data****Soil Test Depth / Phosphorus Concentration 18-24": No Valid Soil Test Data****Idaho Nutr. Management Standard Threshold: 40 Soil Test Type: Olsen**

Comments: Soil test P is above the Idaho Nutrient Management Standard Phosphorus Threshold. Test soils annually to monitor buildup or decline in soil P and to determine if your Nutrient Management Plan is successful in reducing soil P levels.

Phosphorus Fertilizer Application Rate**Risk Rating: Very Low or N/A.****Phosphorus Application Rate: 0****Comments: No Data****Phosphorus Fertilizer Application Method****Risk Rating: Very Low or N/A.****Phosphorus Application Method: Not Applied****Comments: No Data****Manure Phosphorus Application Rate****Risk Rating: Medium****Manure Application Rate: 91.6**

Comments: Sufficient soil P may be available for normal agronomic production after fertilization, except for possible response to a starter fertilizer for specific crops like potatoes (see Crop Specific Recommendations). A long range nutrient management plan will assist you in maintaining optimum P levels.

Manure Phosphorus Application Method**Risk Rating: Very High****Manure Application Method: N/A**

Comments: For greatest phosphorus efficiency inject Organic P > 2" or plow; otherwise incorporate > 3" by disking, chiseling, etc.

Irrigation Runoff Index (Irrigated)**Risk Rating: Very High****Comments: No Data****Surface Irrigation or Overhead Irrigation****Risk Rating: Very Low or N/A.****Comments: No Data**

Runoff Best Management Practices**Risk Rating:**

List best management practices that mitigate runoff(See Appendix B)

Comments: Consider implementing Conservation Practices on-field and off-field that reduce or eliminate runoff and erosion.**Distance to Surface Water Body:** 1**Risk Rating:** Very Low or N/A**Comments:** No Data**FIELD:** Field 10**Overall Risk Rating:** Very High

Very high potential for phosphorus loss and adverse effects on surface and/or ground waters. All necessary soil and water conservation measures and a phosphorus management plan must be implemented to minimize phosphorus loss. Reference risk assessment below and consult a local resource conservation planning specialist and/or the OnePlan Conservation Planning module to determine appropriate Best Management Practices for this field.

Soil Test P**Risk Rating:** Critical**Soil Test Depth / Phosphorus Concentration 0-12":** No Valid Soil Test Data**Soil Test Depth / Phosphorus Concentration 18-24":** No Valid Soil Test Data**Idaho Nutr. Management Standard Threshold:** 40**Soil Test Type:** Olsen

Comments: Soil test P is above the Idaho Nutrient Management Standard Phosphorus Threshold. Test soils annually to monitor buildup or decline in soil P and to determine if your Nutrient Management Plan is successful in reducing soil P levels.

Phosphorus Fertilizer Application Rate**Risk Rating:** Very Low or N/A**Phosphorus Application Rate:** 0**Comments:** No Data**Phosphorus Fertilizer Application Method****Risk Rating:** Medium**Phosphorus Application Method:** Incorporated >3 inches (Disking/Chiseling)

Comments: For greatest phosphorus efficiency place commercial fertilizer P with planter or inject > 2".

Manure Phosphorus Application Rate**Risk Rating:** Very Low**Manure Application Rate:** 0

Comments: Sufficient soil P is not available for normal agronomic production. Starter fertilizer is recommended for specific crops like potatoes (see Crop Specific Recommendations). Use recommended application rates and methods to maintain soil P at optimum levels.

Manure Phosphorus Application Method**Risk Rating:** Very Low**Manure Application Method:** N/A

Comments: Great job!

Irrigation Runoff Index (Irrigated)

Risk Rating: Very Low or N.A.

Comments: No Data

Surface Irrigation or Overhead Irrigation

Risk Rating: Very Low or N.A.

Comments: No Data

Runoff Best Management Practices

Risk Rating:

List best management practices that mitigate runoff(See Appendix B)

Comments: Consider implementing Conservation Practices on-field and off-field that reduce or eliminate runoff and erosion.

Distance to Surface Water Body: 1

Risk Rating: Very Low or N.A.

Comments: No Data

FIELD: Field 11

Overall Risk Rating: Very High

Very high potential for phosphorus loss and adverse effects on surface and/or ground waters. All necessary soil and water conservation measures and a phosphorus management plan must be implemented to minimize phosphorus loss. Reference risk assessment below and consult a local resource conservation planning specialist and/or the OnePlan Conservation Planning module to determine appropriate Best Management Practices for this field.

Soil Test P

Risk Rating: Critical

Soil Test Depth / Phosphorus Concentration 0-12": No Valid Soil Test Data

Soil Test Depth / Phosphorus Concentration 18-24": No Valid Soil Test Data

Idaho Nutr. Management Standard Threshold: 40 **Soil Test Type:** Olsen

Comments: Soil test P is above the Idaho Nutrient Management Standard Phosphorus Threshold. Test soils annually to monitor buildup or decline in soil P and to determine if your Nutrient Management Plan is successful in reducing soil P levels.

Phosphorus Fertilizer Application Rate

Risk Rating: Very Low or N.A.

Phosphorus Application Rate: 0

Comments: No Data

Phosphorus Fertilizer Application Method

Risk Rating: Very High

Phosphorus Application Method: Surface applied no incorporation with containment

Comments: For greatest phosphorus efficiency place commercial fertilizer P with planter or inject > 2"; otherwise incorporate > 3" by disking, chiseling, etc.

Manure Phosphorus Application Rate

Risk Rating: Medium

Manure Application Rate: 54.5

Comments: Sufficient soil P may be available for normal agronomic production after fertilization, except for possible response to a starter fertilizer for specific crops like potatoes (see Crop Specific Recommendations). A long range nutrient management plan will assist you in maintaining optimum P levels.

Manure Phosphorus Application Method**Risk Rating:** Very High**Manure Application Method: N/A**

Comments: For greatest phosphorus efficiency inject Organic P > 2" or plow; otherwise incorporate > 3" by disking, chiseling, etc.

Irrigation Runoff Index (Irrigated)**Risk Rating:** Very Low or N.A.**Comments:** No Data**Surface Irrigation or Overhead Irrigation****Risk Rating:** Low

Comments: Follow good soil conservation practices. Reduce tillage frequency and depth to maximize the amount of crop residue left on the surface to protect the soil from erosion. In addition, implement Best Management Practices (BMPs) like Straw Mulching, Polyacrylimide, etc.

Runoff Best Management Practices**Risk Rating:** Very High

List best management practices that mitigate runoff(See Appendix B)

Comments: Consider implementing Conservation Practices on-field and off-field that reduce or eliminate runoff and erosion.

Distance to Surface Water Body: 0**Risk Rating:** Very High

Comments: Because of the high soil test P, runoff should be eliminated by converting to sprinkler irrigation or installing a tailwater recovery system; or sediment retention measures like filter strips or sediment basins should be installed to minimize offsite transport and loss of Phosphorus.

FIELD: Field 12**Overall Risk Rating: Very High**

Very high potential for phosphorus loss and adverse effects on surface and/or ground waters. All necessary soil and water conservation measures and a phosphorus management plan must be implemented to minimize phosphorus loss. Reference risk assessment below and consult a local resource conservation planning specialist and/or the OnePlan Conservation Planning module to determine appropriate Best Management Practices for this field.

Soil Test P**Risk Rating:** Critical

Soil Test Depth / Phosphorus Concentration 0-12": No Valid Soil Test Data

Soil Test Depth / Phosphorus Concentration 18-24": No Valid Soil Test Data

Idaho Nutr. Management Standard Threshold: 40

Soil Test Type: Olsen

Comments: Soil test P is above the Idaho Nutrient Management Standard Phosphorus Threshold. Test soils annually to monitor buildup or decline in soil P and to determine if your Nutrient Management Plan is successful in reducing soil P levels.

Phosphorus Fertilizer Application Rate**Risk Rating:** Very Low or N.A.**Phosphorus Application Rate:** 0**Comments:** No Data**Phosphorus Fertilizer Application Method****Risk Rating:** Very Low or N.A.**Phosphorus Application Method:** Not Applied**Comments:** No Data**Manure Phosphorus Application Rate****Risk Rating:** Medium**Manure Application Rate:** 63.1

Comments: Sufficient soil P may be available for normal agronomic production after fertilization, except for possible response to a starter fertilizer for specific crops like potatoes (see Crop Specific Recommendations). A long range nutrient management plan will assist you in maintaining optimum P levels.

Manure Phosphorus Application Method**Risk Rating:** Medium**Manure Application Method:** Incorporated < 3 inches (Harrowing/etc)**Comments:** For greatest phosphorus efficiency inject organic P > 2" or plow.**Irrigation Runoff Index (Irrigated)****Risk Rating:** Very Low or N.A.**Comments:** No Data**Surface Irrigation or Overhead Irrigation****Risk Rating:** Very Low or N.A.**Comments:** No Data**Runoff Best Management Practices****Risk Rating:**

List best management practices that mitigate runoff(See Appendix B)

Comments: Consider implementing Conservation Practices on-field and off-field that reduce or eliminate runoff and erosion.

Distance to Surface Water Body: 0**Risk Rating:** Very High

Comments: Because of the high soil test P, runoff should be eliminated by converting to sprinkler irrigation or installing a tailwater recovery system; or sediment retention measures like filter strips or sediment basins should be installed to minimize offsite transport and loss of Phosphorus.

Nutrient Leaching Risk Assessment

FIELD: Field 1

Overall Risk Rating: Low

Leaching losses are probably not contributing to soluble nutrient leaching below the root zone.

Percolation

Risk Rating: Very Low or N.A.

Deep Percolation (as % of Evapotranspiration): <5% Over ET

Comments: Nutrient leaching should not be a problem, however, there is a potential salt balance problem (and the crop's water requirement may not be completely satisfied). Evaluate whether adequate water is being applied to meet salt (leaching) requirements. If irrigation water has a high Electrical Conductivity (EC)/Sodium Adsorption Ration (SAR) salt balance may be critical.

Nitrogen Application Rate

Risk Rating: Very Low or N.A.

Comments: Some potential for nitrogen leaching if excess water is applied from irrigation and/or precipitation events. Potential for yield reduction from a nitrogen deficiency. Use soil and/or plant test and appropriate fertilizer recommendation for determining nutrient application rates.

Nitrogen Application Timing

Risk Rating: Medium

Comments: Use a nitrogen inhibitor to delay nitrification of ammonia-N until plant growth increases and additional nitrogen is needed.

Irrigation Efficiency

Risk Rating: Very Low or N.A.

Comments: No Data

Soil/Water Table Depth

Risk Rating: Medium

Comments: Because the dominant soils have moderate to high infiltration rates and water transmission, this field may be vulnerable to ground water contamination. Nutrient leaching and subsequent subsurface transport to ground water and interconnected surface water may be a concern.

FIELD: Pasture 1

Overall Risk Rating: Low

Leaching losses are probably not contributing to soluble nutrient leaching below the root zone.

Percolation

Risk Rating: Very Low or N.A.

Deep Percolation (as % of Evapotranspiration): <5% Over ET

Comments: Nutrient leaching should not be a problem, however, there is a potential salt balance problem (and the crop's water requirement may not be completely satisfied). Evaluate whether adequate water is being applied to meet salt (leaching) requirements. If irrigation water has a high Electrical Conductivity (EC)/Sodium Adsorption Ration (SAR) salt balance may be critical.

Nitrogen Application Rate

Risk Rating: Very Low or N.A.

Comments: Some potential for nitrogen leaching if excess water is applied from irrigation and/or precipitation events. Potential for yield reduction from a nitrogen deficiency. Use soil and/or plant test and appropriate fertilizer recommendation for determining nutrient application rates.

Nitrogen Application Timing**Risk Rating:** Medium

Comments: Use a nitrogen inhibitor to delay nitrification of ammonia-N until plant growth increases and additional nitrogen is needed.

Irrigation Efficiency**Risk Rating:** Very Low or N.A.

Comments: No Data

Soil/Water Table Depth**Risk Rating:** Medium

Comments: Because the dominant soils have moderate to high infiltration rates and water transmission, this field may be vulnerable to ground water contamination. Nutrient leaching and subsequent subsurface transport to ground water and interconnected surface water may be a concern.

FIELD: Pasture 2

Overall Risk Rating: Low

Leaching losses are probably not contributing to soluble nutrient leaching below the root zone.

Percolation**Risk Rating:** Very Low or N.A.

Deep Percolation (as % of Evapotranspiration): <5% Over ET

Comments: Nutrient leaching should not be a problem, however, there is a potential salt balance problem (and the crop's water requirement may not be completely satisfied). Evaluate whether adequate water is being applied to meet salt (leaching) requirements. If irrigation water has a high Electrical Conductivity (EC)/Sodium Adsorption Ration (SAR) salt balance may be critical.

Nitrogen Application Rate**Risk Rating:** Very Low or N.A.

Comments: Some potential for nitrogen leaching if excess water is applied from irrigation and/or precipitation events. Potential for yield reduction from a nitrogen deficiency. Use soil and/or plant test and appropriate fertilizer recommendation for determining nutrient application rates.

Nitrogen Application Timing**Risk Rating:** Medium

Comments: Use a nitrogen inhibitor to delay nitrification of ammonia-N until plant growth increases and additional nitrogen is needed.

Irrigation Efficiency**Risk Rating:** Very Low or N.A.

Comments: No Data

Soil/Water Table Depth**Risk Rating:** Medium

Comments: Because the dominant soils have moderate to high infiltration rates and water transmission, this field may be vulnerable to ground water contamination. Nutrient leaching and subsequent subsurface transport to ground water and interconnected surface water may be a concern.

FIELD: Field 2

Overall Risk Rating: Low

Leaching losses are probably not contributing to soluble nutrient leaching below the root zone.

Percolation

Risk Rating: Very Low or N.A.

Deep Percolation (as % of Evapotranspiration): <5% Over ET

Comments: Nutrient leaching should not be a problem, however, there is a potential salt balance problem (and the crop's water requirement may not be completely satisfied). Evaluate whether adequate water is being applied to meet salt (leaching) requirements. If irrigation water has a high Electrical Conductivity (EC)/Sodium Adsorption Ratio (SAR) salt balance may be critical.

Nitrogen Application Rate

Risk Rating: Very Low or N.A.

Comments: Some potential for nitrogen leaching if excess water is applied from irrigation and/or precipitation events. Potential for yield reduction from a nitrogen deficiency. Use soil and/or plant test and appropriate fertilizer recommendation for determining nutrient application rates.

Nitrogen Application Timing

Risk Rating: Medium

Comments: Use a nitrogen inhibitor to delay nitrification of ammonia-N until plant growth increases and additional nitrogen is needed.

Irrigation Efficiency

Risk Rating: Very Low or N.A.

Comments: No Data

Soil/Water Table Depth

Risk Rating: Medium

Comments: Because the dominant soils have moderate to high infiltration rates and water transmission, this field may be vulnerable to ground water contamination. Nutrient leaching and subsequent subsurface transport to ground water and interconnected surface water may be a concern.

FIELD: Field 3**Overall Risk Rating: Medium**

Leaching losses may be contributing to soluble nutrient leaching below the root zone during some years.

Percolation**Risk Rating: Very Low or N.A.****Deep Percolation (as % of Evapotranspiration): <5% Over ET**

Comments: Nutrient leaching should not be a problem, however, there is a potential salt balance problem (and the crop's water requirement may not be completely satisfied). Evaluate whether adequate water is being applied to meet salt (leaching) requirements. If irrigation water has a high Electrical Conductivity (EC)/Sodium Adsorption Ratio (SAR) salt balance may be critical.

Nitrogen Application Rate**Risk Rating: Very Low or N.A.**

Comments: Some potential for nitrogen leaching if excess water is applied from irrigation and/or precipitation events. Potential for yield reduction from a nitrogen deficiency. Use soil and/or plant test and appropriate fertilizer recommendation for determining nutrient application rates.

Nitrogen Application Timing**Risk Rating: Very Low or N.A.**

Comments: Reevaluate Nitrogen recommendations to be sure that crop requirements are being adequately met. Good job! Follow Nitrogen application recommendations and apply according to crop growth needs.

Irrigation Efficiency**Risk Rating: Very High**

Comments: Check and maintain system for leaky joints and worn-out pumps, sprinklers or nozzles. Use flow controllers to improve efficiency. Be sure that the right amount of irrigation water is applied as uniformly as possible to meet crop needs and minimize leaching from the root zone. Check with irrigation professional to assure that crop growth requirements are being adequately met.

Soil/Water Table Depth**Risk Rating: Medium**

Comments: Because the dominant soils have moderate to high infiltration rates and water transmission, this field may be vulnerable to ground water contamination. Nutrient leaching and subsequent subsurface transport to ground water and interconnected surface water may be a concern.

FIELD: Field 4**Overall Risk Rating: Low**

Leaching losses are probably not contributing to soluble nutrient leaching below the root zone.

Percolation**Risk Rating:**

Deep Percolation (as % of Evapotranspiration): <5% Over ET

Comments: No Data

Nitrogen Application Rate**Risk Rating: Very Low or N.A.**

Comments: No Data

Nitrogen Application Timing Risk Rating: Very Low or N.A.

Comments: No Data

Soil/Water Table Depth**Risk Rating: Medium**

Comments: No Data

FIELD: Field 5**Overall Risk Rating: Medium**

Leaching losses may be contributing to soluble nutrient leaching below the root zone during some years.

Percolation**Risk Rating: Very Low or N.A.**

Deep Percolation (as % of Evapotranspiration): <5% Over ET

Comments: Nutrient leaching should not be a problem, however, there is a potential salt balance problem (and the crop's water requirement may not be completely satisfied). Evaluate whether adequate water is being applied to meet salt (leaching) requirements. If irrigation water has a high Electrical Conductivity (EC)/Sodium Adsorption Ratio (SAR) salt balance may be critical.

Nitrogen Application Rate**Risk Rating: Very Low or N.A.**

Comments: Some potential for nitrogen leaching if excess water is applied from irrigation and/or precipitation events. Potential for yield reduction from a nitrogen deficiency. Use soil and/or plant test and appropriate fertilizer recommendation for determining nutrient application rates.

Nitrogen Application Timing**Risk Rating: Very Low or N.A.**

Comments: Good job! Follow Nitrogen application recommendations and apply according to crop growth needs.

Irrigation Efficiency**Risk Rating: Very High**

Comments: No Data

Soil/Water Table Depth**Risk Rating: Medium**

Comments: Because the dominant soils have moderate to high infiltration rates and water transmission, this field may be vulnerable to ground water contamination. Nutrient leaching and subsequent subsurface transport to ground water and interconnected surface water may be a concern.

FIELD: Field 6

Overall Risk Rating: Medium

Leaching losses may be contributing to soluble nutrient leaching below the root zone during some years.

Percolation

Risk Rating: Very Low or N.A.

Deep Percolation (as % of Evapotranspiration): <5% Over ET

Comments: Nutrient leaching should not be a problem, however, there is a potential salt balance problem (and the crop's water requirement may not be completely satisfied). Evaluate whether adequate water is being applied to meet salt (leaching) requirements. If irrigation water has a high Electrical Conductivity (EC)/Sodium Adsorption Ratio (SAR) salt balance may be critical.

Nitrogen Application Rate

Risk Rating: Very Low or N.A.

Comments: Some potential for nitrogen leaching if excess water is applied from irrigation and/or precipitation events. Potential for yield reduction from a nitrogen deficiency. Use soil and/or plant test and appropriate fertilizer recommendation for determining nutrient application rates.

Nitrogen Application Timing

Risk Rating: Very Low or N.A.

Comments: Good job! Follow Nitrogen application recommendations and apply according to crop growth needs.

Irrigation Efficiency

Risk Rating: Very High

Comments: Check and maintain system for leaky joints and worn-out pumps, sprinklers or nozzles. Use flow controllers to improve efficiency. Be sure that the right amount of irrigation water is applied as uniformly as possible to meet crop needs and minimize leaching from the root zone. Check with irrigation professional to assure that crop growth requirements are being adequately met.

Soil/Water Table Depth

Risk Rating: Medium

Comments: Because the dominant soils have moderate to high infiltration rates and water transmission, this field may be vulnerable to ground water contamination. Nutrient leaching and subsequent subsurface transport to ground water and interconnected surface water may be a concern.

FIELD: Field 7**Overall Risk Rating: Medium**

Leaching losses may be contributing to soluble nutrient leaching below the root zone during some years.

Percolation**Risk Rating: Very Low or N.A.****Deep Percolation (as % of Evapotranspiration): <5% Over ET**

Comments: Nutrient leaching should not be a problem, however, there is a potential salt balance problem (and the crop's water requirement may not be completely satisfied). Evaluate whether adequate water is being applied to meet salt (leaching) requirements. If irrigation water has a high Electrical Conductivity (EC)/Sodium Adsorption Ratio (SAR) salt balance may be critical.

Nitrogen Application Rate**Risk Rating: Very Low or N.A.**

Comments: Some potential for nitrogen leaching if excess water is applied from irrigation and/or precipitation events. Potential for yield reduction from a nitrogen deficiency. Use soil and/or plant test and appropriate fertilizer recommendation for determining nutrient application rates.

Nitrogen Application Timing**Risk Rating: Very Low or N.A.**

Comments: Good job! Follow Nitrogen application recommendations and apply according to crop growth needs.

Irrigation Efficiency**Risk Rating: Very High**

Comments: Check and maintain system for leaky joints and worn-out pumps, sprinklers or nozzles. Use flow controllers to improve efficiency. Be sure that the right amount of irrigation water is applied as uniformly as possible to meet crop needs and minimize leaching from the root zone. Check with irrigation professional to assure that crop growth requirements are being adequately met.

Soil/Water Table Depth**Risk Rating: Medium**

Comments: Because the dominant soils have moderate to high infiltration rates and water transmission, this field may be vulnerable to ground water contamination. Nutrient leaching and subsequent subsurface transport to ground water and interconnected surface water may be a concern.

FIELD: Field 8**Overall Risk Rating: Medium**

Leaching losses may be contributing to soluble nutrient leaching below the root zone during some years.

Percolation**Risk Rating:** Very Low or N.A.**Deep Percolation (as % of Evapotranspiration):** <5% Over ET

Comments: Nutrient leaching should not be a problem, however, there is a potential salt balance problem (and the crop's water requirement may not be completely satisfied). Evaluate whether adequate water is being applied to meet salt (leaching) requirements. If irrigation water has a high Electrical Conductivity (EC)/Sodium Adsorption Ratio (SAR) salt balance may be critical.

Nitrogen Application Rate**Risk Rating:** Very Low or N.A.

Comments: Some potential for nitrogen leaching if excess water is applied from irrigation and/or precipitation events. Potential for yield reduction from a nitrogen deficiency. Use soil and/or plant test and appropriate fertilizer recommendation for determining nutrient application rates.

Nitrogen Application Timing**Risk Rating:** Very Low or N.A.

Comments: Good job! Follow Nitrogen application recommendations and apply according to crop growth needs.

Irrigation Efficiency**Risk Rating:** Very High

Comments: Check and maintain system for leaky joints and worn-out pumps, sprinklers or nozzles. Use flow controllers to improve efficiency. Be sure that the right amount of irrigation water is applied as uniformly as possible to meet crop needs and minimize leaching from the root zone. Check with irrigation professional to assure that crop growth requirements are being adequately met.

Soil/Water Table Depth**Risk Rating:** Medium

Comments: Because the dominant soils have moderate to high infiltration rates and water transmission, this field may be vulnerable to ground water contamination. Nutrient leaching and subsequent subsurface transport to ground water and interconnected surface water may be a concern.

FIELD: Field 9**Overall Risk Rating: Medium**

Leaching losses may be contributing to soluble nutrient leaching below the root zone during some years.

Percolation

Risk Rating: Very Low or N.A.

Deep Percolation (as % of Evapotranspiration): <5% Over ET

Comments: Nutrient leaching should not be a problem, however, there is a potential salt balance problem (and the crop's water requirement may not be completely satisfied). Evaluate whether adequate water is being applied to meet salt (leaching) requirements. If irrigation water has a high Electrical Conductivity (EC)/Sodium Adsorption Ration (SAR) salt balance may be critical.

Nitrogen Application Rate

Risk Rating: Very Low or N.A.

Comments: Some potential for nitrogen leaching if excess water is applied from irrigation and/or precipitation events. Potential for yield reduction from a nitrogen deficiency. Use soil and/or plant test and appropriate fertilizer recommendation for determining nutrient application rates.

Nitrogen Application Timing

Risk Rating: Very Low or N.A.

Comments: Good job! Follow Nitrogen application recommendations and apply according to crop growth needs.

Irrigation Efficiency

Risk Rating: Very High

Comments: Check and maintain system for leaky joints and worn-out pumps, sprinklers or nozzles. Use flow controllers to improve efficiency. Be sure that the right amount of irrigation water is applied as uniformly as possible to meet crop needs and minimize leaching from the root zone. Check with irrigation professional to assure that crop growth requirements are being adequately met.

Soil/Water Table Depth

Risk Rating: Medium

Comments: Because the dominant soils have moderate to high infiltration rates and water transmission, this field may be vulnerable to ground water contamination. Nutrient leaching and subsequent subsurface transport to ground water and interconnected surface water may be a concern.

FIELD: Field 10**Overall Risk Rating: Medium**

Leaching losses may be contributing to soluble nutrient leaching below the root zone during some years.

Percolation**Risk Rating: Very Low or N.A.****Deep Percolation (as % of Evapotranspiration): <5% Over ET**

Comments: Nutrient leaching should not be a problem, however, there is a potential salt balance problem (and the crop's water requirement may not be completely satisfied). Evaluate whether adequate water is being applied to meet salt (leaching) requirements. If irrigation water has a high Electrical Conductivity (EC)/Sodium Adsorption Ratio (SAR) salt balance may be critical.

Nitrogen Application Rate**Risk Rating: Very Low or N.A.**

Comments: Some potential for nitrogen leaching if excess water is applied from irrigation and/or precipitation events. Potential for yield reduction from a nitrogen deficiency. Use soil and/or plant test and appropriate fertilizer recommendation for determining nutrient application rates.

Nitrogen Application Timing**Risk Rating: High**

Comments: Follow Nitrogen application recommendations and apply according to crop growth needs. If all fertilizer nitrogen must be preplant applied in the spring then make applications when (there is the least potential for a leaching event following application). (If possible) use a nitrification inhibitor to delay nitrification of ammonia-nitrogen until plant growth increases and additional nitrogen is needed.

Irrigation Efficiency**Risk Rating: Very High**

Comments: Check and maintain system for leaky joints and worn-out pumps, sprinklers or nozzles. Use flow controllers to improve efficiency. Be sure that the right amount of irrigation water is applied as uniformly as possible to meet crop needs and minimize leaching from the root zone. Check with irrigation professional to assure that crop growth requirements are being adequately met.

Soil/Water Table Depth**Risk Rating: Medium**

Comments: Because the dominant soils have moderate to high infiltration rates and water transmission, this field may be vulnerable to ground water contamination. Nutrient leaching and subsequent subsurface transport to ground water and interconnected surface water may be a concern.

FIELD: Field 11**Overall Risk Rating: Medium**

Leaching losses may be contributing to soluble nutrient leaching below the root zone during some years.

Percolation**Risk Rating: Very Low or N.A.****Deep Percolation (as % of Evapotranspiration): <5% Over ET**

Comments: Nutrient leaching should not be a problem, however, there is a potential salt balance problem (and the crop's water requirement may not be completely satisfied). Evaluate whether adequate water is being applied to meet salt (leaching) requirements. If irrigation water has a high Electrical Conductivity (EC)/Sodium Adsorption Ratio (SAR) salt balance may be critical.

Nitrogen Application Rate**Risk Rating: Very Low or N.A.**

Comments: Some potential for nitrogen leaching if excess water is applied from irrigation and/or precipitation events. Potential for yield reduction from a nitrogen deficiency. Use soil and/or plant test and appropriate fertilizer recommendation for determining nutrient application rates.

Nitrogen Application Timing**Risk Rating: Medium**

Comments: Use a nitrogen inhibitor to delay nitrification of ammonia-N until plant growth increases and additional nitrogen is needed.

Irrigation Efficiency**Risk Rating: Very High**

Comments: Due to the low irrigation efficiency on this field, conversion to a more efficient irrigation system like Sprinkler or Drip Irrigation should be considered. If this is not possible consider shorter set times to minimize runoff and/or the length of run to minimize leaching. A Tailwater Recovery & Pumpback System will help to reduce or eliminate runoff. An additional consideration is to incorporate a Surge Irrigation that will help to reduce runoff and deep percolation losses. Be sure that the right amount of irrigation water is applied as uniformly as possible to meet crop needs and minimize leaching from the root zone. Check with irrigation professional to assure that crop growth requirements are being adequately met.

Soil/Water Table Depth**Risk Rating: Medium**

Comments: Because the dominant soils have moderate to high infiltration rates and water transmission, this field may be vulnerable to ground water contamination. Nutrient leaching and subsequent subsurface transport to ground water and interconnected surface water may be a concern.

FIELD: Field 12**Overall Risk Rating: Medium**

Leaching losses may be contributing to soluble nutrient leaching below the root zone during some years.

Percolation**Risk Rating:** Very Low or N.A.**Deep Percolation (as % of Evapotranspiration):** <5% Over ET

Comments: Nutrient leaching should not be a problem, however, there is a potential salt balance problem (and the crop's water requirement may not be completely satisfied). Evaluate whether adequate water is being applied to meet salt (leaching) requirements. If irrigation water has a high Electrical Conductivity (EC)/Sodium Adsorption Ratio (SAR) salt balance may be critical.

Nitrogen Application Rate**Risk Rating:** Very Low or N.A.

Comments: Some potential for nitrogen leaching if excess water is applied from irrigation and/or precipitation events. Potential for yield reduction from a nitrogen deficiency. Use soil and/or plant test and appropriate fertilizer recommendation for determining nutrient application rates.

Nitrogen Application Timing**Risk Rating:** Very Low or N.A.

Comments: Good job! Follow Nitrogen application recommendations and apply according to crop growth needs.

Irrigation Efficiency**Risk Rating:** Very High

Comments: Check and maintain system for leaky joints and worn-out pumps, sprinklers or nozzles. Use flow controllers to improve efficiency. Be sure that the right amount of irrigation water is applied as uniformly as possible to meet crop needs and minimize leaching from the root zone. Check with irrigation professional to assure that crop growth requirements are being adequately met.

Soil/Water Table Depth**Risk Rating:** Medium

Comments: Because the dominant soils have moderate to high infiltration rates and water transmission, this field may be vulnerable to ground water contamination. Nutrient leaching and subsequent subsurface transport to ground water and interconnected surface water may be a concern.

NUTRIENT RISK ANALYSIS LEGEND

BMP	Definition	Purpose
Buffer Strip	Contour buffer strips are strips of perennial grass alternated with wider cultivated strips that are farmed on the contour.	Contour buffer strips slow runoff water and trap sediment. Consequently, soil erosion is generally reduced significantly by this practice. Sediments, nutrients, pesticides, and other potential pollutants are filtered out as water flows through the grass strips. The grass strips also provide food and cover for wildlife.
Channel Vegetation	Establishing and maintaining adequate plants on channel banks, berms, spoil, and associated areas.	To stabilize channel banks and adjacent areas and reduce erosion and sedimentation. To maintain or enhance the quality of the environment, including visual aspects and fish and wildlife habitat.
Chiseling and Subsoiling	Loosening the soil, without inverting and with a minimum of mixing of the surface soil, to shatter restrictive layers below normal plow depth that inhibit water movement or root development.	To improve water and root penetration and aeration.
Composting Facility	A composting facility is installed for biological stabilization of waste organic material.	The purpose of this practice is to biologically treat waste organic material and produce humus-like material that can be recycled as a soil amendment or organic fertilizer. The material may also be used by other acceptable methods of recycling that comply with laws, rules and regulations.

Conservation Cover	This practice involves establishing and maintaining a protective cover of perennial vegetation on land retired from agriculture production.	This practice reduces soil erosion, associated sedimentation, improves water quality, and creates or enhances wildlife habitat.
Conservation Cropping Sequence	Growing crops in a recurring sequence on the same field.	This practice may be applied as part of a best management practice to support one or more of the following: Reduce sheet and rill erosion, Reduce irrigation induced erosion, Reduce soil erosion from wind, Maintain or improve soil organic matter content, Manage deficient or excess plant nutrients, Improve water use efficiency, Manage saline seeps, Manage plant pests (weeds, insects, diseases), Provide food for domestic livestock, and Provide food and cover for wildlife.
Contour Farming	Farming sloping land in such a way that preparing land, planting, and cultivating are done on the contours. (This includes following established grades of terraces or diversion.)	To reduce erosion and control water.
Cover and Green Manure Crop	A crop of close-growing, legumes, or small grain grown primarily for seasonal protection and soil improvement. It usually is grown for 1 year or less, except where there is permanent cover as in orchards.	To control erosion during periods when the major crops do not furnish adequate cover; add organic material to the soil; and improve infiltration, aeration, and tilth.
Critical Area Planting	Planting vegetation on critically eroding areas that require extraordinary treatment.	This practice is used on highly erodible areas that cannot be stabilized by ordinary planting techniques and if left untreated may

cause severe erosion or sediment damage. Examples of critical areas include the following: 1) Dams, dikes, levees, and other construction sites with very steep slopes, 2) Mine spoil and surface mined land with poor quality soil and possibly chemical problems, and 3) Agriculture land with severe gullies requiring specialized planting techniques and management.

Dike or Berm	An embankment constructed of earth or other suitable materials to protect land against overflow or to regulate water.	Dikes are used to: Permit improvement of agricultural land by preventing overflow and better use of drainage facilities, Prevent damage to land and property, Facilitate water storage and control in connection with wildlife and other developments, and Protect natural areas, scenic features and archeological sites from damage.
Diversion	A channel constructed across the slope with a supporting ridge on the lower side.	To divert excess water from one area for use or safe disposal in other areas.
Drip Irrigation	A planned irrigation system in which all necessary facilities are installed for efficiently applying water directly to the root zone of plants by means of applicators (orifices, emitters, porous tubing, perforated pipe) operated under low pressure. The applicators can be placed on or below the surface of the ground.	To efficiently apply water directly to the plant root zone to maintain soil moisture within the range for good plant growth and without excessive water loss, erosion, reduction in water quality, or salt accumulation.
Filter Strip	A strip or area of vegetation for removing pollutants water.	A filter strip reduces pollution by filtration, deposition, infiltration, absorption, adsorption, decomposition, and volatilization of sediment, organic matter, and

other pollutants from runoff and waste water.

Fish Stream Improvement	Fish Stream Improvement is improving a stream channel to make or enhance fish habitat.	The purpose of the practice is to increase production of desired species of fish. The practice involves improving food supplies, shelter, spawning areas, water quality, and other elements of fish habitat.
Grade Stabilization Construction	A structure used to control the grade and head cutting in natural or artificial channels.	These structures are to: Stabilize the grade and control erosion in natural or artificial channels, prevent the formation or advance of gullies, enhance environmental quality, and reduce pollution hazards.
Grassed Waterway	A natural or constructed channel that is shaped or graded to required dimensions and established in suitable vegetation for the stable conveyance of runoff.	Grassed waterways convey runoff from terraces, diversions, or other water concentrations without causing erosion or flooding and to improve water quality.
Grazing Land Mechanical Treatment	Modifying physical soil and/or plant conditions with mechanical tools by treatments such as; pitting, contour furrowing, and ripping or sub-soiling.	This practice should be applied as part of a best management practice to support one or more of the following purposes: Fracture compacted soil layers and improve soil permeability, Reduce water runoff and increase infiltration, Break up sod bound conditions and thatch to increase plant vigor, and Renovate and stimulate plant community for greater productivity and yield.

Heavy Use Area Protection	Protecting heavily used areas by establishing vegetative cover, by surfacing with suitable materials, or by installing needed structures.	To stabilize urban, recreation, or facility areas frequently and intensely used by people, animals, or vehicles.
Irrigation Land Leveling	Reshaping the surface of land to be irrigated to planned grades.	To permit uniform and efficient application of irrigation water without causing erosion, loss of water quality, or damage to land by waterlogging and at the same time to provide for adequate surface drainage.
Irrigation Water Management	Irrigation water management is the process of determining and controlling the volume, frequency, and application rate of irrigation water in a planned, efficient manner.	Irrigation water management is applied as part of a conservation management system to support one or more of the following: Manage soil Moisture to promote desired crop response; Optimize use of available water supplies; Minimize irrigation induced soil erosion; Decrease non-point source pollution of surface and groundwater resources; Manage salts in the crop root zone; Manage air, soil, or plant micro-climate.
Mulching	Applying plant residues or other suitable materials not produced on the site to the soil surface.	To conserve moisture; prevent surface compaction or crusting; reduce runoff and erosion; control weeds; and help establish plant cover.
Polyacrylamide (PAM)	Polyacrylamide is an organic polymer formulated to stabilize soil when applied in irrigation water.	Water applied with PAM stabilizes soil aggregates which can then resist the erosive forces of water. If correctly applied, PAM will produce clear runoff water and reduce erosion within the field by over 90 percent.

Prescribed Grazing

Prescribed grazing is the controlled harvest of vegetation with grazing animals, managed with the intent to achieve a specific objective.

Application of this practice will manipulate the intensity, frequency, duration, and season of grazing to:

- 1) Improve water infiltration,
- 2) maintain or improve riparian and upland area vegetation,
- 3) protect stream banks from erosion,
- 4) manage for deposition of fecal material away from water bodies,
- and 5) promote ecological and economically stable plant communities which meet landowner objectives.

Residue Management
(Conservation Tillage)

Managing the amount, orientation, and distribution of crop and other plant residue on the soil surface.

This practice may be applied as part of a conservation system to support one or more of the following: Reduce sheet and rill erosion. Reduce wind erosion. Maintain or improve soil organic matter content and tilth. Conserve soil moisture. Manage snow to increase plant available moisture. Provide food and escape cover for wildlife.

Riparian Forest Buffer

A riparian forest buffer is an area of trees and/or shrubs located adjacent to a body of water. The vegetation extends outward from the water body for a specified distance necessary to provide a minimum level of protection and/or enhancement.

The riparian forest buffer is a multi-purpose practice design to accomplish one or more of the following: Create shade to lower water temperatures and improve habitat for aquatic animals, Provide a source of debris necessary for healthy robust populations of aquatic organisms and wildlife, and Act as a buffer to filter out sediment, organic material, fertilizer, pesticides and other pollutants that may adversely impact the water body, including shallow ground water.

Sediment Basin	A basin constructed to collect and store debris or sediment.	A sediment basin may have the following uses: Preserve the capacity of reservoirs, ditches, canals, diversion, waterways, and streams, Prevent undesirable deposition on bottom lands and developed areas, Trap sediment originating from construction sites, and Reduce or abate pollution by providing basins for deposition and storage of silt, sand, gravel, stone, agricultural wastes, and other detritus.
Sprinkler System	A planned irrigation system in which all necessary facilities are installed for efficiently applying water by means of perforated pipes or nozzles operated under pressure.	To efficiently and uniformly apply irrigation water to maintain adequate soil moisture for optimum plant growth without causing excessive water loss, erosion, or reduced water quality.
Stream Channel Stabilization	Stabilizing the channel of a stream with suitable structures.	To control aggradation or degradation in a stream channel.
Streambank Protection	Using vegetation or structures to stabilize and protect banks of streams, lakes, estuaries, or excavated channels against scour and erosion.	To stabilize or protect banks of streams, lakes, estuaries, or excavated channels for one or more of the following purposes: Prevent the loss of land or damage to utilities, roads, buildings, or other facilities adjacent to the banks, Maintain the capacity of the channel, Control channel meander that would adversely affect downstream facilities, Reduce sediment loads causing downstream damages and pollution, and Improve the stream for recreation or as a habitat for fish and wildlife.

Stripcropping, Contour	Growing crops in a systematic arrangement of strips or bands on the contour to reduce water erosion. The crops are arranged so that a strip of grass or close-growing crop is alternated with a strip of clean-tilled crop or fallow or a strip of grass is alternated with a close-growing crop.	To reduce sheet and rill erosion and/or to reduce transport of sediment and other water-borne contaminants.
Stripcropping, Field	Growing crops in a systematic arrangement of strips or bands across the general slope (not on the contour) to reduce water erosion. The crops are arranged so that a strip of grass or a close-growing crop is alternated with a clean-tilled crop or fallow.	To help control erosion and runoff on sloping cropland where contour stripcropping is not practical.
Subsurface Drains	A Subsurface Drain is a conduit, such as corrugated plastic tubing, tile, or pipe, installed beneath the ground surface to collect and/or convey drainage water.	The purpose of a subsurface drain is to: Improve the environment for vegetation, Reduce erosion, Improve water quality, Collect ground water for beneficial use, Remove water from heavy use areas such as recreation areas, or around buildings, and Regulate water to control health hazards caused by pests.
Surge Irrigation	Surge irrigation is the intermittent application of water to furrows, corrugates, or borders creating a series of on and off periods of constant or variable time spans.	Surge allows a lighter application of water with a higher efficiency. The result is less deep percolation of water at the upper end of the field and a more uniform application.
Tailwater Recovery & Pumpback System	A facility to collect, store, and transport irrigation tailwater for reuse in a farm irrigation distribution system.	To conserve farm irrigation water supplies and water quality by collecting the water that runs off the field surface for reuse on the farm.

Terraces	An earth embankment, a channel, or a combination ridge and channel constructed across the slope.	Reduce slope length, reduce sediment content in runoff water, reduce erosion, Improve water quality, intercept and conduct surface runoff at a non-erosive velocity to a stable outlet, retain runoff for moisture conservation, prevent gully development, reform the land surface, improve farmability, and reduce flooding.
Use Exclusion	Excluding animals, people or vehicles from an area.	To protect, maintain, or improve the quantity and quality of the plant, animal, soil, air, water, and aesthetics resources and human health and safety.
Water and Sediment Control Basin	An earth embankment or a combination ridge and channel generally constructed across the slope and minor watercourses to form a sediment trap and water detention basin.	To improve farmability of sloping land, reduce watercourse and gully erosion, trap sediment, reduce and manage onsite and downstream runoff, and improve downstream water quality.
Watering Facility	A device (tank, trough, or other watertight container) for providing animal access to water.	To provide watering facilities for livestock and/or wildlife at selected locations in order to: 1) protect and enhance vegetative cover through proper distribution of grazing; 2) provide erosion control through better grassland management; or 3) protect streams, ponds and water supplies from contamination by providing alternative access to water.
Wetland Development/Restoration	The construction or restoration of a wetland facility to provide the hydrological and biological benefits of a wetland.	To develop or restore hydric soil conditions, hydrologic conditions, hydrophytic plant communities, and wetland functions.

APPENDIX C: CROP SPECIFIC GUIDELINES

Alfalfa, Hay, Cut Early Bloom, S-ID, Irrigated UNIVERSITY OF IDAHO INFORMATION

SOIL SAMPLING

Environmental concerns have brought nutrient management in agriculture under increased scrutiny. A goal of sound nutrient management is to maximize the proportion of applied nutrients that is used by the crop (nutrient use efficiency). Soil sampling is a best management practice (BMP) for fertilizer management that will help improve nutrient use efficiency and protect the environment.

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FERTILIZER GUIDE

Nutrient requirements for alfalfa are relatively high compared to many other crops commonly grown in Idaho. Each ton of alfalfa hay removes about 60 lb nitrogen (N) per acre, 50 lb potassium (K) per acre, 30 lb calcium (Ca) per acre, 8 lb phosphorus (P) per acre, and about 6 lb per acre of both sulfur (S) and magnesium (Mg). Requirements for phosphorus and potassium fertilizers are much higher than for S, manganese (Mn), zinc (Zn), iron (Fe), and boron (B).

NITROGEN (N)

Essentially all nitrogen required by established alfalfa is provided by the symbiotic relationship with N-fixing *Rhizobium* bacteria and N mineralized from soil organic matter. Top dressed N usually does not improve yield, quality, or vigor of established stands. However, applications of 20 to 40 lb N per acre may be helpful during stand establishment prior to nodulation of the roots. Applied N would most likely be needed following small grain production in which the residue is returned to the soil. Application of larger amounts may inhibit nodulation, decrease symbiotic N fixation, and encourage grass weeds, thereby reducing alfalfa growth or quality when harvested. Alfalfa receiving appreciable amounts of animal manures, dairy effluent, or other organic N sources will also have reduced N fixation. The probability of an N response is usually greatest on coarse-textured soils with low organic matter content. Nitrogen fertilizer may be required for maximum alfalfa production and quality if the roots are poorly nodulated. Poor nodulation as well as poor *Rhizobial* activity and N-fixing capacity can result from a number of factors, including lack of proper seed inoculation at planting, diseases, insects, water deficits, nutrient deficiencies or toxicities, or other soil physical or chemical conditions that reduce the effectiveness of the *Rhizobium* inoculant. Poor inoculation results from not using inoculant, using inoculant that has lost its viability (expired shelf life), or using *Rhizobium* inoculant strains that are not effective. Poor inoculation, nodulation, or *Rhizobial* effectiveness is indicated when alfalfa protein is low (less than 18%) when cut at the early bloom stage. Healthy *Rhizobium* nodules should be pink when cut open if they are effectively fixing atmospheric N. If nodulation or *Rhizobial* effectiveness is limited by pests, water deficits, or soil conditions such as salinity, sodicity, nutrient deficiencies, or soil compaction, then attempts should be made to correct the problem through appropriate management practices. For more information on proper inoculation of alfalfa, refer to CIS 838, (Inoculation of Legumes in Idaho). Alfalfa is sometimes used to scavenge nutrients from soils receiving excessive animal manure or other biological waste applications. An alfalfa crop yielding 6 tons per acre can remove up to 360 lb of N per acre. However, excessive nitrogen uptake can increase the forage nitrate toxicity hazard for dairy and beef cattle. In addition, animal manure applications can promote grass and weed growth, which in turn can also increase the potential for nitrate toxicity if the population of the noxious weed *Kochia* increases.

Producers sometimes plant a companion crop when establishing alfalfa in order to increase the productivity of the first cutting. However, this practice is not recommended because the alfalfa stand typically is reduced by competition from the companion crop. If growers plant alfalfa with a companion crop, both crops compete for the available N. Under these conditions, N rates of 30 to 40 lb per acre are suggested if available soil N does not exceed 60 to 80 lb per acre.

PHOSPHORUS (P)

Adequate phosphorus availability is important for maintaining plant health, winter hardiness, and optimum root, stem, and leaf growth. Since phosphorus is relatively immobile in soil, P fertilizer should be incorporated into the soil prior to planting to raise soil P concentrations to optimum levels for early plant growth. The phosphorus recommendations presented are based on the soil test P concentration and free lime content in the top foot of soil, and the yield potential. Significant amounts of free lime in the soil will make less phosphorus available to plants as it precipitates soil solution P. Top dressed P applications can also be effective but should be made following harvest in the fall or in the spring before regrowth in order to maximize soil contact. Knifing ammonium polyphosphate (10-34-0) into the soil or applying surface bands in the fall or spring are also effective P fertilization methods for alfalfa. As the stand ages and plant density decreases, the ability of the alfalfa root system to take up P diminishes due to decreased soil P concentrations and root activity. Under these conditions, smaller P rates applied more frequently may increase P uptake efficiency. Effective sources of P for alfalfa include monoammonium phosphate (11-52-0), triple superphosphate (0-45-0), ammonium polyphosphate (10-34-0), and phosphoric acid. Fertilizer P can be broadcast as 11-52-0 or applied through the irrigation system as 10-34-0 with equal effectiveness. Phosphorus sources should be selected on the basis of cost, local availability, and equipment requirements.

POTASSIUM (K)

Alfalfa has a high potassium requirement. A crop of 8 tons per acre will remove about 480 lb of K₂O per acre. Most Idaho soils and surface irrigation waters are naturally high in K. However, K deficiencies can develop in intensively cropped fields, particularly those fields cropped to alfalfa for many years. Sandy soils are generally more prone to developing K deficiencies than silt loam or clay soils and therefore have a higher probability of responding to K fertilization. Potassium movement in soils is limited, although it is more mobile than P. Like phosphorus, potassium fertilizer recommendations are based on calibrated relationships between soil test concentrations in the top foot of soil and yield response. Soil test K should generally be in the range of 160 to 200 ppm for optimum alfalfa yield. Potassium fertilizer should also be incorporated during seedbed preparation prior to establishment, or broadcast in the fall or early spring on established stands. Potassium chloride (0-0-60), potassium sulfate (0-0-52), K-Mag, and various liquid K fertilizers are all effective K sources for alfalfa. Potassium applications exceeding 300 lb K₂O per acre should be split between fall and spring to avoid salt damage. Excessive K applications should be avoided since alfalfa will remove substantially more K than it needs for maximum yield. Excessive K concentrations in alfalfa can contribute to milk fever in dairy cattle.

SULFUR (S)

Sulfur is a key contributor to alfalfa yield and quality. Sulfur requirements for alfalfa vary with soil texture, leaching losses, soil test SO₄-S concentration, and S content of the irrigation water. About 30 to 40 lb of SO₄-S should be applied before planting to soils containing less than 10ppm SO₄-S in the top foot of soil. This amount should provide adequate soil S for several years, provided the SO₄-S is not leached from the rooting depth. The SO₄-S form is mobile and can be leached to lower soil profile depths. For established alfalfa, sampling to a depth of two feet will provide a more accurate indication of S availability to alfalfa roots beyond the first foot. Areas irrigated with water from the Snake River or streams fed by return flow should have adequate S for alfalfa production. High rainfall areas, mountain valleys, and foothills are more

likely to have S deficiencies, particularly on course-textured soils with low organic matter content. Sulfur fertilizer sources should be carefully selected because elemental S must be converted to $\text{SO}_4\text{-S}$ by soil microorganisms before plant roots can take it up. Conversion of elemental S to $\text{SO}_4\text{-S}$ may take several months in warm, moist soil. Consequently, elemental S fertilizers usually cannot supply adequate levels of S to alfalfa in the year that it is applied. However, elemental S fertilizers can supply considerable S during the year following application. Sulfate-sulfur sources such as gypsum (calcium sulfate), ammonium sulfate (21-0-0), or potassium sulfate (0-0-52-18) are recommended to correct S deficiencies during the year of application.

SECONDARY NUTRIENTS AND MICRONUTRIENTS

CALCIUM (Ca) and **MAGNESIUM (Mg)** deficiencies in alfalfa are rare in the irrigated areas of southern Idaho. Most soils in the Snake River plain have adequate amounts of Ca and Mg for alfalfa production, although low soil Mg concentrations are sometimes encountered on very sandy soils that have been heavily fertilized with K for long periods. Under these conditions, applications of MgSO_4 or K-Mag at 20 to 40 lb of Mg per acre may provide a benefit.

Micronutrient applications should be based on recent soil test results.

BORON (B) deficiencies can usually be corrected by applying 2 to 3 lb of B per acre for the duration of the crop. However, on very sandy soils, or high rainfall areas where soils are subject to excessive leaching of B, annual applications of 1/2 to 1 lb of B per acre may be more Sulfur effective. Commonly used forms of B include boric acid, Borax, and sodium borate.

ZINC (Zn), **MANGANESE (Mn)**, and **IRON (Fe)** deficiencies can be corrected by applying 5 to 10 lb per acre of the required nutrient using Zn, Mn, or Fe sulfates or other soluble forms.

MOLYBDENUM (Mo) availability is generally adequate in the alkaline soils that are prevalent in the irrigated areas of southern Idaho.

TISSUE TESTING

Plant tissue testing provides an effective means of evaluating the nutrient status of an established alfalfa stand. Samples should be collected from about 20 to 30 plants at early bloom in representative areas of the field that are free from water stress or obvious pest problems. The top six inches of the stem should be sampled and sent immediately to a soil testing lab for analysis. Sufficiency ranges for the various nutrients are presented below. Nutrient concentrations below these ranges indicate a need for supplemental fertilization. When nutrient deficiencies are identified during the growing season, the deficiencies can often be corrected by injecting water-soluble fertilizers through the sprinkler system. Liquid forms of N, P, K, S, and micronutrients are commonly available in Idaho and should be selected on the basis of cost relative to dry fertilizers and ease of application. If alfalfa is furrow irrigated, foliar sprays can be used to correct micronutrient deficiencies but avoid foliar applications of N, P, K, and S at high rates that can cause foliar burning.

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Corn, Field, Silage, S-ID, Irrigated

UNIVERSITY OF IDAHO INFORMATION

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FERTILIZER GUIDE

NITROGEN (N)

Nitrogen rates depend upon some of the following factors: previous crop, past fertilizer use, soil type and leaching hazard and realistic yield goal for the grower and the area.

Adequate N is necessary for maximum economic production of irrigated field corn used for silage or grain. Fertilizer N represents by far the largest share of the fertilizer costs for field corn

in Idaho. The amount of N required depends on many factors that influence total corn production and quality. These factors include length of growing season, corn hybrid, previous crop, past fertilizer use, soil type, leaching hazard and previous manuring. Estimates of both the N available to corn during the season and the yield potential of the crop should be considered when determining N fertilizer rates.

TOTAL N REQUIREMENTS BASED ON POTENTIAL YIELD - Fertilizer N rates should be used which correspond to the yield growers can reasonably expect under their soil and management conditions. The historical field corn yield obtained by a grower in a specific field or area generally provides a fair approximation of yield potential given a grower's traditional crop management. Projected changes in crop management (i.e. improved variety, better disease and weed control) designed to appreciably increase production may require adjustment of yield potential upward. Research has shown that the available N required to produce a good field corn yield depends on a variety of crop management practices. Factors such as weed, insect and disease control as well as irrigation, planting date and soil type can influence the N required by corn for maximum yield.

AVAILABLE NITROGEN - Available N in the soil includes mineralizable N (released from organic matter during the growing season) inorganic N as nitrate (N03-N) and ammonium (NH4-N), and N credits from previous cropping or manures. Each component of available N must be estimated for accurate determination of optimum fertilizer N rates.

MINERALIZABLE NITROGEN - Soils vary in their capacity to release N from organic matter during the growing season. The amount of N released depends on such factors as soil type, soil moisture, soil temperature, previous crop, and the history of fertilizer N applied. While soil organic matter content is frequently used to estimate annual mineralizable N contributions, in southern Idaho irrigated soils organic matter does not accurately predict the amount of N that is mineralized.

INORGANIC NITROGEN - Residual soil inorganic N (N03, NH4) can be evaluated most effectively with a soil test. Soil samples should be collected in foot increments to a depth of two feet, unless roots are restricted by dense soil layers or high water tables. Ammonium is generally low in preplant soil samples and thus contributes little to available N. However, it can be as high as or higher than N03-N. NH4-N should be determined along with N03-N, especially when there is reason to expect the presence of appreciable NH4-N, such as recent ammonium N fertilizer applications. Soil samples should be collected before seeding in the spring to represent the area to be fertilized.

NITROGEN FROM PREVIOUS CROP RESIDUES - Nitrogen associated with decomposition of previous crop residues should also be considered when estimating available N. Residues that require additional N for decomposition include cereal straw and mature corn stalks. Research has shown that 15 pounds of additional N are needed per ton of straw returned to the soil, up to a maximum of 50 pounds. For more information on compensating for cereal residues, refer to CIS 825, "Wheat Straw Management and Nitrogen Fertilizer Requirements." Row crop residues (potatoes, sugarbeets, and onions) generally do not require additional N for decomposition. Consequently, these residues have little effect on the N needs of field corn. Legume residues

from beans, peas, and alfalfa can release appreciable N during the following crop season that may not be reflected by the preplant soil test. This N is derived from the decomposition of both plant tops and nodulated root systems.

NITROGEN FROM MANURES - Soils in which field corn is grown occasionally receive animal manures or lagoon wastes. Nutrient contributions from these sources should also be taken into consideration when estimating available N for the next season. Manures can preclude the need for any fertilizer, depending on the rate applied and their nutrient composition. Manures can vary appreciably depending on the animal, how the manure is processed, and the kind and extent of bedding material. For the most accurate estimate of fertilizer equivalent values, the manure should be analyzed for its nutrient content.

IRRIGATION WATER - Irrigation waters derived from deep wells are generally low in N. More shallow wells can have significant levels of nitrogen because of leaching of nitrogen from impacts from commercial fertilizer use, animal waste, and improperly functioning septic systems. Irrigation waters from most districts are also low in N when diverted from its source. Background levels of N from original sources are generally about 2 parts per million (ppm). The more return flow included in diverted water sources, the higher the N content. Return flows may include N dissolved when irrigation waters pass through fields high in residual or recently added fertilizer N as well as from soluble fertilizer N applied with the irrigation water. Most irrigation districts should know the N content of the water they divert. Contact them for this information to determine the levels of N added with your irrigation water. However, since irrigation water N levels are influenced by upstream management, if you use irrigation water that receives runoff after it is diverted, only a water test can accurately evaluate the N added with irrigation waters. For each ppm or milligrams per liter (mg/L) of N reported in the water sample, multiply by 2.7 to get the N added per acre foot of water applied. For example, if the water sample contained 10 ppm of N, 3 acre feet of water applied would be the equivalent of 81 pounds of N per acre. Typically, of the water applied with furrow irrigation only 50 percent is retained on the field and the rest runs off the end. The net retention of N applied with furrow irrigation would, therefore, be about half of the water applied or about 40 pounds per acre in this example. If more or less of the irrigation water is retained with each wetting, then growers should adjust the water N contribution accordingly. Excessive irrigation by any method reduces N availability to field corn. Additional N may be needed under these conditions. Growers should not use aqua or anhydrous N through a sprinkler irrigation system. Water running soluble N sources with a furrow irrigation system can be an effective means of adding N. Two limitations of this practice are that (1) the application of the N with this method may not be as uniform as desired and (2) runoff containing the N may contaminate downstream surface waters. Growers can minimize the loss of N by shutting off the injection unit before the irrigation water reaches the end of the furrow. This practice should not substitute for careful consideration of N needs while N can be side dressed.

CALCULATION OF N APPLICATION RATES - To calculate the fertilizer N application rate, the following equation is used: Fertilizer application rate (deficit) or Over application of Nitrogen = (Total N required producing a given yield) - (Mineralizable N) - (Inorganic N measured by the soil test) - (previous crop/residue management) - (Manure Nitrogen) - (Irrigation Water)

TIMING OF NITROGEN APPLICATION - Coarse-textured soils, including sandy loams, loamy soils and sands, may lose N from leaching. For these soils, side dress a portion of the N at the time of the last cultivation. Sprinkler irrigation of corn under center pivots provides increased flexibility for providing N during the season. With sprinklers N can be injected into the system and applied with the water. On silt loam soils, split applications of N have not proven more effective as long as preplant N is adequately incorporated. High N rates (approaching 300 pounds per acre) broadcast and incorporated before planting may reduce early season corn growth. If high N rates are needed, split applications should be considered. High plant populations (above 28,000 to 30,000) and early plantings of longer season hybrids in the Treasure Valley will respond to high N rates provided there are no other limiting factors. High N rates will not compensate for reductions in stand or delayed plantings. High plant populations of field corn are more susceptible to N shortages because of greater competition among plants for limited N. Side dressing may cause root pruning depending on plant size, distance of shank from the row and placement depth. High N rates (above 300 pounds per acre) broadcast and incorporated before planting may reduce early season corn growth. If high N rates are needed, split applications should be considered. On sandy textured soils subject to leaching, side dress a portion of the N at the time of the last cultivation. Under sprinkler irrigations, N can be injected through the lines throughout the season. On silt loam soils, split applications of N have not proven more effective as long as preplant N is adequately incorporated.

PHOSPHORUS (P)

Adequate phosphorus is necessary for maximum production of field corn. The soil test for P is based on samples collected from the first foot of soil. The soil is extracted with sodium bicarbonate. Economic response to fertilizer P is more likely with cooler soil temperatures and soils with high lime content, particularly when planting long season hybrids. Phosphorus is an immobile nutrient that does not move appreciably from where it is placed. It should be mixed into the seedbed or banded within easy reach of the seedling roots before or during the planting operation.

POTASSIUM (K)

Field corn requires adequate potassium for optimum growth. Soil test K can be useful in determining the need for K fertilizers. The soil sample is taken from the first foot of soil and extracted with sodium bicarbonate. Fertilizer K rates are based on soil test.

SULFUR (S)

The major corn-growing regions in Idaho should not experience shortages of S. Areas with S deficiencies include some irrigated areas where both the soil and irrigation water are low in S. Snake River water is known to have high S concentrations. Coarse-textured soils including sandy loams, loamy sands and sands would be more susceptible to S deficiencies than silt loam soils. Where the need for S is evident, use 30 pounds per acre of sulfate-sulfur (S04).

MICRONUTRIENTS

1) Zinc (Zn) deficiencies occur primarily on soils that are eroded, leveled or where the exposed subsoil is higher in lime. The DTPA test on soil samples collected from the first foot can be used for identifying Zn fertilizer needs. Apply 10 pounds of Zn per acre when the soil test measures less than 0.6 ppm.

2) Other micronutrients have not been shown to limit corn production. "Shotgun" applications of micronutrient mixtures containing boron (B), copper (Cu), iron (Fe) and manganese (Mn) "for insurance" have not been shown to be economical and are not recommended.

SALINITY (SALTS)

Field corn has a low to moderate tolerance to accumulated salts. Soils with total salt readings above 3 or 4 mmhos/cm can be cropped effectively. Readings up to 6 are also satisfactory although more careful water management may be required.

Pasture, Good Condition-Root Depth 4 feet, S-ID, Irrigated UNIVERSITY OF IDAHO INFORMATION

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FERTILIZER GUIDE

Lack of adequate fertilizer, improper irrigation management, poor stands, non-adapted plant species and poor grazing management are the major causes of low forage production in irrigated pastures. When properly managed, pastures will respond to fertilization and produce large quantities of high-quality forage and livestock products. Irrigated pastures are typically composed either of grass-legume mixtures or grasses alone. The composition of the pasture can be changed by fertilizer management and grazing method. Adapted and high-quality grasses for irrigated pastures include brome grass and orchard grass for well-drained soil, fescue and wheatgrass for saline soils and creeping meadow foxtail and reed canary grass for wet soil. These grasses make excellent summer regrowth. Highest producing grass-legume mixtures usually include one or more of the above grasses with a well-adapted legume variety. An adapted legume variety should have good winter hardiness and resistance to insects and diseases.

NITROGEN (N)

Nitrogen rates depend upon some of the following factors: previous crop, past fertilizer use, soil type and leaching hazard and realistic yield goal for the grower and the area. Grass pastures have responded well to nitrogen (N) fertilizer applications up to 150 pounds N per acre. The N rate depends upon the length of frost-free growing season and the number of cuttings or grazing periods. Production potential increases as the frost-free growing period is extended. Split applications of N fertilizer maintain a more uniform level of forage production through summer and fall. Broadcast 30 to 50 pounds N per acre per application after each cutting or grazing cycle, and irrigate to move N into the plant root zone. As the amount of legume increases in a grass/legume mixture, the need for N fertilizer decreases. When the legume composes over 60 percent of the mixture, responses from N are limited. Nitrogen applications will reduce the quantity of legume in a mixed species stand. Inoculation of legumes when the stand is established will reduce the need for N fertilization when legumes dominate the stand composition.

PHOSPHORUS (P)

Intensively managed, high-producing pasture may respond to phosphorus (P) fertilization. Grasses generally have a low P requirement, and legumes generally have a high P requirement. Thus, P fertilizer applications tend to encourage legumes. Phosphorus movement in soils is limited, so P fertilizer needs to be placed in the rooting zone. Apply phosphorus during seedbed preparation whenever possible. Top-dress established pastures with P fertilizer, preferably in the fall.

POTASSIUM (K)

Grasses have moderate potassium (K) requirements, and legumes have high K requirements. Idaho soils are usually high in natural K. Irrigation water contains K except in mountain streams. Potassium movement in soils is limited, though not to the same extent as that of phosphorus. Incorporate K during seedbed preparation or broadcast in the fall on established stands.

SULFUR (S)

Sulfur demand is greater for legumes than grasses. Sulfur requirements for grass and legumes will vary with soil texture, leaching losses, S soil test and S content of irrigation water. Apply 30 pounds of S to soil testing less than 10 ppm sulfate-sulfur (S04-S) in the plow layer. Areas irrigated with water from the Snake River and other streams fed by return flow should have adequate S. High rainfall areas, mountain valleys and foothill areas are likely areas for S deficiencies. Sulfur sources should be carefully selected due to variation in its availability to plants. Elemental sulfur must be converted to sulfate (S04) form by soil micro-organisms before it can be taken up by plants. Conversion of elemental S to S04 may take several months in warm moist soils. Elemental S fertilizers cannot supply adequate levels of S the year of application. However, these elemental S sources can supply considerable S the year after the initial application. Sulfate-sulfur sources are recommended to alleviate deficiencies the year of application.

MICRONUTRIENTS

Deficiencies of micronutrients such as zinc (Zn), copper (Cu), manganese (Mn) and iron (Fe) have not been observed on irrigated pastures in southern Idaho. Grasses and legumes are not sensitive to low levels of micronutrients as are row crops such as beans and corn. Boron (B) deficiencies may be observed on legumes in gravelly textured soils. If the soil tests less than 0.25 ppm B, apply 1 to 3 pounds of B per acre. Do not use higher rates because B is toxic to plants in excessive amounts.

GENERAL COMMENTS

1. Nitrogen and phosphorus are the elements needed most on Idaho irrigated pastures. Potassium, sulfur, zinc and boron may be needed. Their need is best determined by soil and plant tissue tests.
2. Legume population in a grass-legume mixture is reduced by nitrogen fertilization and increased by phosphorus and potassium addition when these nutrients are low in the soil.
3. Forage from properly fertilized grass or mixed grass-legume pastures has higher protein, providing higher quality livestock feed than unfertilized pastures.
4. Irrigated pastures make good use of sloping land, stony soils and shallow soils which are less desirable for row crops. Pastures reduce soil erosion during irrigation on sloping land.
5. Fertilizers are only one part of pasture management. Pastures are most profitable when plant selection, irrigation and harvest techniques are not limiting production.
6. Rotational grazing will provide more forage and greater returns than continuous grazing.

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Potatoes, S-ID, Irrigated

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SOIL SAMPLING

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SOIL SAMPLING is also one of the most important steps in a sound crop fertilization program. Poor soil sampling procedures account for more than 90 percent of all errors in fertilizer recommendations based on soil tests. Soil test results are only as good as the soil sample. Once you take a good sample, you must also handle it properly for it to remain a good sample. A good soil testing program can be divided into four operations: (1) taking the sample, (2) analyzing the sample, (3) interpreting the sample analyses, and (4) making the fertilizer recommendations. GOOD SOIL SAMPLING starts with recognizing the soil fertility varies among and within fields. Soil sampling for plant nutrients should be done one to two weeks before the anticipated fertilizer application or planting date. To adequately characterize nutrient availability in a field, each soil sample submitted to a lab should consist of a composite of at least 20 individual subsamples representing the field's major soil characteristics. To determine Nitrogen availability, separate soil samples should be collected from the 0- to 12-inch depth and the 12- to 24-inch depth. All other nutrients require only a 0- to 12-inch sample. Samples should not be collected from poor production areas or wet spots unless specific recommendations are desired for those areas.

THE SUBSAMPLES should be thoroughly mixed in a clean plastic bucket, keeping the first-foot samples separate from the second-foot samples. About one pound of soil from each depth's composite sample should then be placed in a separate plastic-lined sampling bag. All requested information including grower's name, field identification, date, and previous crop should be provided with the sample. Soil samples should not be stored under warm conditions because microbial activity can change the extractable nitrate (NO₃-N) and (NH₄-N) concentrations. Accordingly, soil samples should be submitted to a local soil testing lab as quickly as possible to provide for accurate soil testing results. IF SIZABLE AREAS OF THE FIELD DIFFER in productivity or visual appearance, crop yield and quality the field may benefit from variable-rate fertilization. Current site-specific soil sampling and fertilizer application technologies provide useful options for providing optimal nutrient availability throughout the field. Information on soil nutrient mapping and variable-rate fertilization can be obtained by contacting an extension soil fertility specialist, your local county ag extension educator, crop advisor, or ag consultant. For more detailed information about soil sampling, refer to EXT 704, (Soil Sampling).

FERTILIZER GUIDE

NITROGEN (N)

Nitrogen rates depend upon some of the following factors: previous crop, past fertilizer use, soil type and leaching hazard and realistic yield goal for the grower and the area. Most Idaho potato fields will respond to fertilizer nitrogen (N). The N rate used, along with other management factors, particularly irrigation, can have a marked effect on the yield and quality of the potato crop.

TOTAL N REQUIREMENTS BASED ON POTENTIAL YIELD - Fertilizer N rates should be used which correspond to the yield growers can reasonably expect under their soil and management conditions. The historical potato yield obtained by a grower in a specific field or area generally provides a fair approximation of yield potential given a grower's traditional crop management. Projected changes in crop management (i.e. improved variety, better disease and weed control) designed to appreciably increase production may require adjustment of yield potential upward. Research has shown that the available N required to produce a good potato yield depends on a variety of crop management practices. Factors such as weed, insect and disease control as well as irrigation, planting date and soil type can influence the N required by potatoes for maximum yield.

AVAILABLE NITROGEN - Available N in the soil includes mineralizable N (released from organic matter during the growing season) inorganic N as nitrate (N03-N) and ammonium (NH4-N), and N credits from previous cropping or manures. Each component of available N must be estimated for accurate determination of optimum fertilizer N rates.

MINERALIZABLE NITROGEN - Soils vary in their capacity to release N from organic matter during the growing season. The amount of N released depends on such factors as soil type, soil moisture, soil temperature, previous crop, and the history of fertilizer N applied. While soil organic matter content is frequently used to estimate annual mineralizable N contributions, in southern Idaho irrigated soils organic matter does not accurately predict the amount of N that is mineralized.

INORGANIC NITROGEN - Residual soil inorganic N (N03, NH4) can be evaluated most effectively with a soil test. Soil samples should be collected in foot increments to a depth of two feet, unless roots are restricted by dense soil layers or high water tables. Ammonium is generally low in preplant soil samples and thus contributes little to available N. However, it can be as high as or higher than N03-N. NH4-N should be determined along with N03-N, especially when there is reason to expect the presence of appreciable NH4-N, such as recent ammonium N fertilizer applications. Soil samples should be collected before seeding in the spring to represent the area to be fertilized.

NITROGEN FROM PREVIOUS CROP RESIDUES - Nitrogen associated with decomposition of previous crop residues should also be considered when estimating available N. Residues that require additional N for decomposition include cereal straw and mature corn stalks. Research has shown that 15 pounds of additional N are needed per ton of straw returned to the soil, up to a maximum of 50 pounds. For more information on compensating for cereal residues, refer to CIS 825, (Wheat Straw Management and Nitrogen Fertilizer Requirements). Row crop residues (potatoes, sugarbeets, and onions) generally do not require additional N for decomposition. Consequently, these residues have little effect on the N needs of potatoes. Legume residues from beans, peas, and alfalfa can release appreciable N during the following crop season that may not be reflected by the preplant soil test. This N is derived from the decomposition of both plant tops and nodulated root systems.

NITROGEN FROM MANURES - Soils in which potatoes are grown rarely receive animal manures or lagoon wastes. Nutrient contributions from these sources should also be taken into consideration when estimating available N for the next season. Manures can preclude the need for any fertilizer, depending on the rate applied and their nutrient composition. Manures can vary appreciably depending on the animal, how the manure is processed, and the kind and extent of bedding material. For the most accurate estimate of fertilizer equivalent values, the manure should be analyzed for its nutrient content.

IRRIGATION WATER - Irrigation waters derived from deep wells are generally low in N. More shallow wells can have significant levels of nitrogen because of leaching of nitrogen from impacts from commercial fertilizer use, animal waste, and improperly functioning septic systems. Irrigation waters from most districts are also low in N when diverted from its source. Background levels of N from original sources are generally about 2 parts per million (ppm). The more return flow included in diverted water sources, the higher the N content. Return flows may include N dissolved when irrigation waters pass through fields high in residual or recently added fertilizer N as well as from soluble fertilizer N applied with the irrigation water. Most irrigation districts should know the N content of the water they divert. Contact them for this information to determine the levels of N added with your irrigation water. However, since irrigation water N levels are influenced by upstream management, if you use irrigation water that receives runoff after it is diverted, only a water test can accurately evaluate the N added with irrigation waters. For each ppm or milligrams per liter (mg/L) of N reported in the water sample, multiply by 2.7 to get the N added per acre foot of water applied. For example, if the water sample contained 10 ppm of N, 3 acre feet of water applied would be the equivalent of 81 pounds of N per acre. Typically, of the water applied with furrow irrigation only 50 percent is retained on the field and the rest runs off the end. The net retention of N applied with furrow irrigation would, therefore, be about half of the water applied or about 40 pounds per acre in this example. If more or less of the irrigation water is retained with each wetting, then growers should adjust the water N contribution accordingly. Excessive irrigation by any method reduces N availability to potatoes. Additional N may be needed under these conditions. Growers should not use aqua or anhydrous N through a sprinkler irrigation system. Water running soluble N sources with a furrow irrigation system can be an effective means of adding N. Two limitations of this practice are that (1) the application of the N with this method may not be as uniform as desired and (2) runoff containing the N may contaminate downstream surface waters. Growers can minimize the loss of N by shutting off the injection unit before the irrigation water reaches the end of the furrow. This practice should not substitute for careful consideration of N needs while N can be side dressed.

CALCULATION OF N APPLICATION RATES - To calculate the fertilizer N application rate, the following equation is used: Fertilizer application rate (deficit) or Over application of Nitrogen = (Total N required to produce a given yield) - (Mineralizable N) - (Inorganic N measured by the soil test) - (previous crop/residue management) - (Manure Nitrogen) - (Irrigation Water)

TIMING OF NITROGEN APPLICATION - Nitrogen fertilizer recommendations are for Russet Burbank potatoes grown on sandy loam soils. Adjustments are made for very sandy soils (add 30 lb N/acre) and silt loam soils (subtract 40 lb N/acre) to account for differences in nitrogen mineralization rates and nitrogen use efficiency. To maximize yield and quality, growers should

aim to have about 40 to 45% of their total N supply applied by row closure. Nitrogen applications made during tuber bulking should be guided by petiole sampling to maintain at least 15,000 ppm $\text{NO}_3\text{-N}$ in the fourth petiole from the growing tip. Excess levels of soil N at or before tuberization can delay tuber growth, reduce yields and lower tuber specific gravity. Excess N in late summer and fall can delay maturity of the tubers. This delayed tuber maturity can adversely affect tuber storability and quality. The N needs of the potato crop are best met by split-application of N fertilizer. This involves applying lower rates of N fertilizer preplant and at planting, with the remainder of the crop's N needs applied with the irrigation water. Some cropping systems - for example, furrow irrigation - make it difficult to apply N fertilizer and get efficient plant uptake. Under these conditions most of the crop N needs are applied to the soil before planting. Nitrogen applied with irrigation water is an effective way to supplement the crop during the growing season. Do not use aqua or anhydrous ammonia in sprinkler system applications. Applications through a sprinkler system are not foliar fertilization.

PHOSPHORUS (P)

Potato plants need phosphorus for plant growth and will respond to P fertilizer if the soil test concentration is low. Phosphorus soil test for potatoes is based on an extraction with sodium bicarbonate. Soil samples for a phosphorus soil test should be taken from 0- to 12-inch depths. This depth of sampling is critical to achieve an accurate soil test P level. Deviation in sampling depth from the 12-inch depth may drastically alter soil test results. Phosphorus is immobile in soil and therefore does not move from where it is placed. Applied P fertilizer must be mixed into the seedbed before planting for best results. Banding P fertilizer along side plants has not been as effective as P fertilizer that has been broadcast and incorporated. Eroded or scraped areas, commonly referred to as "white soil" areas, may be low in available P because of its high content of "free lime." These areas should be tested and fertilized separately. To compensate for low P availability when free lime is present in the soil, rates of P are increased with increasing levels of free lime. Total phosphorus concentrations should be kept above 0.22% in the fourth petiole during tuber bulking.

POTASSIUM (K)

Potatoes require high levels of available potassium (K). Potassium is relatively immobile in the soil. For best results, K fertilizers should be applied preplant and mixed into the seedbed. Banding beside the plants has been used successfully but is not as effective as K fertilizer which has been broadcast and incorporated. Potassium fertilizer applications reduce specific gravity of harvested tubers. Potassium chloride fertilizer (KCl or muriate of potash) lowers specific gravity of tubers more than potassium sulfate fertilizer (K_2SO_4 or sulfate of potash). Growers should avoid over-fertilization of potatoes with K fertilizers. When specific gravity of tubers is important, potassium sulfate is the preferred K fertilizer source. Total potassium concentrations should be kept above 7.0% in the fourth petiole during tuber bulking.

SULFUR (S)

Potatoes generally do not respond to sulfur (S) fertilization. Sulfur response is most likely to occur in sandy soils and in areas where irrigation water sources are low in S. Water low in S includes mountain streams and some well waters. The more irrigation return-flow in the water source the greater the amount of dissolved, plant-available sulfate (SO_4) form. Elemental sulfur is not recommended because it is not immediately available to plants. Elemental sulfur will require several months from time of application until it is converted to plant-available form.

MICRONUTRIENTS

1) "Shotgun" application of micronutrients - I.e. complete mixes containing boron (B), copper (Cu), iron (Fe), manganese (Mn) and zinc (Zn) - "for insurance" are not recommended since these elements have not been shown to give an economical response. Soil tests for individual micronutrients are available and concentrations in the 0- to 1-inch soil sample are: B = 0.5 ppm, Cu = 0.2 ppm, Fe = 4.0 ppm, Mn = 2.0 ppm, Zn = 0.5 ppm. Critical concentrations represent values below which a response from the application of that micronutrient may be obtained.

2) Zinc deficiencies have not been widespread on potatoes although some crops in certain areas of southern Idaho do show a Zn deficiency. When the soil test for Zn is below the critical concentration or where land leveling or erosion has exposed white subsoil containing free lime, apply Zn fertilizer at a rate which will supply 10 pounds of Zn per acre or equivalent. This amount of Zn should be sufficient for 4 to 6 years of crop production.

GENERAL COMMENTS

1. The P, K, and Zn nutritional status of the plant should also be monitored during the growing season. The same petiole sample used for N03-N concentrations can also be used for this purpose. Guidelines for adequate concentrations of these and other nutrients in the petiole can be obtained from your county agricultural Extension agent, consultant, or fieldman.

2. Fertilizer materials containing P, K and Zn should be thoroughly incorporated into the root zone. These materials can be effectively applied in the fall.

Sugarbeets, S-ID, Irrigated

UNIVERSITY OF IDAHO INFORMATION

SOIL SAMPLING

Environmental concerns have brought nutrient management in agriculture under increased scrutiny. A goal of sound nutrient management is to maximize the proportion of applied nutrients that is used by the crop (nutrient use efficiency). Soil sampling is a best management practice (BMP) for fertilizer management that will help improve nutrient use efficiency and protect the environment.

SOIL SAMPLING is also one of the most important steps in a sound crop fertilization program. Poor soil sampling procedures account for more than 90 percent of all errors in fertilizer recommendations based on soil tests. Soil test results are only as good as the soil sample. Once you take a good sample, you must also handle it properly for it to remain a good sample. A good soil testing program can be divided into four operations: (1) taking the sample, (2) analyzing the sample, (3) interpreting the sample analyses, and (4) making the fertilizer recommendations. GOOD SOIL SAMPLING starts with recognizing the soil fertility varies among and within fields. Soil sampling for plant nutrients should be done one to two weeks before the anticipated fertilizer application or planting date. To adequately characterize nutrient availability in a field, each soil sample submitted to a lab should consist of a composite of at least 20 individual subsamples representing the field's major soil characteristics. To determine Nitrogen availability, separate soil samples should be collected from the 0- to 12-inch depth and the 12- to 24-inch

depth. All other nutrients require only a 0- to 12-inch sample. Samples should not be collected from poor production areas or wet spots unless specific recommendations are desired for those areas.

THE SUBSAMPLES should be thoroughly mixed in a clean plastic bucket, keeping the first-foot samples separate from the second-foot samples. About one pound of soil from each depth's composite sample should then be placed in a separate plastic-lined sampling bag. All requested information including grower's name, field identification, date, and previous crop should be provided with the sample. Soil samples should not be stored under warm conditions because microbial activity can change the extractable nitrate ($\text{NO}_3\text{-N}$) and ($\text{NH}_4\text{-N}$) concentrations. Accordingly, soil samples should be submitted to a local soil testing lab as quickly as possible to provide for accurate soil testing results. IF SIZABLE AREAS OF THE FIELD DIFFER in productivity or visual appearance, crop yield and quality the field may benefit from variable-rate fertilization. Current site-specific soil sampling and fertilizer application technologies provide useful options for providing optimal nutrient availability throughout the field. Information on soil nutrient mapping and variable-rate fertilization can be obtained by contacting an extension soil fertility specialist, your local county ag extension educator, crop advisor, or ag consultant. For more detailed information about soil sampling, refer to EXT 704, (Soil Sampling).

FERTILIZER GUIDE

NITROGEN (N)

Nitrogen rates depend upon some of the following factors: previous crop, past fertilizer use, soil type and leaching hazard and realistic yield goal for the grower and the area. Controlling the amount of N available to the sugarbeet is critical in producing high beet tonnage with high sugar percentage. Nitrogen in excess can reduce sugar percentage and gross income per acre.

TOTAL N REQUIREMENTS BASED ON POTENTIAL YIELD

Fertilizer N rates should be used which correspond to the yield growers can reasonably expect under their soil and management conditions. The historical sugarbeet yield obtained by a grower in a specific field or area generally provides a fair approximation of yield potential given a grower's traditional crop management. Projected changes in crop management (i.e. improved variety, better disease and weed control) designed to appreciably increase production may require adjustment of yield potential upward.

AVAILABLE NITROGEN

Available N in the soil includes mineralizable N (released from organic matter during the growing season) inorganic N as nitrate ($\text{NO}_3\text{-N}$) and ammonium ($\text{NH}_4\text{-N}$), and N credits from previous cropping or manures. Each component of available N must be estimated for accurate determination of optimum fertilizer N rates.

MINERALIZABLE NITROGEN - Soils vary in their capacity to release N from organic matter during the growing season. The amount of N released depends on such factors as soil type, soil moisture, soil temperature, previous crop, and the history of fertilizer N applied. Soils that retain moisture tend to mineralize more N than soils such as sandy loams, which dry out more rapidly. Mineralization of N is limited by cooler soil temperatures that limit soil biological activity. While soil organic matter content is frequently used to estimate annual mineralizable N

contributions, in southern Idaho irrigated soils organic matter does not accurately predict the amount of N that is mineralized.

INORGANIC NITROGEN - Residual soil inorganic N (NO_3 , NH_4) can be evaluated most effectively with a soil test. Accurate soil sampling and analysis in a high value crop like sugarbeets is one of the best investments that can be made and is highly recommended. A soil test measures the residual N carryover from the previous crop and provides the necessary information for accurate fertilizer application. Nitrate nitrogen ($\text{NO}_3\text{-N}$) is mobile in the soil. Soil samples, therefore, should be taken from the 0- to 12-inch and 12- to 24-inch soil depths or the effective root zone. These depths should be sampled and kept separate for analysis. If the first foot is low in N (less than 5 ppm) but the sum of the first 2 feet is adequate, 20 to 40 pounds of N per acre may be applied to provide N until root growth is sufficient to reach the N in the second foot (about 4 to 5 weeks after emergence).

NITROGEN FROM PREVIOUS CROP RESIDUES - Nitrogen associated with decomposition of previous crop residues should also be considered when estimating available N. Residues that require additional N for decomposition include cereal straw and mature corn stalks. Research has shown that 15 pounds of additional N are needed per ton of straw returned to the soil, up to a maximum of 50 pounds. For more information on compensating for cereal residues, refer to CIS 825, (Wheat Straw Management and Nitrogen Fertilizer Requirements). Non-cereal residues (potatoes, sugarbeets, onions, beans, mint, and sweet corn) generally do not require additional N for decomposition. Consequently, these residues have little effect on the N needs of sugarbeets. Legume residues from beans, peas, and alfalfa can release appreciable N during the following crop season that may not be reflected by the preplant soil test. This N is derived from the decomposition of both plant tops and nodule root systems.

NITROGEN FROM MANURES - Very few soils used for sugarbeets receive animal manures or lagoon wastes. Nutrient contributions from these sources should also be taken into consideration when estimating available N for the next season. Manures can preclude the need for any fertilizer, depending on the rate applied and their nutrient composition. Manures can vary appreciably depending on the animal, how the manure is processed, and the kind and extent of bedding material. For the most accurate estimate of fertilizer equivalent values, the manure should be analyzed for its nutrient content.

IRRIGATION WATER - Irrigation waters derived from deep wells are generally low in N. More shallow wells can have significant levels of nitrogen because of leaching of nitrogen from impacts from commercial fertilizer use, animal waste, and improperly functioning septic systems. Irrigation waters from most districts are also low in N when diverted from its source. Background levels of N from original sources are generally about 2 parts per million (ppm). The more return flow included in diverted water sources, the higher the N content. Return flows may include N dissolved when irrigation waters pass through fields high in residual or recently added fertilizer N as well as from soluble fertilizer N applied with the irrigation water. Most irrigation districts should know the N content of the water they divert. Contact them for this information to determine the levels of N added with your irrigation water. However, since irrigation water N levels are influenced by upstream management, if you use irrigation water that receives runoff after it is diverted, only a water test can accurately evaluate the N added with irrigation waters.

For each ppm or milligrams per liter (mg/L) of N reported in the water sample, multiply by 2.7 to get the N added per acre foot of water applied. For example, if the water sample contained 10 ppm of N, 3 acre feet of water applied would be the equivalent of 81 pounds of N per acre. Typically, of the water applied with furrow irrigation only 50 percent is retained on the field and the rest runs off the end. The net retention of N applied with furrow irrigation would, therefore, be about half of the water applied or about 40 pounds per acre in this example. If more or less of the irrigation water is retained with each wetting, then growers should adjust the water N contribution accordingly. Excessive irrigation by any method reduces N availability to sugarbeets. Additional N may be needed under these conditions. Growers should not use aqua or anhydrous N through a sprinkler irrigation system. Water running soluble N sources with a furrow irrigation system can be an effective means of adding N. Two limitations of this practice are that (1) the application of the N with this method may not be as uniform as desired and (2) runoff containing the N may contaminate downstream surface waters. Growers can minimize the loss of N by shutting off the injection unit before the irrigation water reaches the end of the furrow. This practice should not substitute for careful consideration of N needs while N can be side dressed.

CALCULATION OF N APPLICATION RATES - To calculate the fertilizer N application rate, the following equation is used: Fertilizer application rate (deficit) or Over application of Nitrogen = (Total N required to produce a given yield) - (Mineralizable N) - (Inorganic N measured by the soil test) - (previous crop/residue management) - (Manure Nitrogen) - (Irrigation Water)

TIMING OF NITROGEN APPLICATION - Nitrogen fertilizers can be fall applied on loam, silt loam, and clay soils. Winter leaching of N from the soil profile can be reduced to a minimum by applying N in the ammonium or urea forms when soil temperature is below 45 F. Greater efficiency may be obtained from preplant application in spring or by side dressing before July 1. Nitrogen applied after July 1 stimulates vegetative growth, lowers sugar percentage and extractability and contributes little to total sugar yield.

On sandy soils where over-irrigation and leaching of nitrogen are likely, side dressing or applications of nitrogen through irrigation water before July 1 are suggested for at least half of the rate used. Split N applications often increase nitrogen use efficiency, sugarbeet tonnage, and sugar production. Research conducted at the Kimberly R & E Center during 1992-1994 showed that split N fertilization generally increased estimated recoverable sugar and net economic return/acre compared to applying all N preplant. However, growers need to avoid applying significant amounts of N late in the growing season, which can stimulate top growth at the expense of sugar production. The practice of placing starter fertilizer with the seed is not recommended because it will reduce germination and result in poor stands.

PHOSPHORUS (P)

Sugarbeets will respond to P fertilizer if soil test levels are low. The soil test is based on extractable P present in the upper 12 inches of the soil. Phosphorus should be plowed down or applied to rough-plowed ground and worked into the seedbed. High rates should not be placed with or immediately below the seed. Side dressing is recommended when late applications are necessary.

POTASSIUM (K)

Sugarbeets require less K than potatoes or alfalfa but will respond to K fertilization if soil test levels are low. The soil test is based on the extractable K present in the upper 12 inches of the soil. Potassium should be incorporated into the seedbed.

SULFUR (S)

Sulfur is generally not deficient in the major sugarbeet-growing region of Idaho where the Snake River is the source of irrigation water. In areas known to be S deficient or where the soil test is less than 8 ppm in the 0- to 12-inch soil sample, apply 30 pounds S per acre.

MICRONUTRIENTS

Deficiencies of Zn are not widespread in sugarbeets. When the soil test for Zn is below 0.6 ppm in the upper 12 inches of the soil, or where land leveling has exposed white, limey subsoil, apply Zn fertilizer at a rate that supplies 10 pounds of zinc per acre or equivalent. "Shotgun" applications of micronutrient mixtures "for insurance" have not been necessary or economical; therefore, they are not recommended.

GENERAL COMMENTS

Uniform plant populations (110 to 130 plants per 100 feet of row) after thinning have produced the highest root yields and sugar percentages.

Barley, Spring, S-ID**UNIVERSITY OF IDAHO INFORMATION****SOIL SAMPLING**

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SOIL SAMPLING is also one of the most important steps in a sound crop fertilization program. Poor soil sampling procedures account for more than 90 percent of all errors in fertilizer recommendations based on soil tests. Soil test results are only as good as the soil sample. Once you take a good sample, you must also handle it properly for it to remain a good sample. A good soil testing program can be divided into four operations: (1) taking the sample, (2) analyzing the sample, (3) interpreting the sample analyses, and (4) making the fertilizer recommendations.

GOOD SOIL SAMPLING starts with recognizing the soil fertility varies among and within fields. Soil sampling for plant nutrients should be done one to two weeks before the anticipated fertilizer application or planting date. To adequately characterize nutrient availability in a field, each soil sample submitted to a lab should consist of a composite of at least 20 individual subsamples representing the field's major soil characteristics. To determine Nitrogen availability, separate soil samples should be collected from the 0- to 12-inch depth and the 12- to 24-inch depth. All other nutrients require only a 0- to 12-inch sample. Samples should not be collected from poor production areas or wet spots unless specific recommendations are desired for those areas.

THE SUBSAMPLES should be thoroughly mixed in a clean plastic bucket, keeping the first-foot samples separate from the second-foot samples. About one pound of soil from each depth's composite sample should then be placed in a separate plastic-lined sampling bag. All requested information including grower's name, field identification, date, and previous crop should be provided with the sample. Soil samples should not be stored under warm conditions because microbial activity can change the extractable nitrate (NO₃-N) and (NH₄-N) concentrations. Accordingly, soil samples should be submitted to a local soil testing lab as quickly as possible to provide for accurate soil testing results. IF SIZABLE AREAS OF THE FIELD DIFFER in productivity or visual appearance, crop yield and quality the field may benefit from variable-rate fertilization. Current site-specific soil sampling and fertilizer application technologies provide useful options for providing optimal nutrient availability throughout the field. Information on soil nutrient mapping and variable-rate fertilization can be obtained by contacting an extension soil fertility specialist, your local county ag extension educator, crop advisor, or ag consultant. For more detailed information about soil sampling, refer to EXT 704, (Soil Sampling).

FERTILIZER GUIDE

NITROGEN (N)

Nitrogen application rates depend upon previous crops, previous N fertilizer additions, and release of N from organic matter, soil type, irrigation management and length of growing season. Enough N fertilizer should be applied to obtain maximum economic yield without significantly increasing protein content of standard barley varieties.

TOTAL N REQUIREMENTS BASED ON POTENTIAL YIELD - Fertilizer N rates should be used which correspond to the yield growers can reasonably expect under their soil and management conditions. The historical barley yield obtained by a grower in a specific field or area generally provides a fair approximation of yield potential given a grower's traditional crop management. Projected changes in crop management (i.e. improved variety, better disease and weed control) designed to appreciably increase production may require adjustment of yield potential upward. Research has shown that the available N required to produce a good barley yield depends on a variety of crop management practices. Factors such as weed, insect and disease control as well as irrigation, planting date and soil type can influence the N required by barley for maximum yield.

AVAILABLE NITROGEN - Available N in the soil includes mineralizable N (released from organic matter during the growing season) inorganic N as nitrate (NO₃-N) and ammonium (NH₄-N), and N credits from previous cropping or manures. Each component of available N must be estimated for accurate determination of optimum fertilizer N rates.

MINERALIZABLE NITROGEN - Soils vary in their capacity to release N from organic matter during the growing season. The amount of N released depends on such factors as soil type, soil moisture, soil temperature, previous crop, and the history of fertilizer N applied. While soil organic matter content is frequently used to estimate annual mineralizable N contributions, in southern Idaho irrigated soils organic matter does not accurately predict the amount of N that is mineralized.

INORGANIC NITROGEN - Residual soil inorganic N (NO₃, NH₄) can be evaluated most effectively with a soil test. Soil samples should be collected in foot increments to a depth of two feet, unless roots are restricted by dense soil layers or high water tables. Ammonium is generally

low in preplant soil samples and thus contributes little to available N. However, it can be as high as or higher than $\text{NO}_3\text{-N}$. $\text{NH}_4\text{-N}$ should be determined along with $\text{NO}_3\text{-N}$, especially when there is reason to expect the presence of appreciable $\text{NH}_4\text{-N}$, such as recent ammonium N fertilizer applications. Soil samples should be collected before seeding in the spring to represent the area to be fertilized.

NITROGEN FROM PREVIOUS CROP RESIDUES - Nitrogen associated with decomposition of previous crop residues should also be considered when estimating available N. Residues that require additional N for decomposition include cereal straw and mature corn stalks. Research has shown that 15 pounds of additional N are needed per ton of straw returned to the soil, up to a maximum of 50 pounds. For more information on compensating for cereal residues, refer to CIS 825, (Wheat Straw Management and Nitrogen Fertilizer Requirements). Row crop residues (potatoes, sugarbeets, and onions) generally do not require additional N for decomposition. Consequently, these residues have little effect on the N needs of barley. Legume residues from beans, peas, and alfalfa can release appreciable N during the following crop season that may not be reflected by the preplant soil test. This N is derived from the decomposition of both plant tops and nodulated root systems.

NITROGEN FROM MANURES - Soils in which barley is grown occasionally receive animal manures or lagoon wastes. Nutrient contributions from these sources should also be taken into consideration when estimating available N for the next season. Manures can preclude the need for any fertilizer, depending on the rate applied and their nutrient composition. Manures can vary appreciably depending on the animal, how the manure is processed, and the kind and extent of bedding material. For the most accurate estimate of fertilizer equivalent values, the manure should be analyzed for its nutrient content.

IRRIGATION WATER - Irrigation waters derived from deep wells are generally low in N. More shallow wells can have significant levels of nitrogen because of leaching of nitrogen from impacts from commercial fertilizer use, animal waste, and improperly functioning septic systems. Irrigation waters from most districts are also low in N when diverted from its source. Background levels of N from original sources are generally about 2 parts per million (ppm). The more return flow included in diverted water sources, the higher the N content. Return flows may include N dissolved when irrigation waters pass through fields high in residual or recently added fertilizer N as well as from soluble fertilizer N applied with the irrigation water. Most irrigation districts should know the N content of the water they divert. Contact them for this information to determine the levels of N added with your irrigation water. However, since irrigation water N levels are influenced by upstream management, if you use irrigation water that receives runoff after it is diverted, only a water test can accurately evaluate the N added with irrigation waters. For each ppm or milligrams per liter (mg/L) of N reported in the water sample, multiply by 2.7 to get the N added per acre foot of water applied. For example, if the water sample contained 10 ppm of N, 3 acre feet of water applied would be the equivalent of 81 pounds of N per acre. Typically, of the water applied with furrow irrigation only 50 percent is retained on the field and the rest runs off the end. The net retention of N applied with furrow irrigation would, therefore, be about half of the water applied or about 40 pounds per acre in this example. If more or less of the irrigation water is retained with each wetting, then growers should adjust the water N contribution accordingly. Excessive irrigation by any method reduces N availability to barley. Additional N may be needed under these conditions. Growers should not use aqua or anhydrous N through a sprinkler irrigation system. Water running soluble N sources with a furrow irrigation system can be an effective means of adding N. Two limitations of this practice are that (1) the

application of the N with this method may not be as uniform as desired and (2) runoff containing the N may contaminate downstream surface waters. Growers can minimize the loss of N by shutting off the injection unit before the irrigation water reaches the end of the furrow. This practice should not substitute for careful consideration of N needs while N can be side dressed.

CALCULATION OF N APPLICATION RATES - To calculate the fertilizer N application rate, the following equation is used: Fertilizer application rate (deficit) or Over application of Nitrogen = (Total N required to produce a given yield) - (Mineralizable N) - (Inorganic N measured by the soil test) - (previous crop/residue management) - (Manure Nitrogen) - (Irrigation Water)

TIMING OF NITROGEN APPLICATION - Nitrogen (N) applied in the spring during seedbed preparation will be used more efficiently by the barley plant, especially on sandy soils in areas having heavy winter precipitation. Nitrogen applied to the crop after the boot stage and application of excessive rates of N can result in undesirably high protein levels and may also increase lodging.

PHOSPHORUS (P)

Irrigated spring barley requires adequate soil P for maximum economic yields. Soil testing for P provides a reasonable estimate of available P. Optimum P fertilizer rates depend on both soil test P and soil lime content. Plant maturity may be delayed when soil test P concentrations are low and free lime content is greater than 10 percent. However, grain yields are usually unaffected when the growing season is sufficient. When banding an ammonium P source (11-52-0) at rates above 20 lb per acre, separate the seed and the fertilizer material by two inches to avoid seedling damage from salts. For a detailed discussion of banding refer to PNW 283, (No-Till and Minimum Tillage Farming: Fertilizer Band Location for Cereal Root Access). Incorporate P fertilizer during seedbed preparation. Solution P, such as ammonium polyphosphate, may be applied through a sprinkler irrigation system. Check the compatibility of the irrigation water and the P material. If precipitates form, decrease the fertilizer concentration or increase the injection time.

POTASSIUM (K) AND CHLORIDE (Cl)

Soil test K is a reasonable indication of available K in southern Idaho soils. Incorporate K during seedbed preparation. Potassium chloride increases yields where take-all root rot is prevalent, regardless of the soil test K level. This response is due primarily to the chloride component. Barley yield may also increase when not infected with take-all if extractable soil Cl is below 30 lb per acre in the first two feet. Low soil Cl has been associated with physiological leaf spot. Soil Cl can be measured with a soil test. If soil test Cl is less than 8 ppm for the first two feet combined, apply 40 lb Cl per acre in the form of potassium chloride. Do not drill band Cl with the seed as germinating seed may be injured by excessive salts.

SULFUR (S)

Sulfur (S) fertilizer needs will vary depending on soil texture, soil organic matter level, leaching losses and sulfur content of irrigation water. Areas irrigated with Snake River water should not experience a shortage of S. High rainfall mountain valley and foothill areas of southern Idaho are most likely to respond to S fertilizer applications. A soil testing less than 8 ppm sulfate-S in the 0- to 12-inch soil depth and soils in areas known to be deficient in S should receive 20 to 40 pounds S/acre.

MICRONUTRIENTS

Micronutrients have not been shown to limit barley production in Southern Idaho. "Shotgun" applications of micronutrient mixtures containing boron (B), copper (Cu), iron (Fe) and manganese (Mn) "for insurance" have not been shown to be economical and are not recommended.

GENERAL COMMENTS

Avoid a heavy first irrigation on spring-planted barley to prevent water-logging the soil which reduces tillering and increases nitrogen leaching losses.

The above fertilizer guidelines are based on relationships established between University of Idaho soil test and crop yield response research. In this research, crop response to fertilizers was evaluated at several sites where the response to fertilizer differed. The recommendations reflect the general or overall response to fertilizers at specific soil test values and the response in individual fields can differ appreciably from the general table recommendation. Some sites will require less than the general recommendation, other sites more. Unfortunately, the science has not developed to the point where the table recommendations can account for all the unknown variables influencing the effectiveness of applied fertilizers at individual sites. The table fertilizer recommendations can only be used as general guides rather than specific recommendations for each and every field.

Furthermore, soil variability can sharply reduce the accuracy composite soil test values for individual fields. That is why large contiguous areas within fields should be sampled separately when they are known to differ in crop growth or soil characteristics known to influence the response to fertilizer. But soil variability frequently does not occur conveniently in large areas that can be sampled separately or fertilized differently. The fertilizer recommendations in most cases do not account for this variability. Soil test based recommendations may be excessive in some field areas and inadequate in other areas of the same field. The recommendations then will be appropriate only to the degree that the composite soil test values for fields actually represent the field. Thus, for fields that are highly variable, the fertilizer recommendations should be considered conservative estimates of fertilizers needed. All the more reason to consider the table fertilizer recommendations as general guides rather than specific recommendations for each and every field.

The fertilizer rates suggested in the tables will support above average yields if other factors are not limiting production. Therefore the recommendations assume that good crop management practices will be used, i.e. insect, disease, and weed control. Nutrient requirements can be met using either commercial fertilizers or equivalent organic matter sources, such as manure or compost, provided their nutrient content and relative availability are known or can be estimated from published literature. Soil test based recommended rates will not be appropriate if the soil samples are improperly taken or do not represent the area to be fertilized. For nitrogen in particular, recommendations will be most accurate when crop history is taken into account and projected yields are reasonable estimates based on long term records.

General Comments:

- Over irrigation and nutrient loss is a hazard. Optimum irrigation management is necessary to meet crop water use needs and avoid loss of nutrients through leaching beyond the root zone and runoff with irrigation tail water.
- Nitrogen leaching is particularly a concern on sandy soils. Optimum management may require split Nitrogen applications to meet crop needs.
- Weed, insect, and disease control significantly influence the efficiency and effectiveness of your fertilizer applications and ultimately crop yield and farm profitability.
- Phosphorus, potassium, and zinc nutrients can be effectively fall-applied as they are not readily leached over winter.
- Phosphorus can be budgeted for a crop rotation.
- If you have questions regarding the interpretation of this information, please contact your Extension Agricultural agent, Crop consultant, or your commodity company fieldman.
- Both farm profitability and water quality can be improved with efficient nutrient use. The following are recommendations in nutrient management, which will optimize nutrient use for crop production while protecting water quality:
 - 1) Avoid the application of nutrient sources in close proximity to streams, wetlands, drainage ditches, areas of very shallow soils, and sinkholes.
 - 2) Accurately calibrate nutrient application equipment to insure that recommended rates are applied.
 - 3) Nitrogen recommendations for many crops are based on yield goals for the crops. It is important to establish realistic yield goals for each field based upon historical yield data, county averages, and your management practices to avoid unnecessary fertilizer costs and minimize potential water quality impairments.

Polly Ann Huggins
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Phone (208)934-5529

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MAY 30 2006
DEPT. OF WATER RESOURCES
SOUTHERN REGION

Protestant for the Diamond A Livestock, Inc.

BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE STATE OF IDAHO

IN THE MATTER OF APPLICATIONS)
FOR TRANSFER NOS. 72177 & 72178)

DIAMOND A. LIVESTOCK, INC.)
Applicant)

HEIDI OLSON, POLLY ANN HUGGINS,)
NICOLE REED, STEVE PAULIN,)
LEEANN REED, CHRISTINE DAVIS,)

Protestants)

SOURCE: Groundwater

County: Gooding

PROTESTANTS
INTERROGATORIES, AND
REQUEST FOR PRODUCTION
OF DOCUMENTS TO
APPLICANT

Exhibits

RECEIVED

MAY 30 2006

DEPT. OF WATER RESOURCES
SOUTHERN REGIONRevised
5-18-05

Planning & Zoning Hearing, 3/28/05

This 28th day of March, 2005. If all testimony has not been given by 11:30 pm this hearing will be recessed until 7:00 pm on 4 April 2005. You must be present when your name is called from the sign in sheet, or forfeit your right to testify. Introductions of the planning and zoning commission members are Joe Pavkov, Suzanne Jensen, Shirley Tschannen, Bill Stouder, Tom Mattice, Lori Capps, and Judy Davis planning administrator. Before we go any further, this evening, bill's got a few comments he would like to address the audience with, so I'll let him do that at this time before we go on with the rest of the hearing.

I'm Bill Stoddard, I'm the chairman of this commission and Mr. Mattice is the hearing officer. I just want to emphasize to you tonight list to what Mr Mattice is going to say, as far as the rules to conducting the hearing under, and follow them, we are going to conduct these hearings with respect, with decorum, with civility, that means that we won't have out bursts from the audience by clapping, booing, or any comments. You are here to give testimony, to listen, if you have questions, that you want the applicant to answer, then address them in your testimony and the applicant will address them in his rebuttal. If we don't have decorum here tonight and there are outbursts, you might be asked to leave, and if you don't leave, I won't feel bad about calling the sheriff and ask him to take you out. We're going to do this the way it's suppose to be done, have out bursts from the audience by clapping, booing, or any comments. You are here to give testimony, to listen, if you have questions, that you want the applicant to answer, then address them in your testimony and the applicant will address them in his rebuttal. If we don't have decorum here tonight and there *applicant* applicant to answer, then address them in your testimony and the applicant will address them in his *applicant* applicant to answer, then address them in your testimony and the applicant will address them in his *Bill* Lets let Joe sit in the audience - it will probably be best.

Tom If you did not sign in on the sign-in sheet please do so now. Write your name, print your name, print your residential address and check your opposition. If you testify go up to the podium, state your name, and your address prior to giving any testimony. The members of the planning and Zoning commission may ask questions of all who give testimony. There will be a five minute time limit. I'll call for oral testimony by supporters and opponents. And we have a timer here tonight as you will be restricted to a five minute time limit so if you have a long lengthy speech, you better read it over and see how you can cut it down. There will be a limit of one page written testimony tonight as per legal notice more that one page testimony must be submitted to the planning and zoning office seven days prior to our hearing date tonight. Hearing procedures are as follows: the narrative will be given by the applicant, there will be a staff report given by Judy, there will be any written testimony to be read in will be read in by Judy, there will be testimony from the supporters of the application, then testimony from the uncommitted, testimony from the opponents of the application, rebuttal by the applicant then the hearing will be closed and no further testimony will be accepted after it is closed. Our first hearing for this evening is for a special use permit by Diamond Livestock incorporated Jay and Fred Faulkner of 1997S 1875E Gooding, ID 83330 which is located in the SE ¼ SE ½ Sec 19 T6S 15EBM agricultural zoning district. The grid address is approximately 2177 State Hwy 46. The application is to allow a livestock truck, farm truck and equipment washout. So we will have the narrative from the applicant approach the podium and give his narrative.

Judy State your name and give your address:

My name is Jay Faulkner, 1877E 1997S. Together with my parents, we own and operate Diamond A Livestock. I come before you to discuss a proposal to upgrade an existing truck washout facility located 2 ¼ miles approximately south of Gooding. It sits on the west side of State Hwy 46. Right now I've got it mapped. North being up. Right now our truck wash out is approximately 600'-800' west of here, the existing one, what we would like to do is upgrade that and move it to a different location, up here, this is the actual wash out here, it consists of a pond, a separator, a storage tank a pump house and 2 wash bays. Currently right now our existing one washout just has the capability of washing out one truck. The storage tank would be approximately 10,000 gal. The pond would be about 50' wide by 150' long, and the two concrete pads are just roughly 12' by 20' in size with gravel roadways asphalt up through here perhaps grass and gravel to fill in the remainder. The whole area sits on approximately ½ acre. Right now we are entitled to 2500 gals of water to be exempt from the IDWR. In the future we may need more water, we may not. If necessary we can file an application to transfer water from an adjacent deep well. In comparison it would dry up one acre of farm ground you roughly get 2600 acres, or 2600 gal of water. I believe that is all I got.

Bill Show me how the... I assume you've got a...from the pads then you've got piping over to the separator

Jay correct

Bill then a pump on the separator and it separates the solids and the fluid goes into the ponds. Is that correct?

Jay Yes

Bill Going under that road there?

Jay correct. What it will do is there will be a drain here and a drain here come into a pipe and then come back up into the separator at that point we are not sure if we are going to have a pump or gravity fed separator at this point we are leaning towards gravity fed separator. And then from there the solids will be remaining in the separator and the gray water will go into the ponds which will be pumped out to X amount of ground, we've got about a 160 acres. This is the pivot corner right here and there is about 160 acres around there. It'll probably not be pumped through the pivot, but possibly could be in the future.

Bill So the separator is for sedimenting, sedimenting, that's not right, sedimentation ponds so the water drains off and what..

Jay It leaves the solids

Bill OK, then you'll take the solids out with a ..

Jay Front end loader, and then they'll be stockpiled or hauled out onto the fields

Bill How many trucks do you wash out?

Jay Currently in the last 6 - 8 months it's been a small amount maybe averaging 2-3 trucks a week. In the future we like to see as many as, well a substantial amount more than that

Bill So this isn't just for you, it's a commercial venture

Jay Correct, correct. Perhaps anywhere from, I couldn't tell you a number 2-3-10 a day, I don't know, I don't have any idea.

Bill How long does it take a truck to wash out

Jay Approximately 1 hour,

Bill Ok

Jay and right now we are currently dispensing at 20 gal/min. So roughly 1200-1500 gals to wash a truck.

Bill How many do you wash, you wash 2 or 2, 2 a day?

Jay 2-3 a week is what we currently do, but, but we've have had troubles with our old wash out, it needs improving and we just, we haven't be advertising it we've actually been discouraging almost until we get if we get to upgrade it.

Bill So as soon as you are doing...as soon as you are doing more than 2 a day then you'll need a commercial water permit.

Jay Correct. Correct, we will have to file for an application to or perhaps we could run off storage you know if, if we have a 10,000 gal tank and we get 4 one day, we would still be under as long as, ya know, we don't get any the next day or something. You know, so we will have a little bit of leniency there, but if it did, if we get to the point where we need additional water, then we'll file for an application to dry up one or two or three or four acres of ground from the deep well to transfer over to here.

Bill Are you going to put a meter on the well?

Jay Well, we, we're not sure, right now we don't have to, but if there are any problems or if IDWR recommends one, or something then certainly we will.

Suzanne Are you charging for these trucks to be washed?

Jay Yes.

Suzanne Your water is stock water,

Jay Correct

Suzanne you have about a seven inch, seven inches of water right now that you've been, you've been using already. And you've not done a change of use. There has been no change of use issued for stock water. You're using it for washing. According to this IDWR letter, it says that their requirements, that you would have to go through the water permit before you can do this.

Jay After discussing with Cindy, she informed me that if you used under 2500 gal a day, you're exempt from having to go through the transfer.

Suzanne IDWR, Jay, doesn't come out a monitor this particularly, and given the wa., the critical water situation, it would look to me, that, I would need to know that you're, that you're permitted for what you want to do, I mean, that's just the way I feel

Jay Sure.

Suzanne If we didn't have such a water issue, it might not be such a pertinent situation, but with the way the water is, and you've got some ground you can dry up,

Jay Correct

Suzanne you can go through this process can you not

Jay Yes

Suzanne you could dry up and convert to a commercial sufficient of water (tape blanked out) Then you would have your, then your ducks would be in line, right

Jay yes, and perhaps if there is a question, we could put a meter on and then we would still be covered.

Suzanne covered not to exceed that 2500

Jay exactly

Suzanne but the 2500 would do 2 trucks a day and then you are going to be over

Jay yes, correct

Bill So you would have no objection if this were approved to putting a meter on right away, because I was read this letter from the water master that they're going to do, the water master will confirm during unannounced visits the diversion rate, the total daily diversion volume at the facility. Unless you have a meter on there, how are they, how would they be able to do that?

Jay Unless they went off receipts from the amount of trucks or something to be given an exact number, they couldn't

Bill So you wouldn't be in objection to, if we...

Jay Absolutely not

Bill having a meter put on right to start with, then all doubt would be correctly erased

Jay Right.

Suzanne How many gal/min did you say you used for washing a truck

Jay Roughly 20, if you have...

Suzanne 20 gal of water per min

Jay right, and if there is various factors in there size of the pump, size of the nozzle, but right now that's approximately where we are at.

Suzanne Is that like a regular livestock truck they're washing out?

Jay Yes, Well occasionally you know you'll get like a manure spreader or something, but 90% of it I would say would be a livestock truck

Suzanne So we are talking about 1200 gallons per vehicle

Jay Yes. And it kinda depends on the trucker and how big of a hurry he is in, I've seen them pull in there and be in there 30 min, and I've seen them go in there and be an hour and half, ya know. They're all just a little bit different, but on an average I would say about an hour.

Bill The pond, is 50 by 150, anybody know how much... how much water are you planning you could hold in that thing.

Jay Well, I haven't done the math on it, the average depth could be up to, would probably be with the slope would be about 8' deep would be the average. 50 by 150 by 8'. The high water mark could be up towards 10'

Bill that would be about 60,000 cubic feet, that would be how many gallons?... My question would be would you be able to store this, talking about a different operation, our lagoons we have, you can't apply from the 15th of October, lets say November

Jay Correct

Bill till April or so, worst case scenario, is this pond big enough to hold all that water for that six months

Jay probably not, I really don't know the answer, trucks are pretty seasonal around here, you don't get a lot in the winter, so, ya know, I think it would be, but if not we have 2 other lagoons that would have to leave our property that would perhaps could transfer the water into, with a patty wagon or something like that to suck it out and move it or if in a worst case scenario, if we had to we would have to shut down until we could disperse it (Background noise)

Bill Are you going to build these to environmental standards, clay lined so they won't filter up

Jay absolutely, we've gotten soil tested right now. We have to have 15% clay, right now we are at 11% and the lady - I forget her name- up in Boise is going to over see that and I think we are going to have to haul in about 5 loads of 50% clay material

Bill I'm curious how you arrived at 50' by 150' pond

Jay There was a, it's a man, or not a man, it's an already made structure that there, the old rail road went up through there and they kinda took the dirt out of it to place up on the railroad, our old highway is our road now, in on the east side of it, it was just already made. It just fit for us.

Suzanne Currently on your truck wash how do they enter into that. Do they enter the same way you are going to have on your new one?

Jay yes off

Suzanne Off the highway

Jay That's correct

Suzanne Is that right near the veterinary..

Jay Yes

Bill Hold that up

Jay It's just, on this map the vet clinic would be here, approximately 200 yards north of us, maybe.

Tom Does anybody have any other questions OK Thank You. Judy will enter the draft report please

Judy Existing zoning of the property described in the application is agricultural. The existing land use in the area is presently farming, a Vet Clinic and some residences, the comprehensive plan designates this area as ag. The proper label requirements for advertisement of the hearing have been fulfilled as required by the zoning ordinance no.78 (70A) and the laws of the state of Idaho. Public hearing notice was published in the Gooding County Leader, the official county paper on March 10, 2005. Notice was mailed to adjacent property owners within 300' of the external boundaries of the property on March 11, 2005 and notice was posted on the property on March 11, 2005. And I think all of the letters have been mailed out in a packet, but I will go through a make mention of each one so that it is on tape. I handed out one from Water Resources that's district 130, and that is by Cindy Yenter, and I laid that on the table for you. Do you want me to read that in as testimony or have you had a chance to review that?

Bill I've Read it, whenever you are ready...

Judy Well if you have read it, well I'll just mention it then. There was also a letter from the Department of Water Resources on March 18, from James (Statt). Letter from Polly Huggins, that came in on March 21st, Letter from Bev Johannsen, March 21st, letter from Carol Bennett, March 21, and a large packet from Heidi Olson, and it is a very large packet that was mailed out. That is what we had received. That is everything I have.

Has everyone signed in for the hearing for the Diamond A Livestock that would like to speak? There is still sign-in sheets in the back. We will start in support

Tom In support of the Applicant

Judy OK Cathy Pavkov, Becky Faulkner, Vern France, Step up state your name and address please My name is Vern France, I reside at 520 Toponis Ave in Gooding. Chairman Stouder, members of Gooding County Planning and Zoning Commission, I am pleased to have the opportunity to offer support in favor of this project, my past experience I operated a livestock feeding operation for 31 years North east of Gooding. We sold out in the fall of 2001. As a part of the operation, we ran some livestock trucks in our business and we operated a washout facility for 26 years. So I have a little insight to what all is involved here. No. 1, I would like to state that this is an existing facility that has been operating since the mid 70's as a livestock washout. It serves a public need. In case you haven't noticed, there are a lot of livestock trucks based out of Gooding. And there is definitely a need for a public facility like this to contain the by-products that are in those trucks. I think we have all witnessed at times the product being scattered on public roadway, certainly a traffic hazard, a safety hazard. Yet often times because of lack of wash out facilities, its dumped in borrow pits, in other inappropriate areas where there is an opportunity for ground water and surface water contamination. I for one would much rather see these products contained in an approved facility. There has been concerns about odor stated and based upon my experience our facility was located 500' outside my back door, directly east of our house. We never had an odor issue. The odors could be drastically reduced if not eliminated by having the ponds deep enough. Without getting into a dissertation on micro-biology, if those ponds are over 4' deep you are not going to smell them, because you are getting aerobic digestion bacteria in those facilities. We entertain in our back yard in the summer time without any odor problems. I would also like to say a little about the traffic issues, I know there concerns that have been expressed in that area. Keep in mind that these trucks would all be empty. And with the horse power of, that the trucks enjoy these days, the execration rates once they enter the traffic pattern is going to be very comparable to the livestock pickups and horse trailers that do business with the adjacent businesses there. Because of the horsepower. The safety issue I think is very minimal, or marginal if any. And certainly we

Well I'm a, I don't know weather I am in support of it or against it, but a little of both, but I would like to make a few comments here. I'm kinda like Vern there, I've run cattle trucks for 30 years and I go along with all that was said about how much water it takes to wash one out. But also it depends on the person doing it. And how often that truck is washed, but I don't know of any washout around here, except Vern's, I don't know if they let anyone wash out there at Vern's existing place or not, but I don't think you are going to see as many trucks washed out, out there as a lot of people think there is. There's a lot of cow trucks around this country, but they are not going to be out there washing out every day. The traffic

problem, I don't see as a big deal. What I don't want to see, is to get into a situation where that they have to drill a deep well to support this. If they have a 10,000 gal tank there, running off a domestic well, that's going to be sufficient water for a lot of trucks. And I just don't want to see anything, any situation come up where, well we're running out of water and we got to drill another well, give us a permit to build it. Redo the existing truck wash, but we got to have a lot more water. I think they ought to have the permit to do this truck wash. It does need improved out there. And this will help. But I don't think they would ever need any more water than they have right now. Thank you.

Judy Bev Johannsen,

I'm Beverly Johannsen, I live at 1707 hwy 46 on the other side of the river, north. This is a first for me, I however didn't fight very hard for our bear hunting rights a long time ago, and I've gotten on the band wagon to protect our domestic wells and our water. Mostly because I lost mine and a bunch of my neighbors have. Just recently my new well turned bad. Drainage is coming from somewhere into it and so now we can't use our new well so I am really really concerned about our water situation in this drought our domestic wells in this drought our deep wells in this drought, I think we all need to work together so we can survive this crisis because I truly believe we are in the crisis right now. That is my biggest concern is the water, the water regulations, weather it will be monitored, and who's going to monitor it, if it's a domestic well, which I'm not sure of, or is it a...has it been applied for a deep, deep well for agricultural use, sprinkling. I also heard testimony just a minute ago that there is going to be, that there are two other ponds available? I'd like to know where those two other ponds are. And how the water's going to get to them. I just heard that, I don't know where those other two ponds are. I was concerned because of the safety out there, because of the wrecks that we have had out on that highway, I go to the vet, that is my vet out there quite frequently, I own part of the buildings out there. I am concerned with the traffic. I don't live out that way so I don't know what it would be like, but I do know the traffic in my area with all the businesses there is very hazardous. I am very close to several businesses and we've had near accidents, one man was killed on the river out there. My other concern is, is for the neighbors, we are in agricultural, yes, is it ok in my back yard, if it is, then it is ok in your back yard, as I heard quoted. We need to make sure that the surrounding people aren't hurt with whatever comes off of it, make sure it is done correctly, if they say they have and they will do it. I suggested in my write out, maybe there is another location, but now I understand it's already developed there and it looks like you know they could improve on it from there so maybe another location can not be considered. I forgot what all I wrote on there. But I just would like these answered, I would like it monitored, it's on your shoulders as a board, to make sure that a correct decision is made, and that would they request is approved by our department of water resources, our agriculture, make sure it doesn't hurt our water, we are in a high plains dessert, we're like a bathtub underneath our water resources, right now it is dry. We have lava rock, all of these crevasses, so where is it going to go to? So make sure your ponds won't leak. Thank you.

Judy Verl Bell,

Yes, Verl Bell, 2830s 853e, Hagerman, and my only concerns are the depletion of the aquifer, , contamination of the aquifer. I think those are real concerns of every one here this evening, think about it, make sure those are safeguarded. I would have a hard time believing that a commercial truck wash out is a domestic use of water. Thank you

Judy Those in opposition. Shannan Koyle,

I am Shannon Koyle, I live at 1550E 1800S, Gooding. I am a trustee for my mother's estate who is Verda Gold and she owns 600 acres of land that is adjacent to this property. And so, we are in opposition to this. My concern is that these ponds of water, and when they're full, where's the water going. It was not stated. It was stated that it could be taken out through the sprinkler system if it is, is it going to devalue the property around it, the neighbors, the air quality, the health quality of the neighbors. Another concern is also the water, and using a lot of water on a domestic well. My third concern is the highway, because there are a lot of accidents on the highway in that vicinity and it is not a 50 mph road it is posted at 65 mph and quite often people are going 75, and that is a fast speed to approach a truck stopped in the middle of the road. Thank you.

Judy Dennis Koyle,

I'm Dennis Koyle, 1550E 1800S, I think in deciding this, it's real important that we consider property rights. I think that Faulkners have every right to use their property the way they see fit. And it's difficult today to make a living with our property so I agree that they have a right to use that property to their best advantage. At the same time it is important that those people's who have property around it are supported

in their property rights and that if this pond is pumped through the pivot I think that we ought to be learning by now this is not a feasible system to dispose of the animal waste. Yet everybody who lives around these pivots that are pumping manure are devastated by it. And I think that would not be an ultimate barrier for this project, I think it could be worked around, they could find another way to put that on. My main concern was the use, the expansion of water rights, and Jay addressed that, and it sounds like that maybe there won't be any expansion that would be continued as it is. I did run the numbers, there would be 448,831 gallons, so that would run a pivot for quite a while, that would wash 374 trucks. One truck a day, that's a years worth of water. So it seems to me like the pond that is being built is maybe for quite a bit more trucks than what they have been doing, so I guess I am not in strong opposition to it, I live far enough away that I wouldn't be effected by the odor. But I think we do need to ask some questions about expansion of water rights. Of what it's going to do to the neighbors if you run the manure through the irrigation system, and I also think that the highway issues are vital. Thank you

Judy Heidi Olson

(Change of tape, missing testimony) Highway from Diamond A, so this will directly affect me.

(Inserted manuscript from Heidi Olson)

Bill Can you give us the level of nitrates in your well?

Heidi under 1, er .1

Bill so read the statement you said, again

Heidi That's all I said, we have even tested. Last spring our well tested for small a amount of nitrates, so it is showing up in our well now

Bill so you consider that bad?

Heidi I consider that something I am going to start watching every spring. Any other questions? And everything I got is in the reports I gave to the Planning & Zoning commission, all the research because it is very scary.

Judy And I forgot to read these in. So, Heidi gave these to me. It's concerning some questions, One is signed by Teresa Kock, and the other one is Shawn James. It states concerns and questions.(Background chatter by the commissioners other letters signed by citizens) There just the same concerns, commercial use, effects my quality of life, introducing new diseases to our area from across the US and someday Canada, with land application, over application, saturation, number of miles adrift from pivot, ammonia, waste being retained, and pretreated before applications to prevent spreading pathogens, should this to be built in to an industrial park, effect my property values. Application during winter months, where is additional water coming from when canal water isn't available, meter on certain wells that is being used. 6,000 gallons of water per truck wash out not 2,000 gallons a day. Currently operating commercially without a permit and have been for the last 15+ years. Highway traffic turn lane needed. Increase already existing horrific fly problem. Contamination of ground water maximum usage per day. Who will regulate this facility. There is no positive impact to our economy. Both are exactly the same signed by two people.

Heidi Judy there was 18 individuals that felt that way and signed.

Judy So, that should have been submitted to the planning and zoning in that packet.

Shirley Read the names at the bottom of the letters that are in that packet

Gloria Ridley, Pat Sabala, John Bennett, Shawna Koyle, Verda Gold Living Trust, Shad Koyle, John McGiver, Troy Hurd, John Peterson, Jim Finch, Perry Wolfe, Tom Lowman, Jr., Gorden Eisigner, Kenneth Olinger, Claude Stanlin, Dan Danhauser, Rod Glauner, Raymond Hendricks that is the list of the ones that signed. Those are property owners in Gooding County.

Judy Pat Brown.

Judy Can we open a door and make everyone more comfortable.

My name is Pat Brown, I am an attorney, I'm representing Heidi and Harold Olsen. I thought Harold was going to speak before I did, so I'm going to tell you little bit about what he was going to say. Why they hired me, and what some of their concerns are. First, I think it is important to note that nobody is saying that Gooding doesn't need a commercial truck wash out facility. The question really here is under the worker can it really be allowed at all as applied for the special use. Which means under the ordinance they have to prove that it can't be put somewhere else. It is not better situated somewhere in an urban area than in an industrial zone. You all know the area north of the railroad tracks. Gooding has plenty of areas that this kind of facility can be put. I think it is important to note that there have been concerns about the water rights. Um, First I understand, you have a couple of letters from the Water Resources that I haven't seen they aren't in the file so I'm at a little bit of a disadvantage there. I did go through and research all of the

water rights for the entire area, we included those in the package Heidi submitted last week. What is important to note is there are two water rights with Diamond A. One is purely a ground water right for irrigation water, it can't be used in the winter, can't be used any other time. Second there is a stock water right it is 7" of water. One of the reasons we put the IDWR file in front of you is this, we suspect that somebody was going to come in and say we can use 2500 gallons per well or 2500 gallons per day or something under the water...under the laws. What you need to understand, and what the Water Resources record show is that only applies to domestic wells. That only applies to a ?? use in conjunction with the house to use only 2500 gallons per day. What they have here is a stock water right, which incidentally is several times larger than most stock water rights. I came in the adjudications from Fred Faulkner signed letters in adjudications stating exactly how many cows it was for, and insisted that he be given those water rights just for those cows and no other usage. And now we are here today hearing that they are going to claim that they can use them for some other use. I suggest to you that there has been a document for the water use here. Second, the allegations about using, I guess they are down to about 2,000 gallons per truck per day for a washout, I think you guys all know what a garden hose puts out and if you have ever seen a truck washout facility it puts out considerably more than that. A garden hose puts out 10-12 gal/min, they are contending they are putting out about 20. Harold will testify that he has used the facility in the past and he will tell you that at least 60-80 gal/min. Which means to wash a truck you are going to use 5,000-6,000 gallons. Again it has been going on without a water right. There is a proposal where there suppose to come and tell you all the reasons this should be approved and under the ordinance of section article 10, they have to show you that they've been able to provide all the necessary facilities which include the water rights for the water. There is a proposal that they may try to transfer water if they need to. You guys are aware of the water concerns, I won't go into it. You are adding more water use to an area where you already have problems with wells. It doesn't seem like a very wise move. Especially given information on hydrology information about it. When in fact I have. Sewer is another concern. You have a letter in there from DEQ, and the Dept. of Ag.. Those will tell you this is a facility, which would not need to be regulated, that would not need a permit. Well, I am glad Jay got up tonight and admitted what the facility is, and has been a commercial facility for years. It was represented to the Department of Ag. and to water, DEQ as simply a facility where they wash their own trucks and sometimes the farm equipment. There right, if that was, it was they would be exempt, but that is not what it is, as they told you tonight. There are two things that they need to have. (Beeps) Did you turn it on for me?

Bill Yes I did

Pat Ok. First of all, there are two regulations that have to be on a...you have to have a permit for a commercial livestock washout facility. You also have to have it if wash farm equipment. And another thing, one of the things you have to have it for is to measure to heavy metals, the pathogens, especially in manure waste is coming from different areas those all require permits and monitoring none of which is proposed here. In conclusion I don't think they have shown you what it really is proposed, second if you are going to grant it you should grant it for exactly what you believe it can hold which is two facilities, required monitoring and require waste disposal unless you and until you find out what the true rules are for these facilities. Thank You.

Judy Next. I have Steve Paulin.

I am Steve Paulin, 1800 East 2185 South. The only biggest concern I have is health. I am not opposed to the feed lot. I'm not opposed to anything that Fred or Jay do, it's been there for years. I'm not opposed to washing their own trucks out or anything like that. But, what concerns me is the health factor. You know you've cattle trucks that are running all over the United States, and there isn't anything going on now that can effect anybody's health but, dairies have even reached the point where some of them require the trucks be washed off before they can be transported from one dairy to another. I'm sure that knowing the dairy, I don't know that they wouldn't want the commercial wash out next to their operation. I don't know where the manure is coming from. Right now I now where the manure is at, I can see it. But, if it is coming out of some feed lot from Arizona or it's coming from Minnesota or somewhere else in the United States, I don't know what's there. So we bring it in, wash the truck me of them require the trucks be washed off before they can be transported from one dairy to another. I'm sure that knowing the dairy, I don't know that they wouldn't want the commercial wash out next to their operation. I don't know where the manure is coming from. Right now I now where the manure is at, I can see it. But, if it is coming out of some feed lot from Arizona or it's coming from Minnesota or somewhere else in the United States, I don't know what's there.

So we bring it in, wash the truck mce equipment or truck wash out that the Faulkners have. It is the commercial part. Anyway, thank you.

Judy, Billi Miles

Billi Miles I live at 2074 State Highway 46 in Gooding. I'm about a 1 mile from this proposed washout. Most of the concerns that I have had, have been either addressed already or talked about already. But, I do want to reiterate my biggest concern is the water. I can't see this not going commercial. I can see this as a big endeavor and once people know it is there, there is going to be a lot of trucks and a lot of use. That is going to require a change in of use in water rights, they say they can do that. My concern is that they are going to take all the water rights out of that existing well. My well is within 3 miles, it's only 1 mile from theirs, and it is going to have a large impact on that aquifer within 3 to 5 miles of their well. So everyone within a 5 mile radius is going to be effected when they start pumping the extra water out of the well. Even if it is for two days or three days in a row, that's going to drop that aquifer down and everybody is going to be effected by that. And that is my biggest concern and that is my biggest opposition to having this go to a full blown commercial endeavor. I know that there is a lot of permits that they should to apply for, that they need to apply for. Because I think everyone in here would agree that they're not going to stay at two to three trucks a week, there going to exceed two or three trucks a day, even though it may only be for 3 months out of the year those 3 months are going to be the biggest impact on our water. That is basically what I am saying.

Judy, Michelle Stewart

I'm Michelle Stewart my address is 2213 S 1800 East. First of all I was not notified of any of this. I did not get the packet and we live within about 200 yards of the water pivot that is supposedly going to be running waste water through it so I'm concerned as why we weren't alerted to this.

Judy The people that are notified are within 300 feet from the property line. So is your property within 300 feet?

Michelle I believe we are. We're right next store to Rutherfords. They were notified. Other people on our road were within 200 feet of thid...one of the pivots, of the property they are running their pivot off of. Second of all one of the things I have noticed is the times this was published in the paper I don't know if they were counting trucks or trying to get an idea of the usage, or how many truck were up and down the highway. But, I sat at my corner and counted three cattle trucks turning on 1800 east when we never see cattle trucks out on our road. So I have to wonder why the diversion of trucks, so I'm concerned what might be underway. I do think that several people have brought up the comment that this has been in operation for several years without the proper permits, etc. and some of these things that they are proposing are going to be kind of on their say so that it will be monitored etc., and I don't know that we can trust someone to monitor who has not proven in the past that they are going to apply for the proper permits and follow the rules. I think that they feel like they are exempt to the rules, actually. I am very concerned about the health issues. I know that these people have children and grandchildren in the area and I think that it has been kind of short sided that they thought of doing this with out considering health issues for children and elderly people in particular. So the information that was submitted, I have read through it and there seems very very high instances of leukemia, other types of cancer and lung disfunction and lots of different health issues that I think needs to be looked at. These are studies that have been done lots of various people and are readily available and I have to wonder why they are not being studies out and why is it not being considered. I feel like that our property will be devalued. My life are full of flies. There are days that we can not open the windows or the doors because of the repulsive smell of manure, I would rather not add on to that. We are down wind of this pivot that may be spraying this stuff and I have 5 children and I am concerned for their health. I feel like that as citizens of Gooding we need to be concerned about these health issues, the water, as well. We want good people to stay in our community, and we would ask that the people who are in the community who want to do these ventures and things like that, would consider those of us who are also in the community. Our quality of life, of value of property as well. You are not the only ones who live in Gooding and we would appreciate some consideration. Thank you.

Judy And their name was not on list of mail outs that was supplies to us by Faulkerns.

Bill Are they on the map?

Judy Yes they are listed on the map but not on the print out of property owners.

Judy Rick Stewart.

I'm Rick Stewart. I live at 2213 South 1800 East. Pretty much everything has been said that I wanted to go over. I just go ever, reiterate I guess, concerns that I have had. First of all let's talk about the water, we all

know what the water issues are. For one, I have been trying to conserve water. But it's very disheartening to me to have neighbors that are using a good portion of my water. I have a small lawn, I have a big piece of property. I have a small lawn, because I am trying to conserve water. I'm a citizen of this community and I want to be a good citizen of this community, I feel like we all have the responsibility to be good citizens, and I think that each of us doing our part is our responsibility to do that. The next thing is the quality of water. I have heard of tests. I haven't had tests done recently on my well. We are going to get one done, however, I have heard of several wells around our property that have had contamination. So that's a big concern of mine. Another thing is the pivot hasn't been talked about very much. We live approximately 150 to 200 yards away from the pivot. The spray from that pivot is going to be landing on our house and on our children.

(Comments from the audience)

Tom Excuse me, you can't comment

Rick It's approximately 200 yards from our home. Concern that spray will be coming onto our property. Spraying on my house, and our children, our 5 children my wife mentioned. The health issues were mentioned before, Cancer, Leukemia, lung disorders, asthma and such as that. A big concern for me, that I came to Gooding to have a higher quality of life. I moved out of the city to have good air quality so that I, so that my kids would be able to breathe fresh air. That's all I have.

Judy I have some people from Hagerman that signed this, I don't know, maybe they signed the wrong one or maybe they do want to talk. Kristine Davis.

Kristine Davis. I must have signed the wrong one.

Judy Will you make sure that you sign the right one back there. Rick. You don't want to speak at this one? Wrong one. OK. Jean Cook. Do you want to speak on this one or do you want to talk about the next one? Sign in on the other sheet please.

Judy O.K. Harold Olsen

I'm Harold Olsen, I live at 2154B State Hwy 46. I first used Diamond A Truck washout in 1993. At this time I met with Fred Faulkner and he explained the billing system to me. He told me that everybody must sign the calendar on the inside door of the wash shack. He said everybody will pay to use this wash out. At that time, this was a very busy place. Normally you had to wait or somebody was waiting behind you. This was a very big commercial business at this time. The truck wash business has been doing very well Diamond A... Speech was given to lawyer.

Judy Rich Carlson

Rich from the audience I'm not going to testify

Judy Did everyone sign in for this particular hearing that wanted to talk or did you sign the wrong sheet? I have called all the names so far for testimony. So if there is someone who wants to talk you must have signed the wrong sheet if you haven't had your chance to talk. Shall we go on?

Tom Go on.

Judy That is all the testimonies.

Tom We will have rebuttal by the applicant at this time.

Jay I will attempt to answer some questions, I couldn't write fast enough. About the water issues, I want it to be clear that we are not pumping any more water than we have the right to pump whether it be that we transfer water from the adjacent well. Or stay under the amount we are allotted We will monitor it. We will not be allowed to pump anymore water than we are allowed to. The lagoons, they are located directly next to the adjacent property. There is about 350 acres there. There is two of them in the adjoining area right there. As far as the size of the pond, the pond is large enough that I don't think we would have to transfer any water, but if we did it would be just be a small amount, it looks like we could wash up to 400 trucks with the stored amount of water. As far as Heidi, she was wondering who was going to monitor. The IDWR will monitor it through a meter. As far as being in compliance in the past, we haven't been exceeding 2500 gallons a day. Our fields are not saturated there indeed the opposite we have to actually haul fertilizer onto them, commercial fertilizer. We did not stop operating our truck facility it got used either yesterday or today, It's been going. As far as the purity of our water it is very pure. I don't have records of it with me tonight, but we get it sampled about every six months. They say that it is almost too pure we've got the purest water they say in the whole area. So as far as purity it is not a problem. Fly problem, very well could be a problem, but I think it was a problem before you moved there when you lived next to a vet clinic, or to a feed lot I think you should assume that there could be problems with flies. My sister, however, lives, she probably lives within 2-300 yards of this, I don't think she has ever had an odor

problem or a fly problem, so perhaps the flies are coming from elsewhere I'm not sure. As far as the traffic, you know that highway is dangerous, cars run into school buses, cars run into each other. I think people need to drive carefully. I don't think two or three trucks coming in and out of that turn off is even an issue, compared to when we cross livestock constantly across that highway and we have to get the sheriff out there just to slow cars down. They are on their cell phones and they don't even see you. Traffic is a problem but it is accidents due to stopping at the vet. As far as the nitrates, nitrates are present in all wells. A level is extremely low. I don't think nitrates are a problem. As far as the matter of water, they say we can pump, some say up to 70 gallons a minute. With our nozzle size, it's impossible. We have a 3 1/2 horsepower pump and there is just no way we can pump anywhere... we can't even pump 35 gallons per minutes. 20 gallons per minute is with the nozzle size that we use. It doesn't make any difference how big your hose is, it's the nozzle size and we don't pump any part of that amount of water. Health issues. I don't know. If I thought my kids were in jeopardy I wouldn't be doing it. I don't think there is any health issues, that aren't, I mean there is health issues out there everywhere and I don't think any of them are effect by this. We are all concerned about water. As far as saving water, and what not, somebody mentioned, in this area you can't really save water, water is for our crops, for everything. That is why we have water rights, to pump the amount of water that you have a right to, and make a living off of. This whole area was designed, or built around water. Without water there would be nothing here in my opinion. As far as pivots, two things about pivots. One, as far as Michelle was saying, I think she is mistaken on who's ground is who's. I think she is talking about the wrong pivot. I don't think we have a pivot she is talking about. I think that should be cleared up. An I am not sure where you live Michelle. If it is all right, you can tell us. I don't think that she lives 150 feet of our pivot, because our pivot doesn't even come near that county road. (Chatter from the board, checking map) Is the Pivot directly east of you?

Rick Directly east

Jay No doubt it is our pivot, but it doesn't. (Chatter)

Bill How are you going to address that?

Bill As far as pumping the manure through it. I doubt if we even inject this into the pivots. IT won't be an issue. We have a dry corner there's about 5 acres we would like to apply the water too and it will be applied through a large squirt. It won't be injected through the pivot and if it does it won't be injected into that pivot it will be injected into the pasture pivot that is in the center of our operation. As far as the pivot up on the crop lands there is no chance, I shouldn't say no chance.

Bill Will you put water from this wash into the pivots that they are talking about?

Jay No, I'm going to say no. But in 5 years perhaps we might want to.

Bill Will you put drops on that pivot so that there is no mist.

Jay Yes we could. I won't make any promise that we will.

Bill If we tell you, you will

Jay But as of now we have no plans of pumping the gray water through the pivots. It will be in the dry corners is where it will go now.

Bill It will be applied with what?

Jay It will be probably a big rain bird.

Bill A great big rain bird

Jay Ya...Like I say, we have different corners of dry area

Bill How close is that to the nearest house?

Jay I guess my sister's would be the closest. As far as to an opponent, probably 1/2 mile maybe, I don't know. I guess Pat and Mary Pearson would be the closest.

Bill Is that on that map? I'm talking about the corners where you are going to put it. Get it off the map here.

Tape 3

Suzanne Right there is were you are saying.

Jay It's just Right in here, Ma'am.

Suzanne in that 40 acres, that is 40 acres there

Jay Yes.

Suzanne In that 40 acres for the facilities. Right in here.
(Chatter from the Committee)

Bill Jay, Where is the corner, again, where you are going to put this?

Suzanne on the corner of that 40? On the corner or in...

Bill Show me on this drawing

Jay It would be right in here. This whole area is probably 5-6 acres. This isn't to scale. In this area

Bill In this area, this is the pond that you say is 150'

Jay Right

Bill It's there now??

(chatter-unable to understand conversation between Jay and Bill. Approx 30sec)

Jay Also Michelle, with the flies and stuff, there is a feed lot we got there and it still currently a feed lot and with a feed lot comes manure and flies at times. I don't think that is any surprise. Well I hope I have answered some of the questions, I know I have left out a lot. I guess, in conclusion we are going to spend a lot of money on this truck outfit if it gets approved. I think the closest to my knowledge commercial truck washout may be in Bruneau. I think there is a demand for one, and like I say we have been in compliance. We remain on being in compliance to every organization who want to inspect us.

Suzanne You say this is going to cost a lot of money. So if it's going to cost a lot of money then you have to wash a lot of trucks to get a return. Correct? You can't do it with no water Jay.

Jay We do with the transfer of.

Suzanne But you haven't done that yet. You have made no application. You have operated under a permit that was not valid all these years. You've not made a change of use. Water is an issue. I think that that... I'm just a little concerned, I feel you skirt that issue and it is a pertinent important issue. Just because you have water, doesn't mean your neighbors to the west does or, you know we impact each other. We are finding out we impact each other. I think that, that is a genuine concern. I really do, I really do.

Jay I agree. I think it is a concern of everybody in this room actually

Suzanne And you have a right to dry, to dry up those other acres and transfer that to a commercial, a commercial use water permit. The Department said that they no way guarantee that approval. That probably needs, would need to be done. At primary It probably should have been in this packet that you have made that provision. You and I know you'll use more than 2500 gallons. Our you're not going to have... your money is not going to be returned to you.

Jay That is not true. To me a lot of money is \$10,000 and if you wash out a truck, and in this case two trucks a day, a good return on your investment could be made in 7 years. If you have money in the bank at 10% it is going to turn over double in 7 years. To me if it takes 7-10 years to pay this off it is still a good investment. So I don't agree with you on the fact that 2500 gallons a day isn't enough to make it worth while. We haven't transferred the water or made application because we wanted to get it up and running and see weather or not, to see the amount of trucks we get, the demand, and we didn't want to go through the whole timely process without it being necessary. If it looks like we can wash out an average, if we are only getting a average of 2 trucks a day we can do it with our 2500 gallons. We can have a meter on it. It's not as Michelle would say, we don't have to be trusted because it sounds like we are untrusty. But its not, not, I don't think, I don't think the water at this part not filing an application is a reason not to approve this. As IDWR said the well doesn't care where the water is going to, the well doesn't know if you pump 10,000 gallons a day out of that well, if you are permitted to do that, it's, it's o.k. As long as you have the right to can do it with our 2500 gallons. We can ~~hrt nrt~~ not filing an application is a reason not to approve this. As IDWR said the well ~~rt nrt~~ not filing an application is a reason not to approve this. As IDWR said the well doesn't care where the water is going to, the well doesn't know if you pump 10,000 gallons a day out of that ~~wrt nrt~~ not filing an application is a reason not to approve this. As IDWR said the well doesn't care where the water is going to, the well doesn't know if you pump 10,000 gallons a day out of that well, if you are permitted to do that/Jay Get by.

Bill Get by, how?

Jay Limit the amount of trucks. Limit the amount of time they wash. I mean either way we're not allowed to go over 2500 gallons a day. That's our max. So if we get to many trucks, if our storage runs out and we get too many trucks, they got to go somewhere else. The process for the application can take anywhere from 2 to 3 months maybe longer. It could be approx. 2 months it could be more.

Bill I have one other question. Somebody addressed that there was pipe going across the highway. Do you know anything about that?

Jay Absolutely

Bill Is it in any way related to this?

Jay No. I forgot about that. There is pipe that goes across, we have 320 acres on that side of the highway right south of Harold's house and the vet clinic. We have stock water out there. That is where the pipe goes.

Bill So you have no intention of...farmers primary. The pivot right adjacent to the others, other where you deposit water from these ponds. (hard to understand)

Jay Correct. But we're, that's just off one of the pipelines. The reason we dug it up is because it had a leak in it.

Bill This project, the waste water first go on the corner

Jay Correct

Bill If there's too much for that, then to that adjacent pivot.

Jay Correct

Bill What about the pivot to the west?

Jay. Honestly, I'd say no because I don't think we're even going to have to inject the pivot, in the first pivot. So I don't think there is any way we're going to have enough to put in to the next one. So no. I don't even know if we're going to a corner spray for that amount of water. In the past we couldn't have kept our lawn green with the amount of water.

Bill Anybody else have anything?

Tom OK, We'll close the hearing and no further testimony will be taken on this hearing at this time.

Meeting April 4th

Bill Continuation of this Gooding County Planning and Zoning commission board. The first thing on the agenda would be to approve the minutes of the March 14th, 2005 meeting.

Tom (Motion to accept minutes)

Motion procedure.

Bill The next item on the agenda is to consider a special use permit for the Diamond A Livestock Incorporated. The floor is open for discussion. I'll start.

Judy Joe can't talk.

Bill Oh that's right. Joe, you need to go sit in the audience.

Bill I really don't want to be here tonight just like you, the more I have thought about this, this week, with both of these applications this really is the best way to do things because I have time for a week to think about these things, to mull them over and it really makes it a lot clearer. More clearer in my mind. In regards to this, this permit for Diamond A, it seems to me the big conservancy on this has been water usage and disposal of waste water. That seems to me the more I thought about it, the two things that seem to be conservancy. And the traffic. I will address the first two, you can address the traffic. I have thought about this for a week. I have thought about it, there has really been no testimony that there was some immuendoes that the Faulkners had over used there water permit, and there is no evidence that they have, that I have heard documented, that they had used more water than they are allowed from the stock water permit where it is 2500 gallons per day. Having thought about that, it seems to me the solution for the water, and then I'll address the other. It seems to me the solution for the water would be that part of the condition if this is issued, would be to order that they have to put a cleaner on there well, that was approved by DEQ, and to make sure they aren't over using there water. I think the solution to that would be that they would be forced to join the North Snake Ground Water Association. Where, in that, they would have to pay, on there tax bill, for that well to be there. And what would happen is, just like dairies and other commercial usage of irrigation wells and what have you, they have... meters would have to be read every month and DEQ not DEQ, excuse me, the North Snake Ground Water Association personnel come once a year and verify that the meter is being read right. In that way, if that meter is being read and DEQ knows about it and they are members of the North Snake Ground Water Association, and if they are using more than 2500 gallons, they have a solution for that. That would be to dry up land, and use a commercial, change the use from a commercial well to the usage they could use for this purposes. That is not over using water in a drought situation because they have no right to use that water. What they are going to have to do, it's lot of hoops to jump through and change their usage of that well if they are using more than 2500 gallons. But we are still assuring that they are not using more water than they are legally allowed to use. So that would be my conditions if we are going to approve this as far as the water. As far as the liquid waste, they testified they are going to have a separation system. That will separate out the solids. The solids then would be used just like fertilizer that will be applied to the land that they own. And I didn't ask how many they own, but I'm

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DEPT. OF WATER RESOURCES
SOUTHERN REGION

Z Hearing March
April 2005

My name is Harold Olson.

I first used the Diamond A's commercial truck washout in 1993. At that time I met Fred Faulkner and he explained the billing system to me. He told me everybody must sign the calendar on the inside of the wash shack door. He said everybody will pay. At that time it was a very busy place. Normally you had to wait or somebody was waiting behind you. This was a very big commercial business at that time. The truck wash out business was doing well. Just recently I heard that trucks still have to wait in line. Diamond A admits, in their application, that they have done this for 25-30 years.

They have had water problems in the past. One particular day, Kathy Faulkner-Pavkov had to come down and ask me to shut the pump off so she would have enough water pressure at her house to take a shower and get to work. It was over loading their well system. Then a couple years ago Polly Huggen's well went dry. She requested a state agency to check Diamond A's commercial truck wash. Diamond A told this agency that they were only washing out their trucks and a few friends. Although, Diamond A drilled a new well that almost doubled their water capacity. I approached Eaton Drilling with concerns about my well. They told me when Diamond A started using their new well, everyone's well within 3 to 4 miles dropped considerably. That was a very adverse effect on the neighborhood. I hope they don't dry up my well.

In studying this further, I found that a 1½ hose under high pressure uses 60 to 80 gallons per minute. At this rate, a truck wash will use 5,000 gallons per truck, not 2,000 gallons per day like their plans suggest. Without any

commercial water rights, where are they going to get all this water for this substantial increase to their washout facility?

This wash out facility has been proposed two other times that I know of. One location was up at airport butte at Rusty & Cindy Gillette's place. Gillette's turned this down because they didn't want anything to do with it. The next proposal was to put it in the pond and run it through the pivot on the east side of the highway which is located south of North Valley Vet and our property. One morning they had a scraper at the pond unloaded and ready to do the dirt work. Jeff Faulkner drove up to the house and asked me if we were all right with this. I said "NO" we are 100% against it. He asked the scraper to load up and go home. This washout pond would have been 50 feet from my property line and 400 feet from my front door. I can't image anybody doing something like this to a neighbor. The manure will bring diseases from all over the country. Now I see this 2 inch plastic pipe that looks to me like it is going to go under Hwy. 46. Is this pipe going to deliver manure water to this pivot in front of my house?

When they no longer need to keep this a secret, I can picture trucks coming off the interstate and this developing into a major truck washout. Tom Yore is rumored to be dispatching up to 60 cattle trucks. As one neighbor puts it "we must stop this before they get a foot in the door." This is the response I get from every neighbor we've talked to.

This could easily grow into 15 to 20 trucks a day. Plus create a major traffic problem. I have personally witnessed north bound trucks coming to a dead stop, waiting 15 to 20 seconds to get a break in traffic before turning in. Wouldn't it be a better idea for a commercial truck washout to be built in a more suitable location such as an industrial park? One with a treatment plant that wouldn't affect quality of life or property values of the neighbors? If

Diamond A says they're only going to wash out their one truck and a few friends why do they need such a large facility with storage tanks and ponds, two wash pads, and a solid waste separator? Something stinks here! Also, we need to keep in mind that anything that happens here affects our Hagerman neighbors.

I highly object to this special use permit. If they want to wash out their one truck, the facility they have seems quite adequate. They do not need to go this big.

I feel if this permit is approved, it will give Diamond A Livestock free rein. Too many questions are left unanswered. Will it, in fact, be a big commercial truck washout? Or will it be open to the public?

Diamond A has abused the water situation and has no commercial water rights. They have misled state agencies. They've dropped the water levels in the neighborhood and now they're going to spray manure water next to their neighbor's homes, neighbors that already struggle with respiratory problems. This shows that Diamond A Livestock has no respect for their neighbors health.

CERTIFICATE OF SERVICE

I HEREBY CERTIFY That on this ²⁵ day of May, 2006, I served a true and correct copy of the foregoing document on the person(s) whose names and addresses appear below by the method indicated:

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 SOUTHERN REGION

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Mr. Williams Fredrick, Williams, Meservy & Lothspeich, LLP PO Box 168 Jerome, ID 8338-0168	☒ U.S. Mail, postage prepaid ☒ <u>Hand Delivery</u> ☐ Court Folder ☐ Facsimile ☐ Federal Express
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Nicole Reed Le Ann Reed 2094 Hwy 46 Gooding, Idaho 83330	☒ U.S. Mail, postage prepaid ☐ Hand Delivery ☐ Court Folder ☐ Facsimile ☐ Federal Express
Steve Paulin 2185 S 1800 E Gooding, Idaho 83330	☒ U.S. Mail, postage prepaid ☐ Hand Delivery ☐ Court Folder ☐ Facsimile ☐ Federal Express
Christine Davis PO Box 386 Hagerman, Idaho 83332	☒ U.S. Mail, postage prepaid ☐ Hand Delivery ☐ Court Folder ☐ Facsimile
DIAMOND A LIVESTOCK 1997 S. 1875 E. Gooding, ID 83330	☒ U.S. Mail, postage prepaid


 Polly Ann Huggins

ROBERT E. WILLIAMS

IDAHO STATE BAR NO. 1693

FREDERICKSEN, WILLIAMS, MESERVY & LOTH SPEICH, LLP

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P.O. Box 168

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MAY 15 2006

DEPT. OF WATER RESOURCES
SOUTHERN REGION

Attorney for Applicant Diamond A. Livestock, Inc.

BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE STATE OF IDAHO

IN THE MATTER OF APPLICATIONS
FOR TRANSFER NOS. 72177 & 72178

DIAMOND A LIVESTOCK, INC.

Applicant

HEIDI OLSON, POLLY ANN HUGGINS,
NICOLE REED, STEVE PAULIN,
LEANN REED, & CHRISTINE DAVIS,

Protestants

SOURCE: Groundwater

County: Gooding

INITIAL WITNESS LIST AND EXHIBIT
LIST OF APPLICANT, DIAMOND A
LIVESTOCK, INC.

The Applicant, Diamond A Livestock, Inc., through his attorney, Robert E. Williams, hereby produces its initial List of Witnesses and List of Exhibits pursuant to the Department's Pre-Hearing Order as follows:

WITNESS LIST:

Fred Faulkner
Jay Faulkner
Charles G. Brockway
Robert Ohlensehlen

EXHIBIT LIST:

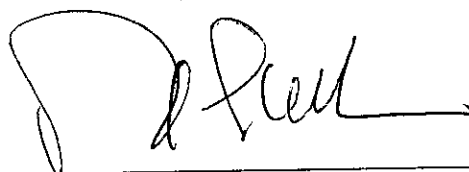
1. Ariel photo showing application location, protestant wells, and other features.
2. Map showing distance to protestant wells.
3. Map showing site location with respect to the ESRPA.
4. Well interference study.
5. Selected drilling records utilized for analysis.
6. Groundwater quality in the direct vicinity of the applicant's property- nitrate nitrogen.

(See copies attached)

Note: Other Exhibits are not fully prepared at this time, but will be provided prior to final disclosure date.

DATED this 12th day of May, 2006.

FREDERICKSEN, WILLIAMS, MESERVY & LOTHSPREICH, LLP

A handwritten signature in black ink, appearing to read 'R. Williams', is written over a horizontal line.

ROBERT E. WILLIAMS
Attorney for Applicant

CERTIFICATE OF SERVICE

I HEREBY CERTIFY That on this 12th day of May, 2006, I served a true and correct copy of the foregoing document on the person(s) whose names and addresses appear below by the method indicated:

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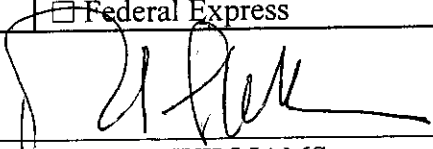
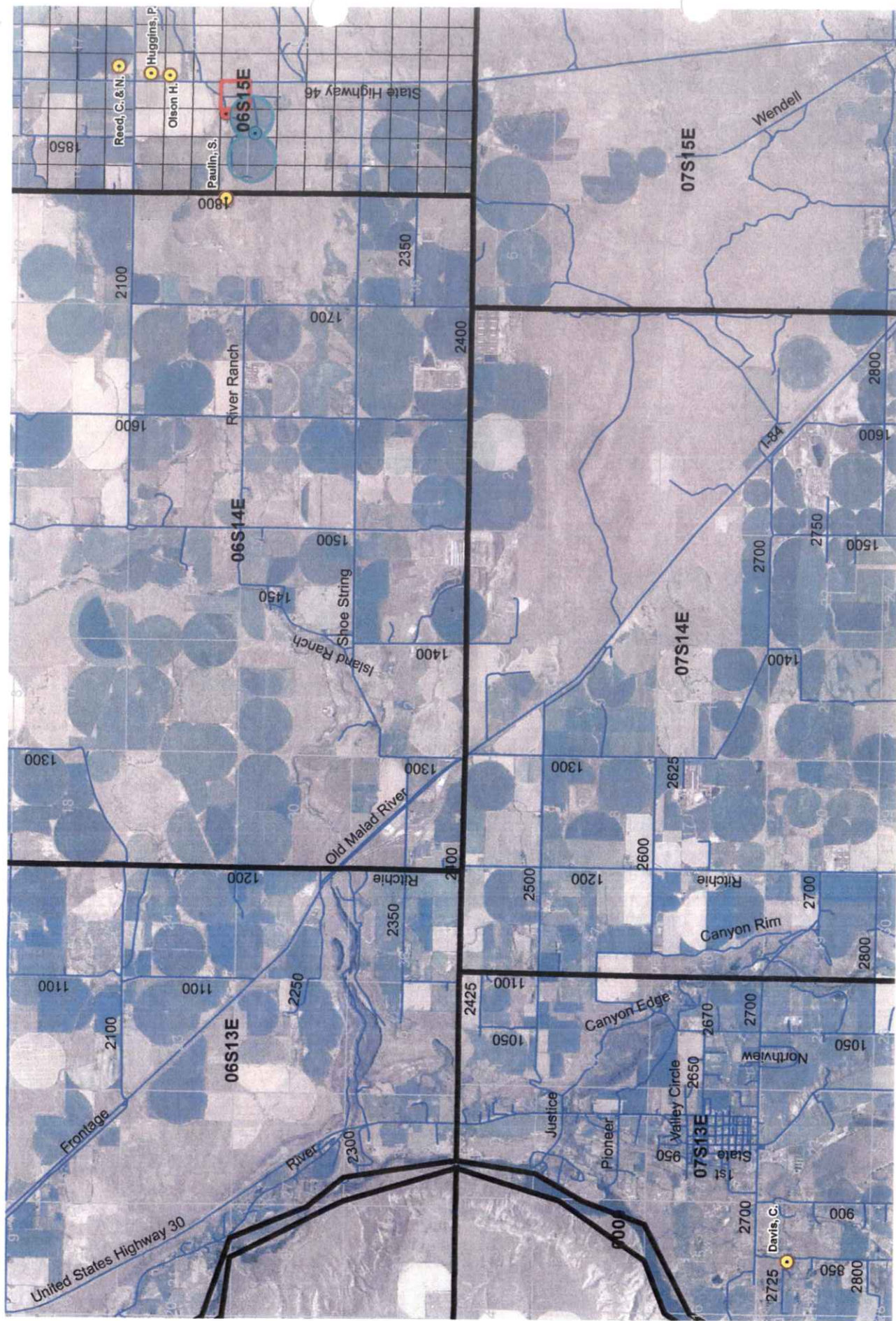

ROBERT E. WILLIAMS

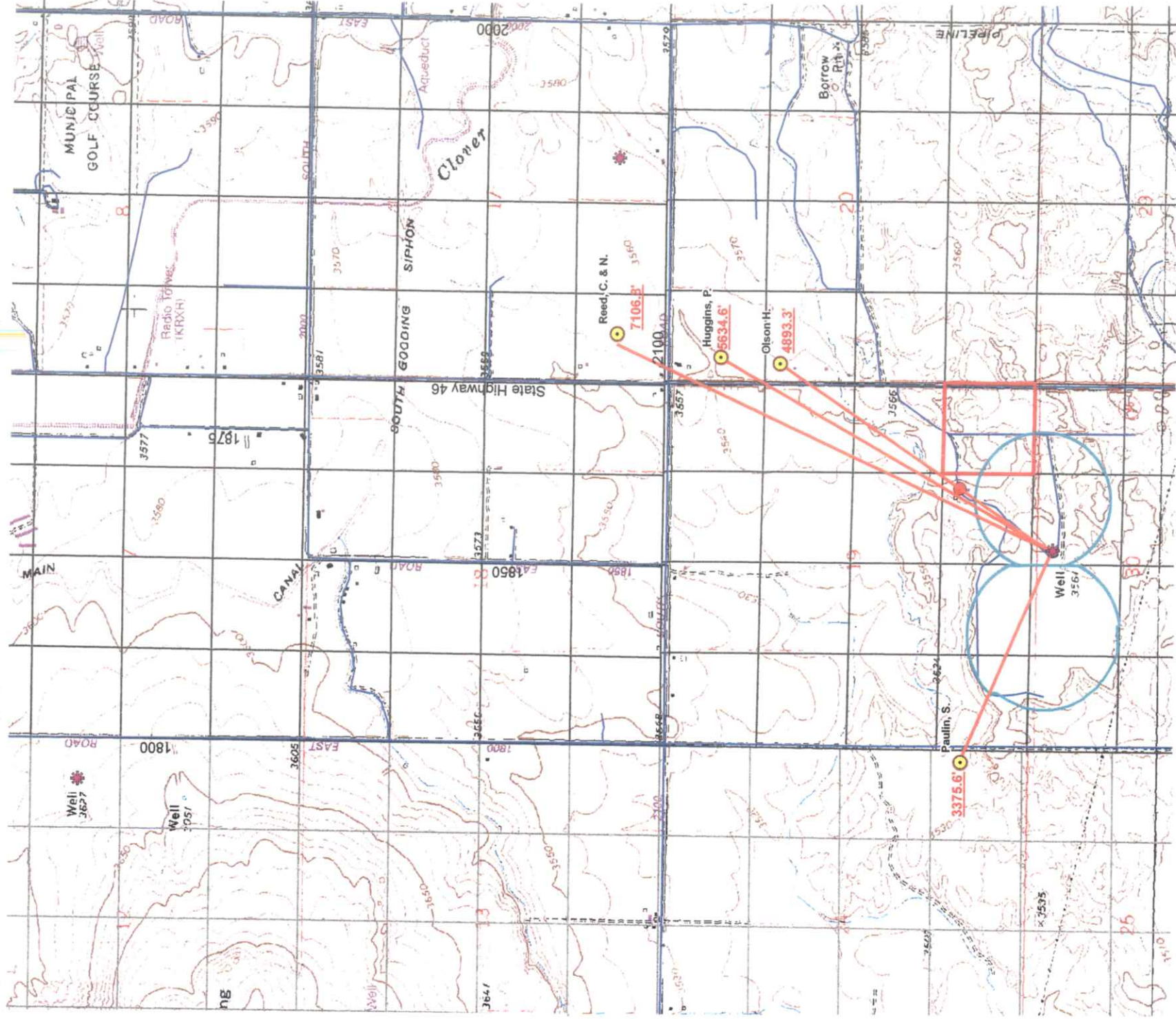
EXHIBIT 1



DIAMOND A LIVESTOCK
Water Right Transfer
NAIP 2004 Aerial

FIGURE 1

EXHIBIT 2



DIAMOND A LIVESTOCK
Distance to Irrigation Well & EDMS Well Sites
NAIP 2004 Aerial

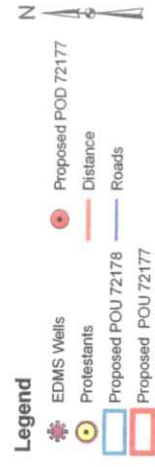
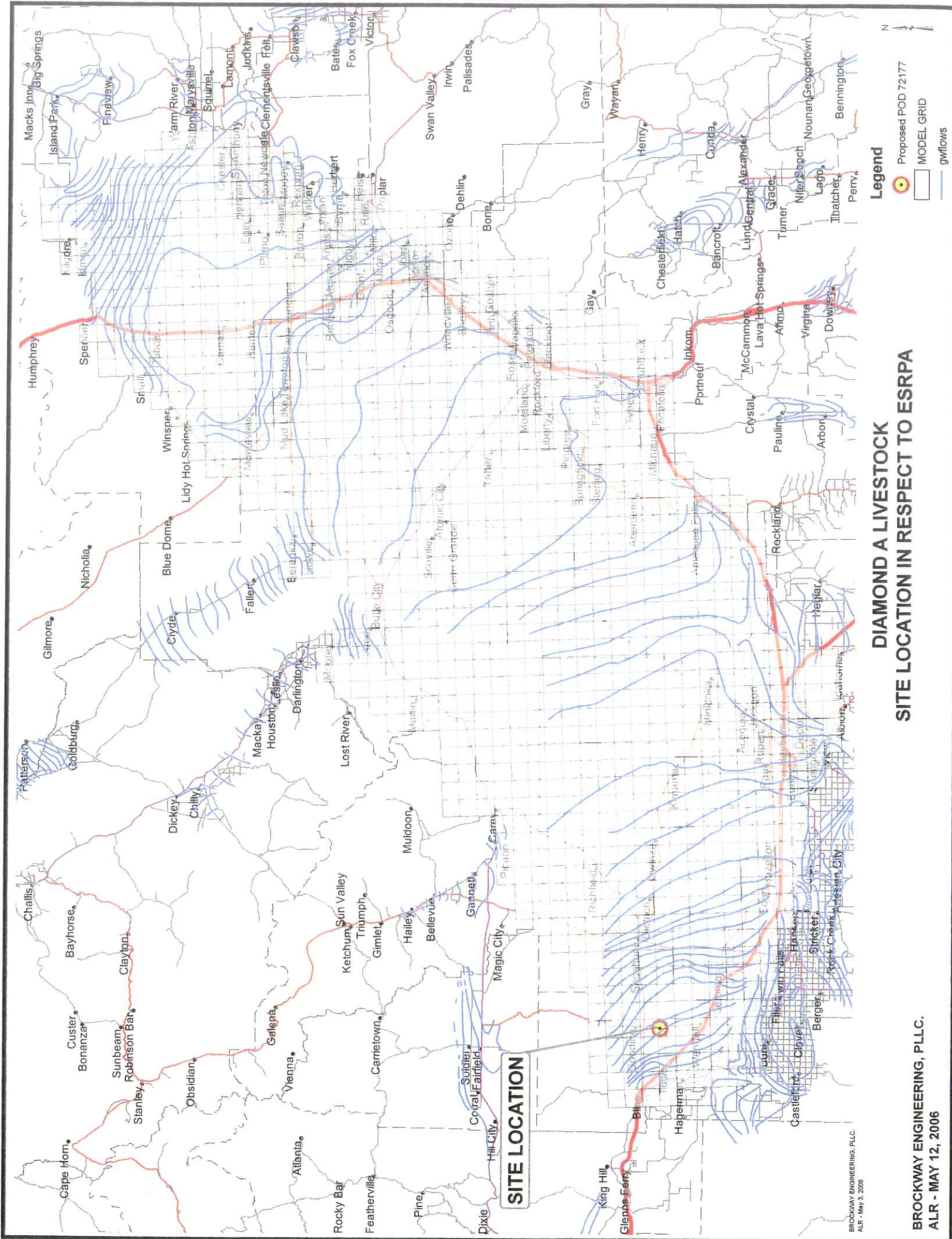


FIGURE 3

EXHIBIT 3



Legend

- Proposed POD 72177
- MODEL GRID
- gwflows

**DIAMOND A LIVESTOCK
SITE LOCATION IN RESPECT TO ESRPA**

EXHIBIT 4

WELL DRAWDOWN ESTIMATION
DIAMOND A LIVESTOCK - TRUCK WASH

Drawdown estimated using Theis approach
 Brockway Engineering, PLLC

Hydraulic conductivity	1436 ft/day	Pumping rate	Average Day Demand for 365 days	
Saturated thickness	500 feet	Pumping time	7 gpm =	0.01 cfs
Transmissivity	5370640 gpd/ft		8760 hrs	
Storage coefficient	0.08			

Time (days)	(hrs)	R = 0.50 feet			R = 100 feet			R = 500 feet			R = 3375 feet			R = 7100 feet		
		u	W(u)	z (feet)	u	W(u)	z (feet)	u	W(u)	z (feet)	u	W(u)	z (feet)	u	W(u)	z (feet)
0	0	--	--	0.00	--	--	0.00	--	--	0.00	--	--	0.00	--	--	0.00
15.208333	365	4.6E-10	20.927	0.00	1.8E-05	10.331	0.00	4.6E-04	7.112	0.00	2.1E-02	3.313	0.00	9.2E-02	1.895	0.00
30.416667	730	2.3E-10	21.620	0.00	9.2E-06	11.024	0.00	2.3E-04	7.805	0.00	1.0E-02	3.996	0.00	4.6E-02	2.544	0.00
45.625	1095	1.5E-10	22.026	0.00	6.1E-06	11.429	0.00	1.5E-04	8.210	0.00	7.0E-03	4.398	0.00	3.1E-02	2.934	0.00
60.833333	1460	1.1E-10	22.313	0.00	4.6E-06	11.717	0.00	1.1E-04	8.498	0.00	5.2E-03	4.684	0.00	2.3E-02	3.214	0.00
76.041667	1825	9.2E-11	22.537	0.00	3.7E-06	11.940	0.00	9.2E-05	8.721	0.00	4.2E-03	4.906	0.00	1.8E-02	3.433	0.00
91.25	2190	7.6E-11	22.719	0.00	3.1E-06	12.122	0.00	7.6E-05	8.904	0.00	3.5E-03	5.088	0.00	1.5E-02	3.612	0.00
106.45833	2555	6.5E-11	22.873	0.00	2.6E-06	12.276	0.00	6.5E-05	9.058	0.00	3.0E-03	5.241	0.00	1.3E-02	3.764	0.00
121.66667	2920	5.7E-11	23.007	0.00	2.3E-06	12.410	0.00	5.7E-05	9.191	0.00	2.6E-03	5.375	0.00	1.2E-02	3.896	0.00
136.875	3285	5.1E-11	23.124	0.00	2.0E-06	12.528	0.00	5.1E-05	9.309	0.00	2.3E-03	5.492	0.00	1.0E-02	4.013	0.00
152.08333	3650	4.6E-11	23.230	0.00	1.8E-06	12.633	0.00	4.6E-05	9.414	0.00	2.1E-03	5.597	0.00	9.2E-03	4.117	0.00
167.29167	4015	4.2E-11	23.325	0.00	1.7E-06	12.728	0.00	4.2E-05	9.510	0.00	1.9E-03	5.692	0.00	8.4E-03	4.211	0.00
182.5	4380	3.8E-11	23.412	0.00	1.5E-06	12.815	0.00	3.8E-05	9.597	0.00	1.7E-03	5.779	0.00	7.7E-03	4.298	0.00
197.70833	4745	3.5E-11	23.492	0.00	1.4E-06	12.896	0.00	3.5E-05	9.677	0.00	1.6E-03	5.859	0.00	7.1E-03	4.377	0.00
212.91667	5110	3.3E-11	23.566	0.00	1.3E-06	12.970	0.00	3.3E-05	9.751	0.00	1.5E-03	5.933	0.00	6.6E-03	4.451	0.00
228.125	5475	3.1E-11	23.635	0.00	1.2E-06	13.039	0.00	3.1E-05	9.820	0.00	1.4E-03	6.002	0.00	6.2E-03	4.519	0.00
243.33333	5840	2.9E-11	23.700	0.00	1.1E-06	13.103	0.00	2.9E-05	9.884	0.00	1.3E-03	6.066	0.00	5.8E-03	4.584	0.00
258.54167	6205	2.7E-11	23.760	0.00	1.1E-06	13.164	0.00	2.7E-05	9.945	0.00	1.2E-03	6.127	0.00	5.4E-03	4.644	0.00
273.75	6570	2.5E-11	23.818	0.00	1.0E-06	13.221	0.00	2.5E-05	10.002	0.00	1.2E-03	6.184	0.00	5.1E-03	4.701	0.00
288.95833	6935	2.4E-11	23.872	0.00	9.6E-07	13.275	0.00	2.4E-05	10.056	0.00	1.1E-03	6.238	0.00	4.9E-03	4.754	0.00
304.16667	7300	2.3E-11	23.923	0.00	9.2E-07	13.326	0.00	2.3E-05	10.107	0.00	1.0E-03	6.289	0.00	4.6E-03	4.806	0.00
319.375	7665	2.2E-11	23.972	0.00	8.7E-07	13.375	0.00	2.2E-05	10.156	0.00	9.9E-04	6.338	0.00	4.4E-03	4.854	0.00
334.58333	8030	2.1E-11	24.018	0.00	8.3E-07	13.422	0.00	2.1E-05	10.203	0.00	9.5E-04	6.385	0.00	4.2E-03	4.900	0.00
349.79167	8395	2.0E-11	24.063	0.00	8.0E-07	13.466	0.00	2.0E-05	10.247	0.00	9.1E-04	6.429	0.00	4.0E-03	4.945	0.00
365	8760	1.9E-11	24.105	0.00	7.6E-07	13.509	0.00	1.9E-05	10.290	0.00	8.7E-04	6.472	0.00	3.8E-03	4.987	0.00
380.20833	9125	1.8E-11	24.146	0.00	7.3E-07	13.549	0.00	1.8E-05	10.331	0.00	8.3E-04	6.512	0.00	3.7E-03	5.028	0.00

Table 1

**WELL DRAWDOWN ESTIMATION
DIAMOND A LIVESTOCK - TRUCK WASH**

Drawdown estimated using Theis approach
Brockway Engineering, PLLC

Hydraulic conductivity 1436 ft/day
Saturated thickness 500 feet
Transmissivity 5370640 gpd/ft
Storage coefficient 0.08

Pumping rate 36 gpm = 0.08 cfs
Pumping time 720 hrs

Peak Daily Demand for 30 days

Time (days)	(hrs)	R = 0.50 feet			R = 100 feet			R = 500 feet			R = 3375 feet			R = 7100 feet		
		u	W(u)	z (feet)	u	W(u)	z (feet)	u	W(u)	z (feet)	u	W(u)	z (feet)	u	W(u)	z (feet)
0	0	--	--	0.00	--	--	0.00	--	--	0.00	--	--	0.00	--	--	0.00
1.25	30	5.6E-09	18.428	0.01	2.2E-04	7.832	0.01	5.6E-03	4.619	0.00	2.5E-01	1.032	0.00	1.1E+00	0.179	0.00
2.5	60	2.8E-09	19.122	0.01	1.1E-04	8.525	0.01	2.8E-03	5.309	0.00	1.3E-01	1.610	0.00	5.6E-01	0.491	0.00
3.75	90	1.9E-09	19.527	0.02	7.4E-05	8.931	0.01	1.9E-03	5.713	0.00	8.5E-02	1.975	0.00	3.7E-01	0.747	0.00
5	120	1.4E-09	19.815	0.02	5.6E-05	9.218	0.01	1.4E-03	6.001	0.00	6.3E-02	2.243	0.00	2.8E-01	0.955	0.00
6.25	150	1.1E-09	20.038	0.02	4.5E-05	9.441	0.01	1.1E-03	6.224	0.00	5.1E-02	2.453	0.00	2.2E-01	1.129	0.00
7.5	180	9.3E-10	20.220	0.02	3.7E-05	9.624	0.01	9.3E-04	6.406	0.00	4.2E-02	2.628	0.00	1.9E-01	1.277	0.00
8.75	210	8.0E-10	20.374	0.02	3.2E-05	9.778	0.01	8.0E-04	6.560	0.01	3.6E-02	2.776	0.00	1.6E-01	1.407	0.00
10	240	7.0E-10	20.508	0.02	2.8E-05	9.911	0.01	7.0E-04	6.693	0.01	3.2E-02	2.905	0.00	1.4E-01	1.522	0.00
11.25	270	6.2E-10	20.626	0.02	2.5E-05	10.029	0.01	6.2E-04	6.811	0.01	2.8E-02	3.019	0.00	1.2E-01	1.625	0.00
12.5	300	5.6E-10	20.731	0.02	2.2E-05	10.134	0.01	5.6E-04	6.916	0.01	2.5E-02	3.122	0.00	1.1E-01	1.718	0.00
13.75	330	5.1E-10	20.826	0.02	2.0E-05	10.230	0.01	5.1E-04	7.011	0.01	2.3E-02	3.215	0.00	1.0E-01	1.804	0.00
15	360	4.6E-10	20.913	0.02	1.9E-05	10.317	0.01	4.6E-04	7.098	0.01	2.1E-02	3.300	0.00	9.4E-02	1.883	0.00
16.25	390	4.3E-10	20.993	0.02	1.7E-05	10.397	0.01	4.3E-04	7.178	0.01	2.0E-02	3.378	0.00	8.6E-02	1.956	0.00
17.5	420	4.0E-10	21.068	0.02	1.6E-05	10.471	0.01	4.0E-04	7.252	0.01	1.8E-02	3.451	0.00	8.0E-02	2.024	0.00
18.75	450	3.7E-10	21.137	0.02	1.5E-05	10.540	0.01	3.7E-04	7.321	0.01	1.7E-02	3.519	0.00	7.5E-02	2.088	0.00
20	480	3.5E-10	21.201	0.02	1.4E-05	10.604	0.01	3.5E-04	7.386	0.01	1.6E-02	3.582	0.00	7.0E-02	2.148	0.00
21.25	510	3.3E-10	21.262	0.02	1.3E-05	10.665	0.01	3.3E-04	7.447	0.01	1.5E-02	3.642	0.00	6.6E-02	2.205	0.00
22.5	540	3.1E-10	21.319	0.02	1.2E-05	10.722	0.01	3.1E-04	7.504	0.01	1.4E-02	3.698	0.00	6.2E-02	2.258	0.00
23.75	570	2.9E-10	21.373	0.02	1.2E-05	10.776	0.01	2.9E-04	7.558	0.01	1.3E-02	3.752	0.00	5.9E-02	2.309	0.00
25	600	2.8E-10	21.424	0.02	1.1E-05	10.828	0.01	2.8E-04	7.609	0.01	1.3E-02	3.802	0.00	5.6E-02	2.358	0.00
26.25	630	2.7E-10	21.473	0.02	1.1E-05	10.876	0.01	2.7E-04	7.658	0.01	1.2E-02	3.850	0.00	5.3E-02	2.404	0.00
27.5	660	2.5E-10	21.520	0.02	1.0E-05	10.923	0.01	2.5E-04	7.704	0.01	1.2E-02	3.896	0.00	5.1E-02	2.448	0.00
28.75	690	2.4E-10	21.564	0.02	9.7E-06	10.967	0.01	2.4E-04	7.749	0.01	1.1E-02	3.940	0.00	4.9E-02	2.490	0.00
30	720	2.3E-10	21.607	0.02	9.3E-06	11.010	0.01	2.3E-04	7.791	0.01	1.1E-02	3.982	0.00	4.7E-02	2.531	0.00
31.25	750	2.2E-10	21.647	0.02	8.9E-06	11.051	0.01	2.2E-04	7.832	0.01	1.0E-02	4.023	0.00	4.5E-02	2.570	0.00

Table 2

Figure 4. Drawdown versus time and radial distance from the pumping well

$Q = 36 \text{ gpm}$, $T = 5370640 \text{ gpd/ft}$, $S_c = 0.08$

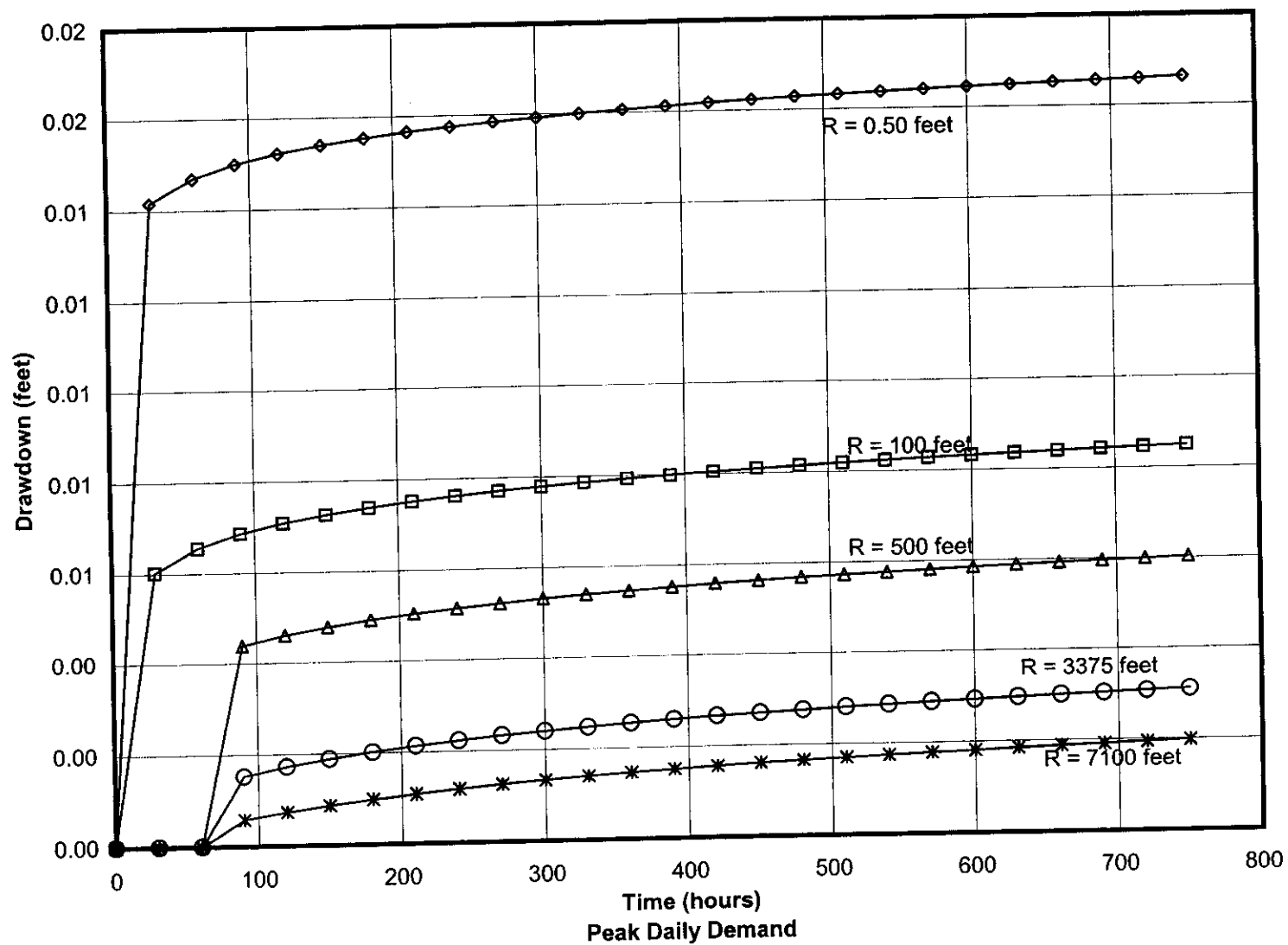


Figure 5. Drawdown versus time and radial distance from the pumping well

$Q = 7$ gpm, $T = 5370640$ gpd/ft, $S_c = 0.08$

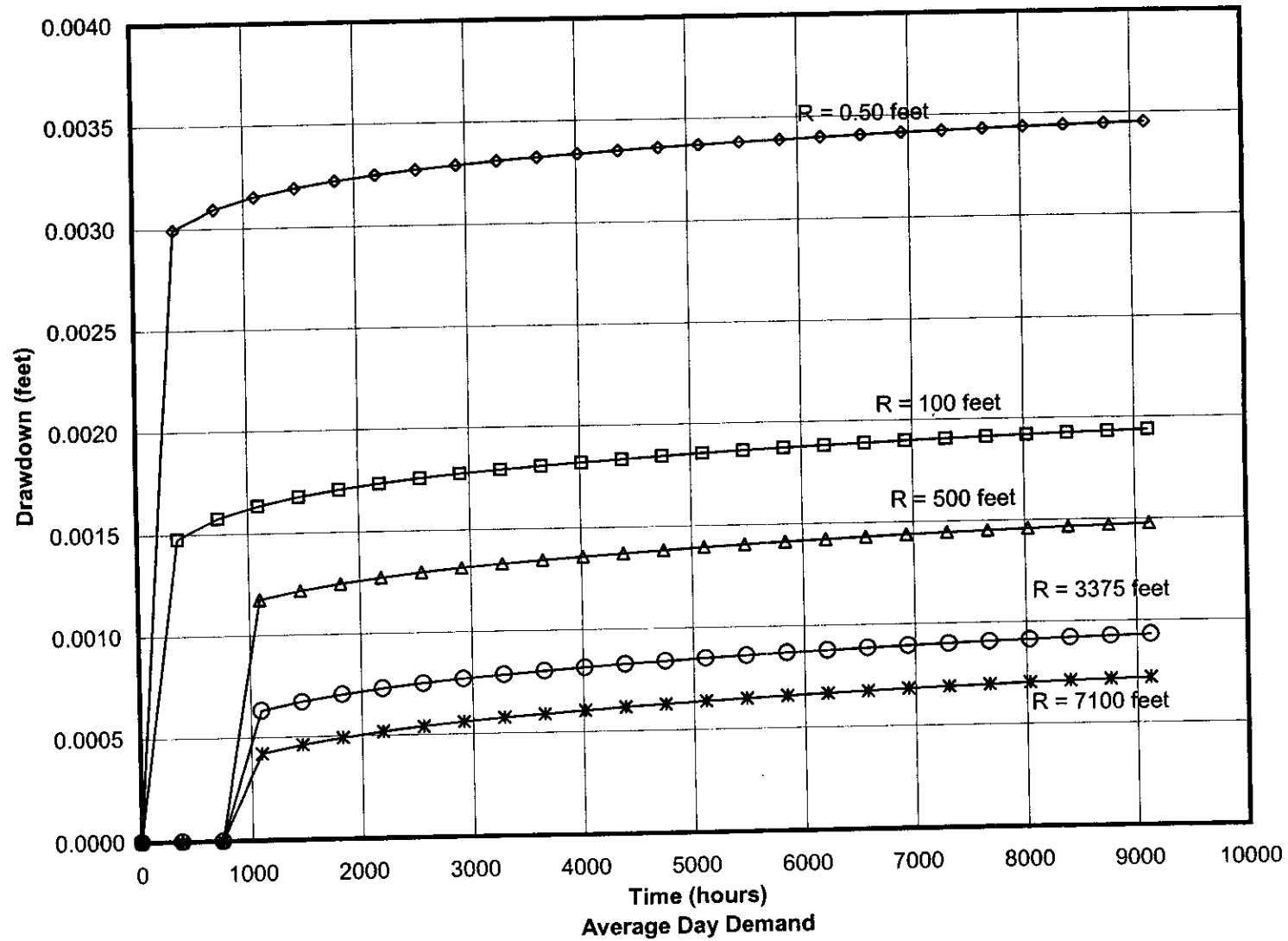


EXHIBIT 5

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES

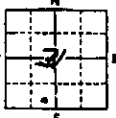
RECEIVED

USE TYPEWRITER OR
BALLPOINT PEN

AUG 24 1993

WELL DRILLER'S REPORT

State law requires that this report be filed with the Director, Department of Water Resources
within 30 days after the completion or abandonment of the well.

1. WELL OWNER Name <u>Eaton Knorr Land & Livestock</u> Address <u>1989 S 1875 E Gooding</u> Drilling Permit No. <u>36-93-S-0152, 37-93-C-0070-000</u> Water Right Permit No. <u>36-2504 37-08005</u>		7. WATER LEVEL Static water level <u>228</u> feet below land surface. Flowing? ☐ Yes ☒ No G.P.M. flow _____ Artesian closed-in pressure _____ p.s.i. Controlled by: ☐ Valve ☐ Cap ☐ Plug Temperature <u>28</u> °F. Quality _____ Describe artesian or temperature zones below.																																																																																																																																			
2. NATURE OF WORK ☒ New well ☐ Deepened ☐ Replacement ☐ Well diameter increase ☐ Modification ☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)		8. WELL TEST DATA <u>081405</u> ☐ Pump ☐ Bailer ☐ Air ☐ Other _____ <table border="1"><thead><tr><th>Discharge G.P.M.</th><th>Pumping Level</th><th>Hours Pumped</th></tr></thead><tbody><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr></tbody></table>		Discharge G.P.M.	Pumping Level	Hours Pumped																																																																																																																															
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5. WELL CONSTRUCTION Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____ Thickness _____ Diameter _____ From _____ To _____ _____ inches _____ inches _____ feet _____ feet _____ inches _____ inches _____ feet _____ feet Was casing drive shoe used? ☐ Yes ☒ No Was a packer or seal used? ☐ Yes ☒ No Perforated? ☐ Yes ☒ No How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun Size of perforation? _____ inches by _____ inches Number _____ From _____ To _____ _____ perforations _____ feet _____ feet _____ perforations _____ feet _____ feet _____ perforations _____ feet _____ feet Well screen installed? ☐ Yes ☒ No Manufacturer _____ Type _____ Top Packer or Headpipe _____ Bottom of Tailpipe _____ Diameter _____ Slot size _____ Set from _____ feet to _____ feet Diameter _____ Slot size _____ Set from _____ feet to _____ feet Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____ Placed from _____ feet to _____ feet Surface seal depth <u>18</u> Material used in seal: ☒ Cement grout ☐ Bentonite ☐ Pudding clay ☐ _____ Sealing procedure used: ☐ Slurry pit ☐ Temp. surface casing ☐ Overbore to seal depth Method of joining casing: ☐ Threaded ☐ Welded ☐ Solvent Weld ☐ Cemented between strata Describe access port, <u>Welded Steel plate</u> <u>2" pipe + cap</u>		10. Work started <u>5-10-93</u> finished <u>5-15-93</u>																																																																																																																																			
6. LOCATION OF WELL Sketch map location must agree with written location.  Subdivision Name _____ Lot No. _____ Block No. _____ County <u>Gooding</u> Address of Well Site <u>See string 181 to 182 to all long short 5.</u> (Give at least name of road) <u>SE 1/4 SW 1/4 Sec. 31 T. 6 N. 15 E. or S 15 E. or W 15</u>		11. DRILLER'S CERTIFICATION I/We certify that all minimum well construction standards were compiled with at the time the rig was removed. Firm Name <u>Eaton Drilling</u> Firm No. <u>26</u> Address <u>Wendell</u> Date _____ Signed by Drilling Supervisor <u>[Signature]</u> and <u>[Signature]</u> (Operator) <u>[Signature]</u> (If different than the Drilling Supervisor)																																																																																																																																			

Basin 37
App 873280
Per 784321

1355382
IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

CA

Office Use Only			
Inspected by			
Twp	Rge	Sec	
1/4	1/4	1/4	
Lat	:	:	Long
:	:	:	:

1. WELL TAG NO. D0023311

DRILLING PERMIT NO. 784321

Other IDWR No. 37-10604

2. OWNER:

Name Diamond A Livestock

Address 1997 S. 1875 E.

City Gooding State ID Zip 83330

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

N							
W		E					
S							

Twp. 6 North ☐ or South ☒
Rge. 15 East ☒ or West ☐
Sec. 19 1/4 SW 1/4 SE 1/4
Gov't Lot _____ County Gooding
Lat _____ Long _____
Address of Well Site 2175 HWY 46 1/4 mi.
City Gooding

(Give at least name of road + Distance to Road or Landmark)
Lt. _____ Blk. _____ Sub. Name _____

4. USE:

- ☐ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☒ Other livestock

5. TYPE OF WORK: check all that apply (Replacement etc.)

- ☐ New Well ☐ Modify ☐ Abandonment ☒ Other replacement

6. DRILL METHOD:

- ☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES:

Seal/Filter Pack			AMOUNT		METHOD
Material	From	To	Sacks or Pounds		
bentonite	0	19	200 lbs.	dry pour	

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+1	19	.250	steel	☒	☐	☒	☐
5"	15	177	.188	steel	☐	☒	☒	☐

Length of Headpipe 1' Length of Tailpipe _____

9. PERFORATIONS/SCREENS:

- ☐ Perforations Method _____
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

240 ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or control devices: well cap

11. WELL TESTS:

☐ Pump	☐ Bailer	☐ Air	☐ Flowing Artesian
Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. <85 Bottom hole temp. <85

Water Quality test or comments: _____
Depth first Water Encounter _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water
				Y N
8	0	3	top soil	
8	3	19	black lava	
6	19	44	black lava	
6	44	61	red & black ash	
6	61	76	medium hard black lava	
6	76	108	black lava	
6	108	109	broken lava	
6	109	111	black lava	
8	111	112	cravice	
6	112	131	hard lava	
6	131	139	cinders	
6	139	144	hard lava	
6	144	162	soft broken lava & cinders	
6	162	204	hard lava	
6	204	214	medium hard lava & breaks	
6	214	234	hard lava	
6	234	239	medium hard lava	
6	239	240	broken lava	X
6	240	252	hard lava	
6	252	257	medium hard lava & breaks	X
6	257	274	hard lava	
6	274	281	medium hard lava & breaks	X
6	281	285	medium hard lava	

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OCT 16 2002

Department of Water Resources
Southern Region

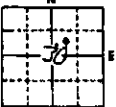
Completed Depth 285' (Measurable)
Date: Started 8/27/2002 Completed 8/27/2002

13. DRILLER'S CERTIFICATION:

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Eaton Drilling & pump Service, Inc. Firm No. 26
Firm Official [Signature] Date 9/2/2002
and [Signature]
Driller or Operator [Signature] Date 9/2/2002
(Sign once if Firm Official & Operator)

STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORTUSE TYPEWRITER OR
BALLPOINT PENState law requires that this report be filed with the Director, Department of Water Resources
within 30 days after the completion or abandonment of the well.

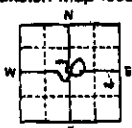
1. WELL OWNER Name <u>Fran K Crossen</u> Address <u>3451 AS 1800 Ellendell Id</u> Drilling Permit No. <u>36 93-0218</u> Water Right Permit No. _____	7. WATER LEVEL Static water level <u>70</u> feet below land surface. Flowing? ☐ Yes ☒ No G.P.M. flow _____ Artesian closed-in pressure _____ p.s.i. Controlled by: ☐ Valve ☐ Cap ☐ Plug Temperature <u>25</u> °F. Quality _____ Describe artesian or temperature zones below.																																																																																																				
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5. WELL CONSTRUCTION Casing schedule: ☒ Steel ☐ Concrete ☐ Other _____ <table border="1" style="width:100%"><thead><tr><th>Thickness</th><th>Diameter</th><th>From</th><th>To</th></tr></thead><tbody><tr><td><u>2</u> inches</td><td><u>6</u> inches</td><td><u>1</u> feet</td><td><u>19</u> feet</td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td><td> </td></tr></tbody></table> Was casing drive shoe used? ☐ Yes ☒ No Was a packer or seal used? ☐ Yes ☒ No Perforated? ☐ Yes ☒ No How perforated? ☐ Factory ☐ Knife ☐ Torch ☐ Gun Size of perforation? _____ inches by _____ inches <table border="1" style="width:100%"><thead><tr><th>Number</th><th>From</th><th>To</th></tr></thead><tbody><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr></tbody></table> Well screen installed? ☐ Yes ☒ No Manufacturer _____ Type _____ Top Packer or Headpipe _____ Bottom of Tailpipe _____ Diameter _____ Slot size _____ Set from _____ feet to _____ feet Diameter _____ Slot size _____ Set from _____ feet to _____ feet Gravel packed? ☐ Yes ☒ No ☐ Size of gravel _____ Placed from _____ feet to _____ feet Surface seal depth <u>19'</u> Material used in seal: ☐ Cement grout ☒ Bentonite ☐ Puddling clay ☐ _____ Sealing procedure used: ☐ Slurry pit ☐ Temp. surface casing ☒ Overbore to seal depth Method of joining casing: ☐ Threaded ☐ Welded ☐ Solvent Weld ☐ Cemented between strata Describe access port <u>Sanitary Well Cap</u>	Thickness	Diameter	From	To	<u>2</u> inches	<u>6</u> inches	<u>1</u> feet	<u>19</u> feet													Number	From	To										RECEIVED AUG 10 1993 Department of Water Resources																																																																				
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STATE OF IDAHO
DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

RECEIVE

FEB 24 1993

USE TYPEWRITER OR
BALLPOINT PENState law requires that this report be filed with the Director, Department of Water Resources
within 30 days after the completion or abandonment of the well.

1. WELL OWNER Name <u>Faul-Kner Land+Livestock</u> Address <u>1989 S 1875 E Gooding</u> Drilling Permit No. <u>37-92-S-138-000</u> Water Right Permit No. _____		7. WATER LEVEL <u>248</u> Static water level <u>248</u> feet below land surface. Flowing? ☐ Yes ☒ No G.P.M. flow _____ Artesian closed-in pressure _____ p.s.i. Controlled by: ☐ Valve ☐ Cap ☐ Plug Temperature <u>65</u> °F. Quality _____ Describe artesian or temperature zones below.																																																																																																																	
2. NATURE OF WORK ☒ New well ☐ Deepened ☐ Replacement ☐ Well diameter increase ☐ Modification ☐ Abandoned (describe abandonment or modification procedures such as liners, screen, materials, plug depths, etc. in lithologic log, section 9.)		8. WELL TEST DATA ☐ Pump ☐ Bailer ☐ Air ☐ Other _____ <table border="1"><thead><tr><th>Discharge G.P.M.</th><th>Pumping Level</th><th>Hours Pumped</th></tr></thead><tbody><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr><tr><td> </td><td> </td><td> </td></tr></tbody></table>		Discharge G.P.M.	Pumping Level	Hours Pumped																																																																																																													
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3. PROPOSED USE ☒ Domestic ☐ Irrigation ☐ Monitor ☐ Industrial ☐ Stock ☐ Waste Disposal or Injection ☐ Other _____ (specify type)		9. LITHOLOGIC LOG <u>103808</u> <table border="1"><thead><tr><th rowspan="2">Bore Diam.</th><th colspan="2">Depth</th><th rowspan="2">Material</th><th colspan="2">Water</th></tr><tr><th>From</th><th>To</th><th>Yes</th><th>No</th></tr></thead><tbody><tr><td>8</td><td>0</td><td>4</td><td>Top Soil</td><td></td><td>X</td></tr><tr><td></td><td>4</td><td>24</td><td>Gray Lm.</td><td></td><td></td></tr><tr><td></td><td>24</td><td>52</td><td>Rock pt Cinders</td><td></td><td></td></tr><tr><td></td><td>52</td><td>69</td><td>Br Lm.</td><td></td><td></td></tr><tr><td></td><td>69</td><td>87</td><td>Red + Br Cinders</td><td></td><td></td></tr><tr><td></td><td>87</td><td>97</td><td>Br Lm.</td><td></td><td></td></tr><tr><td></td><td>97</td><td>147</td><td>Br Clay</td><td></td><td></td></tr><tr><td></td><td>147</td><td>150</td><td>Br Lm.</td><td></td><td></td></tr><tr><td></td><td>150</td><td>152</td><td>Soft broken in Art. Lm.</td><td></td><td></td></tr><tr><td></td><td>152</td><td>158</td><td>Claystone</td><td></td><td></td></tr><tr><td></td><td>158</td><td>170</td><td>Hard</td><td></td><td></td></tr><tr><td></td><td>170</td><td>210</td><td>Hard Cinders</td><td></td><td></td></tr><tr><td></td><td>210</td><td>217</td><td>Soft broken Lm.</td><td></td><td></td></tr><tr><td></td><td>217</td><td>243</td><td>Hard</td><td></td><td></td></tr><tr><td></td><td>243</td><td>249</td><td>Soft bl Lm.</td><td></td><td>X</td></tr><tr><td></td><td>249</td><td>250</td><td>Claystone</td><td></td><td>X</td></tr><tr><td></td><td>250</td><td>280</td><td>Hard Lm.</td><td></td><td></td></tr></tbody></table>		Bore Diam.	Depth		Material	Water		From	To	Yes	No	8	0	4	Top Soil		X		4	24	Gray Lm.				24	52	Rock pt Cinders				52	69	Br Lm.				69	87	Red + Br Cinders				87	97	Br Lm.				97	147	Br Clay				147	150	Br Lm.				150	152	Soft broken in Art. Lm.				152	158	Claystone				158	170	Hard				170	210	Hard Cinders				210	217	Soft broken Lm.				217	243	Hard				243	249	Soft bl Lm.		X		249	250	Claystone		X		250	280	Hard Lm.		
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6. LOCATION OF WELL Sketch map location must agree with written location.  Subdivision Name _____ Lot No. _____ Block No. _____ County <u>Gooding</u> Address of Well Site <u>14 mile W Shoshone Rd</u> (give at least name of road) <u>NE 1/4 Sec. 30, T. 15, R. 15, E. 1/4 or W</u>																																																																																																																			
11. DRILLER'S CERTIFICATION I/We certify that all minimum well construction standards were complied with at the time the rig was removed. Firm Name <u>Eaton Drilling</u> Firm No. <u>26</u> Address <u>Wendell</u> Date <u>9-4-92</u> Signed by Drilling Supervisor <u>Dave Luby</u> and <u>[Signature]</u> (Operator) <u>[Signature]</u> (if different than the Drilling Supervisor)																																																																																																																			

Office Use Only

Inspected by _____

Typ _____ Rgs _____ Sec _____

_____ 144 _____ 144 _____ 144

Lat : : Long : :

2. OWNER:
Name Faukner Land and Livestock
Address 1987 E 1875 S
City Goodland State KS Zip 66730

Sketch map location must agree with written location.

Map grid showing Township 45 North, Range 15 East, Section 30. The section is marked with an 'X'.

Top. 45 North ☐ or South ☒
 Rge. 15 East ☒ or West ☐
 Sec. 30 1/4 NE 1/4 SE 1/4
 Gov't Lot _____
 Lot _____
 Address of Well Site Shooting Rd
2300 S 4 mi W up rd City Boodiny
 (Note: If exact location of well is unknown, use nearest or approximate location) North

Sub. Name _____

4. USE: ☒ Domestic ☐ Municipal ☐ Monitor ☐ Injection
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK-check all that apply (Replacement etc.)
☐ New Well ☐ Modify ☒ Abandonment ☐ Other _____

6. DRILL METHOD: ☐ Air Rotary ☐ Cable ☐ Mud Rotary ☒ Other 11

7. SEALING PROCEDURES:

Self-Flair Pack			AMOUNT Galls or Pounds	METHOD
Material	From	To		
Enviro-pac Sentriflo	156	0	36	dry pack

Was drive shoe used? ☐ Y ☐ N Shoe Dept(s) _____
Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gage	Material	Oxide	Linear	Welded	Threaded
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS:

☐ Perforations Method _____

☐ Screens Screen Type _____

From	To	Est No	Number	Character	Initial	Qty	Unit
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

_____ ft. below ground Artesian pressure _____ ft.
Depth flow encountered _____ ft. Describe access port or control device: _____

11. WELL TESTS:

☐ Pump	☐ Blower	☐ Air	☐ Flaming Arterial
Yield gal./min.	Downdown	Pumping Level	Time

Water Temp. _____ Bottom hole temp. _____
 Water Quality test or comment: _____
 Depth first Water Encounter _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Date	To	Remarks: Lithology, Water Quality & Temperature	Y	N
		SCANNED DEC 9 2005		
		Absence well well cased in bottom to 156' 56 bags		
		RECEIVED DEC 9 2 2005 Department of Water Resources		
		RECEIVED NOV 22 2005 Department of Water Resources Southern Region		
Completed Depth:			(Measurable)	
Date Started	7-18-05		Completed	9-18-05

13. DRILLER'S CERTIFICATION:

13. We certify that all minimum wall construction standards were complied with at the time the sign was removed.

Company Name Eaton Division Firm No. 26
Firm Official Ray Nelson Date 9-18-05
and _____
Driver or Operator _____ Date _____
(Fill in only if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORTUse Typewriter
or
Ball Point Pen

093254

1. DRILLING PERMIT NO. 37-96-S-0003-000
Other IDWR No. _____2. OWNER:
Name Harold Olson
Address 1628 S 1750 E
City Gooding State Idaho Zip 83330

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

N		Twp. <u>6</u>		North ☐ or South ☒
W		Rge. <u>15</u>		East ☒ or West ☐
E		Sec. <u>20</u>		1/4 SW 1/4 NW 1/4
S		Gov't Lot _____		County <u>Gooding</u>

Address of Well Site 2174 ST Hwy. 46 City Gooding
(Give at least name of road - Distance to Road or Landmark)

Li. _____ Bldg. _____ Sub. Name _____

4. PROPOSED USE:

☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK

☒ New Well ☐ Modify or Repair ☐ Replacement ☐ Abandonment

6. DRILL METHOD

☐ Mud Rotary ☒ Air Rotary ☐ Cable ☐ Other _____

7. SEALING PROCEDURES

SEAL/FILTER PACK		AMOUNT		METHOD
Material	From	To	Bags or Pounds	
<u>Bentonite</u>	<u>0</u>	<u>180</u>	<u>2200</u>	

Was drive shoe used? ☒ Y ☐ N Shoe Depth(e) _____
Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
<u>6</u>	<u>1</u>	<u>179</u>	<u>25</u>	<u>Steel</u>	☒	☐	☒	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe 1 Length of Tailpipe _____

9. PERFORATIONS/SCREENS

☐ Perforations Method _____
☐ Screens Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Liner
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

248 ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or control devices: Well cap

11. WELL TESTS:

☐ Pump ☐ Bailor ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. - 85° Bottom hole temp. _____

Water Quality test or comments: _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Y	N
8	0	4	Top So.		
	4	27	Red Ash		
	27	43	Red Ash		
	43	69	Red Ash		
	69	71	Clay		
	71	92	Red Ash		
	92	94	Cinders		
	94	109	Red Ash		
	109	110	Gravel no Returns		
	110	116	Hard		
	116	124	Med Hard		
	124	133	Cinders Loose		
	133	150	Hard		
	150	159	Cinders Loose		
	159	164	Hard		
	164	168	Cinders Loose		
	168	174	Broken Lava		
	174	179	Hard		
6	179	221	Hard		
	221	223	Broken		
	223	228	Hard		
	228	234	Med Hard + breaks		X
	234	256	Hard		
	256	259	Broken		X
	259	265	Med Hard		
	265	268	Broken		X
	268	279	Hard		
	279	286	Cinders Loose		X
	286	289	Hard		
	289	292	Hard		X

Completed Depth 282 (Measurable)
Date Started 2-11-96 Completed 2-12-96

13. DRILLER'S CERTIFICATION

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Firm Name Eaton Drilling Firm No. 26
Firm Official Ray Miller Date 2-26-96
and
Supervisor or Operator Dave Cook Date 2-22-96
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

Basin 37
App 870465
Per 775224

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only			
Inspected by			
Twp	Rge	Sec	
1/4	1/4	1/4	
Lat	:	Long	:

1. WELL TAG NO. D0016938

DRILLING PERMIT NO. _____

Other IDWR No. _____

2. OWNER:

Name Polly Ann Huggins

Address P.O. Box 382

City Gooding State ID Zip 83330

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

N S	Twp. <u>6</u>	North ☐ or South ☒
	Rge. <u>15</u>	East ☒ or West ☐
	Sec. <u>20</u>	1/4 <u>NW</u> 1/4 <u>NW</u> 1/4
	Gov't Lot _____	County <u>Gooding</u>
Lat. _____		Long. _____
Address of Well Site <u>1905 E. 2100 S.</u>		
City <u>Gooding</u>		

(Give at least name of road + Distance to Road or Landmark)
Lt. _____ Blk. _____ Sub. Name _____

4. USE:

☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK: check all that apply (Replacement etc.)

☒ New Well ☐ Modify ☐ Abandonment ☒ Other replacement

6. DRILL METHOD:

☒ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES:

Seal/Filter Pack		AMOUNT		METHOD
Material	From To	Sacks or Pounds		
bentonite	0 18	350 lbs.		dry pour

Was drive shoe used? ☐ Y ☒ N Shoe Depth(s) _____

Was drive shoe seal tested? ☐ Y ☒ N How? _____

8. CASING/LINER:

Diameter	From To	Gauge	Material	Casing	Liner	Welded	Threaded
6"	+2 18	.250	steel	☒	☐	☐	☐
				☐	☐	☐	☐

Length of Headpipe 1' Length of Tailpipe _____

9. PERFORATIONS/SCREENS:

☐ Perforations Method _____
☐ Screens Screen Type _____

From To	Slot Size	Number	Diameter	Material	Casing	Liner
					☐	☐
					☐	☐
					☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

237 ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or control devices: well cap

11. WELL TESTS:

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. <85 Bottom hole temp. <85

Water Quality test or comments: _____ Depth first Water Encounter 238'

12. LITHOLOGIC LOG: (Describe repairs or abandonment)

Bore Dia.	From	To	Remarks: Lithology, Water Quality & Temperature	Water
8	0	6	top soil	
8	6	18	hard lava	
6	18	37	medium hard lava	
6	37	40	red ash & silt	
6	40	60	medium lava	
6	60	61	cinders	
8	61	78	medium red lava	
6	78	84	soft lava, ash & cinders	
6	84	92	medium lava	
6	92	94	soft broken lava & cinders	
6	94	98	medium lava	
6	98	100	crevice	
6	100	135	medium red lava	
6	135	141	red lava & cinders	
6	141	198	medium red lava	
6	198	201	soft lava & cinders	X
6	201	238	medium to soft brown lava	X
6	238	241	soft lava & cinders	X
6	241	275	medium lava	
6	275	281	cinders & soft lava	X
6	281	298	medium lava	
6	298	300	broken lava, cinders & talc	X

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APR 18 2002

Department of Water Resources
Southern Region

Completed Depth 300' (Measurable)
Date: Started 3/14/2002 Completed 3/14/2002

13. DRILLER'S CERTIFICATION:

I/We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Eaton Drilling & pump Service, Inc. Firm No. 26
Firm Official [Signature] Date 3/14/2002
and
Driller or Operator [Signature] Date 3/14/2002
(Sign once if Firm Official & Operator)

FORWARD WHITE COPY TO WATER RESOURCES

IDAHO DEPARTMENT OF WATER RESOURCES
WELL DRILLER'S REPORT

Office Use Only
Inspected by _____
Twp _____ Rge _____ Sec _____
_____ 1/4 _____ 1/4 _____ 1/4
Lat : : Long: : :

1. WELL TAG NO. D 347084
 DRILLING PERMIT NO. 970117
 Other IDWR No. 775228

2. OWNER:

Name Polly Ann Higgins
Address _____
City _____ State _____ Zip _____

3. LOCATION OF WELL by legal description:

Sketch map location must agree with written location.

N
 Twp. 6S North ☐ or South ☒
 Rge. 15 East ☒ or West ☐
 Sec. 20 1/4 NE 1/4 NW 1/4
 Gov't Lot _____ 10 acres County Gooding 40 acres 160 acres
 Lat: _____ Long: _____
 Address of Well Site 1405 E. 2100S
 City Gooding
 (100' at least across all road - Distance to Road or Landmark)

(Give at least name of road + distance to Road or Landmark)

Lt. _____ Blk. _____ Sub. Name _____

4. USE:

☒ Domestic ☐ Municipal ☐ Monitor ☐ Irrigation
☐ Thermal ☐ Injection ☐ Other _____

5. TYPE OF WORK check all that apply (Replacement etc.)

☐ New Well ☐ Modify ☒ Abandonment ☐ Other _____

6. DRILL METHOD

☐ Air Rotary ☐ Cable ☐ Mud Rotary ☐ Other _____

7. SEALING PROCEDURES

7. SEAL/FILTER PROCEDURES				METHOD
SEAL/FILTER PACK			AMOUNT	
Material	From	To	Sacks or Pounds	
3/8" enviroplus	8	239	62 bags	dry pour

Was drive shoe used? ☐ Y ☐ N Shoe Depth(s) _____
Was drive shoe seal tested? ☐ Y ☐ N How? _____

8. CASING/LINER:

Diameter	From	To	Gauge	Material	Casing	Liner	Welded	Threaded
					☐	☐	☐	☐
					☐	☐	☐	☐
					☐	☐	☐	☐

Length of Headpipe _____ Length of Tailpipe _____

9. PERFORATIONS/SCREENS

Perforations _____ Method _____
Screens _____ Screen Type _____

From	To	Slot Size	Number	Diameter	Material	Casing	Lines
						☐	☐
						☐	☐
						☐	☐

10. STATIC WATER LEVEL OR ARTESIAN PRESSURE:

notes No. 1 ft. below ground Artesian pressure _____ lb.
Depth flow encountered _____ ft. Describe access port or
control devices: _____

11. WELL TESTS:

☐ Pump ☐ Bailer ☐ Air ☐ Flowing Artesian

Yield gal./min.	Drawdown	Pumping Level	Time

Water Temp. _____ Bottom hole temp. _____

Water Quality test or comments: _____

12. LITHOLOGIC LOG: (Describe repairs or abandonment) Water

[illegible]

Completed _____ Depth 239' _____ (Measurable)
Date: Started 3/21/02 Completed 3/21/02

13. DRILLER'S CERTIFICATION

13. DRILLER'S CERTIFICATION

We certify that all minimum well construction standards were complied with at the time the rig was removed.

Company Name Estor / Firm No. 26

Firm Official Las Pulsoni Date 3-21-02

and
Driller or Operator _____ Date _____

FORWARD WHITE COPY TO WATER RESOURCES

FORWARD WHITE COPY TO WATER RESOURCES

EXHIBIT 6

GROUNDWATER QUALITY IN THE DIRECT VICINITY OF PROPOSED TRUCK WASH

Project: Diamond A Livestock - Truck Wash
 Location of proposed facilities: T6S, R15E, Section 19
 Parameter: Nitrate-nitrogen
 Data sources: USGS, State of Idaho
 Data criteria: Recent test data (~1990 or later), preferably multiple samples.

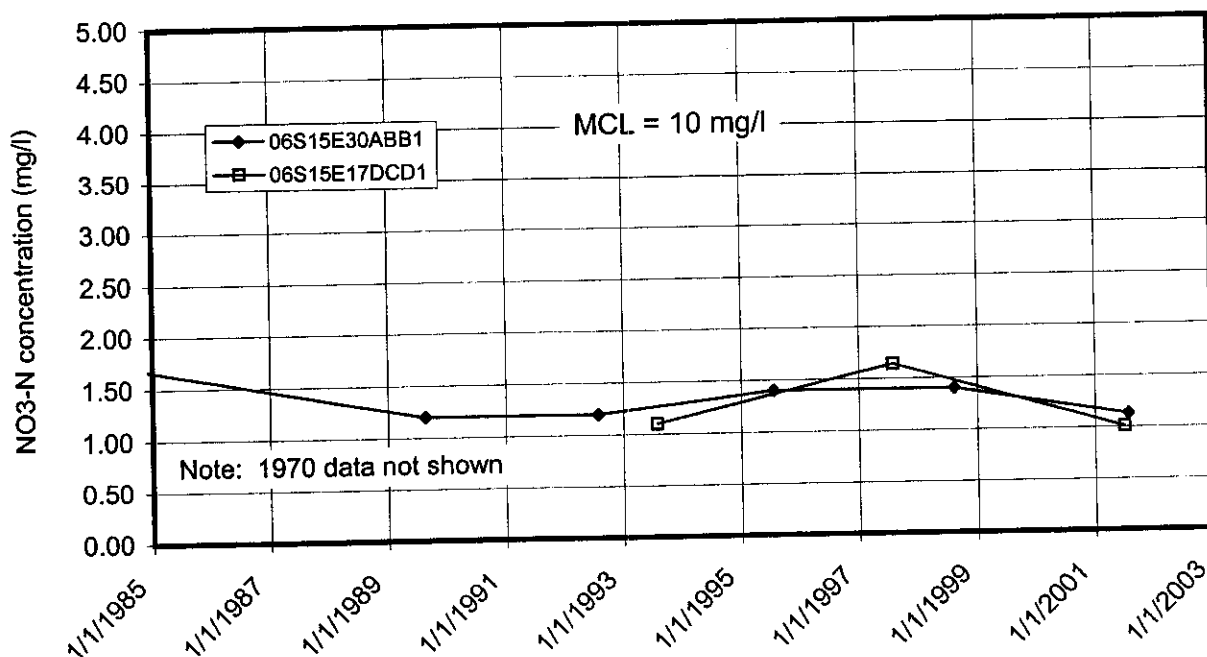
Two wells within approx. 3 miles of the site have one or more data points.

Well: 06S15E30ABB1
 Irrigation well on site

Well: 06S15E17DCD1
 Approx. 1.25 miles NE of site (up-gradient)

Date	NO3-N
6/2/1970	4.70
8/4/1970	3.10
8/18/1989	1.20
7/29/1992	1.20
7/24/1995	1.40
8/10/1998	1.40
7/25/2001	1.13

Date	NO3-N
7/30/1993	1.10
7/30/1997	1.64
7/2/2001	1.01



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MAY 08 2006

DEPT. OF WATER RESOURCES
SOUTHERN REGION

Robert E. Williams
IDAHO STATE BAR NO. 1693
FREDERICKSEN, WILLIAMS, MESERVY & LOTHSPREICH, LLP
117 South Adams Street
P.O. Box 168
Jerome, ID 83338
Telephone: (208) 324-2303
Facsimile: (208) 324-3135

Attorney for Applicant Diamond A. Livestock, Inc.

BEFORE THE DEPARTMENT OF WATER RESOURCES

OF THE STATE OF IDAHO

IN THE MATTER OF APPLICATIONS FOR TRANSFER NOS. 72177 & 72178	
DIAMOND A. LIVESTOCK, INC.	SOURCE: Groundwater
Applicant	County: Gooding
HEIDI OLSON, POLLY ANN HUGGINS, NICOLE REED, STEVE PAULIN, LEANN REED, & CHRISTINE DAVIS,	NOTICE OF SERVICE
Protestants	

NOTICE IS HEREBY GIVEN that Applicant's Responses to LeAnn Reed's Interrogatories, Polly Ann Huggin's Interrogatories and Heidi Olson's Interrogatories were served upon the said Protestants on the 5th day of May, 2006, by mailing true and correct copies thereof as follows:

IDWR Document Repository
PO Box 83720
Boise ID 83720-0098

Allen D. Merritt
IDWR - Southern Region
1341 Fillmore St Ste 200
Twin Falls ID 83301

Gary D. Slette
Robertson & Assoc
PO Box 1906
Twin Falls, Idaho 83303-1906

Heidi Olson
2154 B Hwy 46
Gooding, Idaho 83330

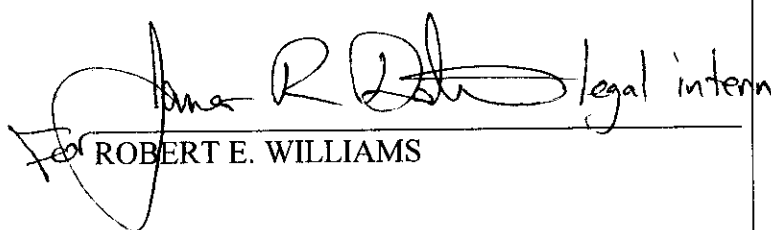
Polly Ann Huggins
PO Box 382
Gooding, Idaho 83330

Nicole Reed
Le Ann Reed
2094 Hwy 46
Gooding, Idaho 83330

Steve Paulin
2185 S 1800 E
Gooding, Idaho 83330

Christine Davis
PO Box 386
Hagerman, Idaho 83332

FREDERICKSEN, WILLIAMS, MESERVY & LOTH SPEICH, LLP

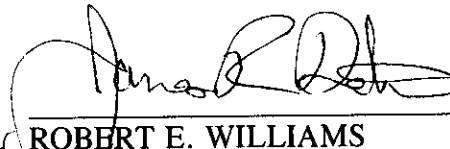

For ROBERT E. WILLIAMS

CERTIFICATE OF SERVICE

I HEREBY CERTIFY That on this 5th day of May, 2006, I served a true and correct copy of the foregoing document on the person(s) whose names and addresses appear below by the method indicated:

IDWR Document Repository PO Box 83720 Boise ID 83720-0098	☒ U.S. Mail, postage prepaid ☐ Hand Delivery ☐ Court Folder ☐ Facsimile ☐ Federal Express
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Allen D. Merritt IDWR – Southern Region 1341 Fillmore St Ste 200 Twin Falls ID 83301	☒ U.S. Mail, postage prepaid ☐ Hand Delivery ☐ Court Folder ☐ Facsimile ☐ Federal Express
Gary D. Slette Robertson & Assoc PO Box 1906 Twin Falls, Idaho 83303-1906	☒ U.S. Mail, postage prepaid ☐ Hand Delivery ☐ Court Folder ☐ Facsimile ☐ Federal Express
Heidi Olson 2154 B Hwy 46 Gooding, Idaho 83330	☒ U.S. Mail, postage prepaid ☐ Hand Delivery ☐ Court Folder ☐ Facsimile ☐ Federal Express
Polly Ann Huggins PO Box 382 Gooding, Idaho 83330	☒ U.S. Mail, postage prepaid ☐ Hand Delivery ☐ Court Folder ☐ Facsimile ☐ Federal Express
Nicole Reed Le Ann Reed 2094 Hwy 46 Gooding, Idaho 83330	☒ U.S. Mail, postage prepaid ☐ Hand Delivery ☐ Court Folder ☐ Facsimile ☐ Federal Express
Steve Paulin 2185 S 1800 E Gooding, Idaho 83330	☒ U.S. Mail, postage prepaid ☐ Hand Delivery ☐ Court Folder ☐ Facsimile ☐ Federal Express
Christine Davis PO Box 386 Hagerman, Idaho 83332	☒ U.S. Mail, postage prepaid ☐ Hand Delivery ☐ Court Folder ☐ Facsimile ☐ Federal Express

for  legal intern
ROBERT E. WILLIAMS